September 4, 2013

Dr. Russell Kirby, Chair
Tampa Graduate Council
University of South Florida

Dear Dr. Kirby:

The Department of Computer Science and Engineering is submitting a New Graduate Degree Program proposal in order to be able to change the CIP code of its current Master of Science in Computer Science program, a program that has been part of the department since 1980.

According to the submission requirements, this letter is to endorse such proposal and confirm that the College of Engineering will continue to provide the necessary resources to support the program.

Please do not hesitate to contact me if you need any further information.

Sincerely,

[Signature]

Rafael A. Perez
Professor and Interim Dean
College of Engineering
University of South Florida
New Graduate Degree Program Proposal Information Form

New Degree Program Proposals require the completion of this form as well as the following items. Make certain to you match your actual proposal with the data you provide below. Routing is below; For USF-Tampa, one copy of the entire signed packet is emailed to cdh@usf.edu and one paper copy is sent to the Graduate School in ALN226.

- Full-proposal, following the required format (http://usfweb2.usf.edu/assessment/new%20program.shtml)
- Tables for Full-Proposal (http://usfweb2.usf.edu/assessment/new%20program.shtml)
- A letter from the College Dean indicating how the College will provide all the resources needed to support the new program (this may be scanned and emailed)
- Electronic Copies of the faculty vitae

**PROGRAM INFORMATION**

<table>
<thead>
<tr>
<th>CIP Code*</th>
<th>Degree Designation (Master of Arts, etc.)</th>
<th>Degree Code (M.A., M.U.R.P., Ph.D., etc.)</th>
<th>Program (Major) Name (Biology, English, Public Health, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0701</td>
<td>Master of Science in Computer Science</td>
<td>M.S.</td>
<td>Computer Science</td>
</tr>
</tbody>
</table>

*Are any other USF Programs offered under this CIP code? No [ ] Yes [□] N/A

Does this Program have formal Concentration areas? No [□] Yes [ ] N/A

**USF Institution**

<table>
<thead>
<tr>
<th>USF Tampa</th>
<th>Engineering</th>
<th>School (if applicable)</th>
<th>Department (Or equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>拟建日期 for first Admissions</td>
<td>Major Research Areas (Keywords used for search engine)</td>
<td>Computer Science and Engineering</td>
<td></td>
</tr>
</tbody>
</table>


**Program Description:**
The Department of Computer Science and Engineering offers a thesis and non-thesis option for the degree of Master of Science in Computer Science (M.S.C.S.). The thesis option requires students to pursue a more concentrated range of topics. The non-thesis option offers students some experience in many areas of computer science. There is considerable freedom in the choice of the courses.
The breadth of subjects which are part of computer science together with the immense diversity of its applications, make it imperative that students in the Master's program maintain close contact with the Graduate Program Director, or, if choosing the thesis option, with their major professor in order to achieve a coherent plan of study directed towards a specific goal. In particular, election of courses should only be made with prior consultation and approval of the Major Professor or the Graduate Program Director.

Helpful Resources:

**Degree Designation and Degree Codes:** Master of Science in Computer Science (M.S.C.S.)

**Program (Major):** Computer Science

**CIP Code:** 11.0701
GRADUATE ADMISSION REQUIREMENTS

<table>
<thead>
<tr>
<th>Admission Deadlines:</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Students</td>
<td>June 1</td>
<td>October 15</td>
<td>No admit</td>
</tr>
<tr>
<td>International Students Living Outside the U.S.</td>
<td>May 1</td>
<td>September 15</td>
<td>No admit</td>
</tr>
</tbody>
</table>

If admission applications are only accepted in one semester, put “none” in the other semester boxes.

University Minimums:

1. An Applicant must have one of the following:
   - A bachelor's degree from a regionally accredited institution and satisfying at least one of the following criteria:
     - "B" average or better in all work attempted while registered as an undergraduate student working for a degree, or
     - "B" average or better in all work attempted while registered as an upper division undergraduate student working for a baccalaureate degree.
   - A bachelor's degree from a regionally accredited institution and a previous graduate degree from a regionally accredited institution.
   - The equivalent bachelors and/or graduate degrees from a foreign institution.

2. Submission of standardized test scores is at the discretion of the graduate program.

3. All specific and additional requirements of the graduate program to which admission is sought (including requirements to submit standardized test scores) consistent with the above Statement of Principles. (See Catalog for Statement of Principles)

Programs must meet the minimum University Requirements. However, Programs may have additional or more restrictive requirements. Note that the Program Admission requirements apply to all students, including those in formal Concentrations.

Applicants must meet University requirements (see Graduate Admissions) as well as requirements listed below.

The GRE will be waived for M.S.-degree applicants with an undergraduate degree from an ABET-accredited United States university.

- The GRE is required for all Ph.D. and M.S. applicants who apply for TA, RA, GA, or Fellowships. The median GRE scores of recently admitted students include 161 on the Quantitative portion and a Verbal Total of 150. If a candidate is admitted to the M.S. program and later decides to join the Ph.D. program, the GRE requirement must be met by the candidate as part of the application process.
- Minimum grade point average (GPA) of "B" (or equivalent) for all coursework completed during the last two years of undergraduate program.
- Minimum TOEFL score for international students is 550 (paper-based total) or 213 (computer-based total) or 79 (internet-based total).
- Three letters of recommendation.
- Statement of purpose.
- The applicant must also have mathematical preparation equivalent to that obtained from courses in Calculus through Differential Equations; knowledge of computer science and computer engineering, including logic design, computer architecture, data structure, operating systems and algorithms. The majority of students accepted to the Program possess an undergraduate degree in Computer Science, Computer Engineering, Electrical Engineering, or Mathematics. However, students who hold an undergraduate degree in a related field are encouraged to apply.
- For teaching assistantship consideration, applicants from non-English speaking countries must take and pass the speaking component of the internet-based TOEFL with a score of 26 or above.

<table>
<thead>
<tr>
<th>DOES THIS PROGRAM REQUIRE A HIGHER MINIMUM GPA?</th>
<th>Yes</th>
<th>No</th>
<th>If Yes, what is it?</th>
<th>See admission requirements above</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DOES THIS PROGRAM REQUIRE A GRE?</th>
<th>Yes</th>
<th>No</th>
<th>If Yes, what are the preferred percentiles?</th>
<th>GRE-Verbal 150</th>
<th>GRE-Quantitative 161</th>
<th>GRE-Analytical</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DOES THIS PROGRAM REQUIRE OTHER TESTS?</th>
<th>Yes</th>
<th>No</th>
<th>If Yes, what is it?</th>
<th>TOEFL for international students</th>
</tr>
</thead>
</table>

If yes, list the tests and required/preferred scores

Minimum TOEFL score for international students is 550 (paper-based total) or 213 (computer-based total) or 79 (internet-based total).

<table>
<thead>
<tr>
<th>DOES THIS PROGRAM REQUIRE ANY OF THE FOLLOWING?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews / Auditions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Statement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing Sample</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

If Yes, explain requirements.
DEGREE PROGRAM REQUIREMENTS (Curriculum)

Glossary for the required information:

Program Name
Master of Science in Computer Science (M.S.C.S.)

Total Minimum Program Hours
30 credit hours.

Program Core Requirements
Successful completion of three core graduate-level courses is required. For non-thesis option, students must make a grade of "B" or higher in these core courses:
- COP 6611 Operating Systems
- EEL 6764 Principles of Computer Architecture
- COT 6405 Introduction to the Theory of Algorithms

Concentration(s) (if any)
No concentrations are offered.

Field of Study/Tracks, etc (if any)
No field of study or track is offered.

Elective Requirements
Thesis option students should pick 15 hours and non-thesis option should pick 21 hours from the list of available graduate elective courses in consultation with the Graduate Program Director or individual advisor.

Comprehensive/Qualifying Exam Requirements
B or better in required courses for non-thesis option students and defend and pass the thesis for thesis-option students.

Thesis/Non-Thesis
Program offers thesis and non-thesis options. Thesis is worth 6 credit hours from the pool of elective courses.

Thesis/Dissertation Hour Requirement
The program requires a MINIMUM of 6 credit hours of thesis.

Thesis/Dissertation Requirements
Thesis-option students must appoint a thesis evaluation committee consisting of at least three committee members being the major or co-major professor from the Department of Computer Science and Engineering.

Internship Requirements (if any)
The Program does not require an internship but an Internship course is available for credit. Students must have completed at least 18 graduate level credits and have a minimum major and cumulative GPA of 3.0 to be eligible to complete an internship. The internship MUST be related the field of study and work experience must be conducted under approved supervision. In order to request approval for this elective you will need the following:

1. Letter of Offer on Company Letterhead
2. Completed Graduate Contract selecting Internship
3. CPT Authorization Form (for international students only)

Other Requirements
None.
## DEGREE PROGRAM REQUIREMENTS (Curriculum)

**DEGREE AND PROGRAM NAME:** Master of Science in Computer Science

<table>
<thead>
<tr>
<th>TOTAL MINIMUM PROGRAM HOURS</th>
<th>30</th>
</tr>
</thead>
</table>

### PROGRAM CORE REQUIREMENTS

- **Total Core Hours Required:** 9
- Successful completion of the following three core graduate-level courses: COP 6611 Operating Systems, EEL 6764 Principles of Computer Architecture and COT 6405 Introduction to the Theory of Algorithms

<table>
<thead>
<tr>
<th>CONCENTRATION(s)</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concentration Name:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Concentration Requirements</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Concentration Hours Required:</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **Concentration Name:** | |
| **Concentration Requirements** | |
| **Total Concentration Hours Required:** | |

| **Fields of Study / Tracks** | |
| **Total hours for Fields of Study/Tracks:** | No fields of study or tracks available. |

| **Electives** | |
| **Total Elective Hours Required:** | 21/15 |

- List of available graduate elective courses.

| **Comprehensive/Qualifying Exam** | |
| **Total Comp/Qualifying Exam Hours Required (if any):** |  |

- B or better in required courses for non-thesis option students and defend and pass the thesis for thesis-option students

| **Non-thesis/Thesis** | |
| **Total Non-Thesis Hours Required:** | 30/24 |

| **Thesis/Dissertation** | |
| **Total Thesis/Dissertation Hours Required:** | 6 |

| **Other requirements (e.g. Internship)** | |
| **Total Other Hours Required:** | 0 |
# Routing and Approvals

Routing:
- Department (or equivalent)
- Graduate School
- Graduate Council
- APPCC (if applicable)
- ACEAC
- ACE
- BOT
- BOG (only if Doctorate)

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Full Proposal Approvals

<table>
<thead>
<tr>
<th>Name (print or type)</th>
<th>Signature</th>
<th>Action</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Name and Email</td>
<td>Dr. Miguel A. Labrador</td>
<td>[Signature]</td>
<td>9/8/13</td>
</tr>
<tr>
<td>Dept. Chair</td>
<td>Dr. Lawrence O. Hall</td>
<td>[Signature]</td>
<td>9/3/13</td>
</tr>
<tr>
<td>Curriculum Chair (e.g. Schools in CAS, COED, etc.)</td>
<td>[Signature]</td>
<td>Approve □ Disapprove</td>
<td></td>
</tr>
<tr>
<td>College Committee Chair</td>
<td>[Signature]</td>
<td>Approve □ Disapprove</td>
<td></td>
</tr>
<tr>
<td>College Dean/designee</td>
<td>Dr. Rafael Perez</td>
<td>[Signature]</td>
<td>9/9/13</td>
</tr>
</tbody>
</table>

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Concurrence Verification (If applicable – may also be attached)

| USF TPA | □ Concur □ Not Concur |
| USF SM | □ Concur □ Not Concur |
| USF POLY | □ Concur □ Not Concur |
| USF STPT | □ Concur □ Not Concur |
| Graduate Council (GC) Chair/designee | □ Approve □ Disapprove |
| Graduate School Dean/designee | □ Approve □ Disapprove |

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For Graduate School Notation Only:

| System APPCC | □ Approve □ Disapprove |
| System ACEAC | □ Approve □ Disapprove |
| BOT/ACE Workgroup | □ Approve □ Disapprove |
| BOT | □ Approve □ Disapprove |
| BOG | □ Approve □ Disapprove |

State Approval on: Effective date of Admissions: Registrar's office added to Curriculum Tables:
Board of Governors, State University System of Florida

Request to Offer a New Degree Program

University of South Florida

University Submitting Proposal

Immediately

Proposed Implementation Term

College of Engineering

Name of College(s) or School(s)

Computer Science and Engineering

Name of Department(s)/Division(s)

Computer Science

Academic Specialty or Field

Master of Science in Computer Science

Complete Name of Degree

11.0701

Proposed CIP Code

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees

President

Date

Signature of Chair, Board of Trustees

Date

Vice President for Academic Affairs

Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>Projected Enrollment (From Table 1)</th>
<th>Projected Program Costs (From Table 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
</tr>
<tr>
<td>Year 1</td>
<td>50</td>
<td>37.50</td>
</tr>
<tr>
<td>Year 2</td>
<td>50</td>
<td>37.50</td>
</tr>
<tr>
<td>Year 3</td>
<td>54</td>
<td>40.50</td>
</tr>
<tr>
<td>Year 4</td>
<td>56</td>
<td>42.00</td>
</tr>
<tr>
<td>Year 5</td>
<td>60</td>
<td>45.00</td>
</tr>
</tbody>
</table>

Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed. Tables 1 through 4 are to be included as Appendix A and not reproduced within the body of the proposals because this often causes errors in the automatic calculations.
INTRODUCTION

I. Program Description and Relationship to System-Level Goals

A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.

Preface: The program under consideration is the Master of Science in Computer Science (MSCS) program. This program has existed in the Department of Computer Science and Engineering at USF since 1980 with numerous alumni. At that time, it was assigned the CIP code 14.0901, an umbrella code used by all programs in the College of Engineering at USF. Thus, the main goal of this application is not to create a new program but to change the CIP code of an existing program. We are proposing the CIP code 11.0701, which is the CIP code used by most computer science programs in the state and around the country.

Changing the code will allow us to address two important problems:

1) Increase the number of applications and therefore the possibility of enrolling more and better students. This is because our program is not found by most search engines which utilize the CIP code as the primary search parameter.

2) Include our program in the ranking lists of computer science programs. With the current CIP code, our program is not included in the appropriate category in current rankings of graduate programs making it difficult for students to find it and compare it with other programs.

Level: The proposed degree is a graduate level Master’s program.

Emphases, including concentrations, tracks, or specializations: The MSCS program is a single program without any particular concentration, track, or specialization. The program consists of 30 credits, nine (9) of which are required core courses in hardware, software, and math that provide a solid foundation of the discipline to all students. Then, 21 additional credits are thesis, independent study, internships and elective courses that the students can take to fulfill their own educational goals. While some students take the remaining 21 credits in elective courses from different areas to acquire a broad knowledge of the discipline, others take 21 credits in very specific courses to acquire a deeper knowledge on a single area. Currently, the department offers elective courses in the areas of Computer Vision/Pattern Recognition, Biometrics, Computer Security, Distributed Computing, VLSI Design, (including low-power chips), Networks, Computer Graphics, Robotics, Databases, and AI/Data Mining.

Total number of credit hours: The MSCS degree requires 30 credit hours beyond the Bachelor’s degree.

Overall purpose, including examples of employment or education opportunities that may be available to program graduates: The degree is part of the broader area of academics known as Science, Technology, Engineering, and Math (STEM). The goal of the program is to prepare computer scientists at the Master’s level to make contributions to the productivity, competitiveness, and security of the country. Our students find employment opportunities in most sectors of the economy in Florida, locally, and around the country in the financial, security, medical, military and IT sectors. Typical positions of our graduates are software developer engineer, software architect, big data analyst, data base designer, security engineer, security analyst, network architect, network specialist, and similar. Our MS students have joined local and nationwide institutions and companies such as MOFFITT, Draper, Honeywell, SRI International, IBM, Microsoft, Intel, AMD, and many others.
B. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which specific goals the program will directly support and which goals the program will indirectly support. (See the SUS Strategic Plan at [http://www.flbog.edu/pressroom/strategicplan.php](http://www.flbog.edu/pressroom/strategicplan.php))

The Master of Science in Computer Science (MSCS) program at USF contributes to the university and SUS strategic plans in numerous ways:

**Goal 1: Strengthen quality and reputation of academic programs and universities:** The department of Computer Science and Engineering makes important contributions to increase the College’s visibility, its ranking, and the pursuit of USF towards AAU status. In 2010, the National Research Council ranked our doctoral program in Computer Science and Engineering in the upper third of the 129 programs in the discipline and the number one in the State of Florida with respect to research activity. Our MS students often advance to the Ph.D. program.

**Goal 2: Increase the number of degrees awarded in STEM and other areas of strategic emphasis:** Our continued commitment to student success produces well educated and highly skilled professionals in the STEM area, which is one of the most important strategic priorities set for the SUS. Our students graduate with knowledge in areas of high demand and priority for the state and the nation such as Computer Vision/Pattern Recognition, Biometrics, Computer Security, Distributed Computing, VLSI Design, (including low-power chips), Networks, Computer Graphics, Robotics, Databases, AI/Data Mining, and Bioinformatics.

**Goal 3: Strengthen quality and reputation of scholarship, research and innovation, increase research and commercialization activity, collaboration and external support research activity:** Our MS students play a fundamental role in our research and innovation activities. Research activities make direct contributions to science and society in the form of better products and mechanisms that at the end improve our lives, health, security, productivity, etc. Our faculty is well engaged in research projects with federal agencies such as the National Science Foundation, National Institute of Health, DARPA, Florida Department of Transportation, and others, and MS students participate in many of these research projects. The number of high impact journal publications, books, and research expenditures produced by our faculty as evaluated in the 2010 National Research Council ranking report are the best example of the reputation of scholarship, research and innovation of the Department of Computer Science and Engineering at USF.

**Goal 4: Increase community and business workforce:** Our students play a fundamental role in our innovation activities and the economic development of the region and the country. MSCS students have been employed by many local and nationwide institutions and companies. Similarly, our faculty collaborates with business and other institutions to help the community and better prepare the workforce of tomorrow.
C. If the program is to be included in an Area of Programmatic Strategic Emphasis as described in the SUS Strategic Plan, please indicate the category and the justification for inclusion.

The Areas of Programmatic Strategic Emphasis:
1. Critical Needs:
   - Education
   - Health Professions
   - Security and Emergency Services
2. Economic Development:
   - Globalization
   - Regional Workforce Demand
3. Science, Technology, Engineering, and Math (STEM)

Computer Science is a discipline that touches all three areas of programmatic strategic emphasis, as the discipline is becoming more and more embedded in all other disciplines and touches most (if not all) sectors of the economy. Currently, there is a big gap between the number of computer scientists needed to fill the available and projected job positions in the country and the number of graduates that we are producing. Therefore, education in computer science is of high importance. Education not only means graduating students but also teaching the discipline in a more engaging manner so we can attract more students, especially students coming from minority and underrepresented minority groups. Computer scientists play a crucial role in the area of computer security, an area of national priority and importance. Computer science graduates are also a very important component in the economic development of the state and the country. Our graduates are in high demand locally, nationally and internationally. All our students find well remunerated jobs even before graduation. Local companies in the financial, medical, security, transportation, software development, and military sectors are employing our graduates. Top high technology companies such as Intel, Microsoft, IBM, and others around the country have employed our graduates as well. According to the United States Department of Labor Bureau of Labor Statistics, computer programmers, computer systems analysts, database administrators, information security analysts, and similar with a bachelor’s degree in Computer Science have a median pay in the 70-80 thousand dollar range. Also, the projected number of new jobs and projected growth rate are of 50,000 or more and 20 to 28 percent, respectively. Finally, our MS CS program makes direct contributions to increasing the number of degrees awarded in STEM, an area of strategic emphasis.

D. Identify any established or planned educational sites at which the program is expected to be offered and indicate whether it will be offered only at sites other than the main campus.

The MSCS program has been offered and will continue to be offered in the Tampa campus of the University of South Florida.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.

Computer science graduates are in high demand locally, nationally, and internationally. Local companies in the financial, medical, security, transportation, software development, and military sectors are
employing our graduates. Top high technology companies such as Intel, Microsoft, IBM, and others around the country have employed our graduates as well. According to the United States Department of Labor Bureau of Labor Statistics, computer programmers, computer systems analysts, database administrators, information security analysts, and similar with a bachelor’s degree in Computer Science have a median pay in the 70-80 thousand dollar range. Also, the projected number of new jobs and projected growth rate are of 50,000 or more and 20 to 28 percent, respectively. Local companies are aggressively recruiting our students. Similarly, our faculty aggressively recruits qualified students to work on research projects with local companies and federal agencies.

B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.

Our MSCS program is in very high demand and very healthy. Since fall 2010, the number of applicants has been increasing at a rate of approximately 15% annually. In Fall 2012, we received a total of 137 applications, accepted 38, and finally enrolled 13 students. This low enrollment rate is a reflection of the quality of our program; the Department of Computer Science and Engineering at USF has always put quality before quantity. The program has been maintaining a total headcount of around 50 students for several years and graduates an average of 15 students per year. Adding the students of the Master of Science in Computer Engineering and the PhD program in Computer Science and Engineering, our graduate programs have a steady state population of around 120 students. With the change of the CIP code, we expect an increase in the number of applicants and enrolled students.

C. If substantially similar programs (generally at the four-digit CIP Code or 60 percent similar in core courses), either private or public exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). In Appendix B, provide data that support the need for an additional program as well as letters of support, or letters of concern, from the provosts of other state universities with substantially similar programs.

Computer Science and Engineering programs exist at the University of Florida, Florida A&M University, Florida State University, University of Central Florida, University of North Florida, University of West Florida, Florida Atlantic University, and Florida International University, among the universities in the SUS. The MSCS programs from all these universities are listed in the State University System Academic Program Inventory (https://prod.flbog.net:4445/pls/apex/f?p=136:45:704017181890042::NO:::) under the CIP code 11.0101 Computer and Information Sciences, General. Nevertheless, these other programs in the State have co-existed with the current University of South Florida MSCS program for decades.

D. Use Table 1 in Appendix A (A for undergraduate and B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 40 credit hours per year and graduate FTE will be calculated as 32 credit hours per year. Describe the rationale underlying enrollment projections. If, initially, students within the institution are expected to change majors to enroll in the proposed program, describe the shifts from disciplines that will likely occur.

The enrollment projections are based on enrollment numbers over the past 5 years plus an expected increase derived from the change of the CIP code and new recruitment strategies and international agreements.
E. Indicate what steps will be taken to achieve a diverse student body in this program. If the proposed program substantially duplicates a program at FAMU or FIU, provide, (in consultation with the affected university), an analysis of how the program might have an impact upon that university’s ability to attract students of races different from that which is predominant on their campus in the subject program. The university’s Equal Opportunity Officer shall review this section of the proposal and then sign and date in the area below to indicate that the analysis required by this subsection has been reviewed and approved.

The Department of Computer Science and Engineering is committed to the principle of equal education and employment opportunities without regard to race, color, marital status, sex, religion, age, etc., as provided by law, and in accordance with the University’s respect for personal dignity. The current student and faculty population is diverse. Every possible effort is made to attract and retain minority students and students from underrepresented groups who have the proper credentials and background to succeed in the MSCS program.

The MSCS program has not had any impact on the ability of FAMU and FIU to attract students of races different from that which is predominant on their campus in the past, and we do not anticipate any impact in the future either. Further, USF itself has a diverse student enrollment (41% in 2013-14), we are the only major metropolitan university serving an 8 county region that includes approximately 4 million people in the State of Florida, and also enroll out of state and international student beyond that percent. All these factors together support the fact that we have our own ability to recruit minority students without impacting FAMU and FIU.

The following steps have been and will continue to be taken to increase the participation of students from minority and underrepresented groups in the MSCS program:

1. Continue the Research Experiences for Undergraduates (REU) program. REU programs have as one of their main goals to attract students from underrepresented minority groups in research activities so they enroll in graduate programs. The Department of Computer Science and Engineering actively participates in the internal REU program for USF students and has also run an NSF-funded summer REU program for 9 consecutive years with a 70% rate of minority participation.
2. The graduate program director works very closely with minority institutions in the State of Florida, Puerto Rico, the Virgin Islands, and many countries in Latin America.
3. The College of Engineering has very strong ties with HBCU institutions in the State of Florida and the south region through its participation in the Florida Georgia Louis Stokes Alliance for Minority Participation in Science, Engineering and Mathematics.

[Signature and Date]
III. Budget

A. Use Table 2 in Appendix A to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 in Appendix A to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.) If the university intends to operate the program through continuing education on a cost-recovery basis or market rate, provide a rationale for doing so and a timeline for seeking Board of Governors’ approval, if appropriate.

Table 2 summarizes the current costs associated with our MSCS program, which are associated with faculty, two staff assistants, one technical support assistant, and graduate teaching assistantships (in support of the more than 350 undergraduate students in Computer Science and Engineering). Table 3 shows that the new program has a net zero cost since the resources to support the program currently exist. The budget at Year 5 increases in a modest amount considering that the department will be able to hire two new assistant professors.

B. If other programs will be impacted by a reallocation of resources for the proposed program, identify the program and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).

The MSCS program has been in existence for 33 years in the department and has coexisted with all other existing programs, including the undergraduate programs. As a result, no resources will be reallocated and therefore, we do not anticipate any negative effects on any other programs and departments.

C. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).

The MSCS program has been in existence for 33 years in the College of Engineering and has coexisted with all other existing departments and programs, and will continue to do so in the same manner. As a result, we do not anticipate any impacts on any other programs and departments.

D. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.

During the past five years, the Department of Computer Science and Engineering has had annual research expenditures of approximately $1,500,000 in external funding, including research grants from the National Science Foundation, National Institute of Health, MOFFIT Cancer Center, Florida Department of Transportation, Unite States Department of Transportation, DARPA, Team Taclan, and many other local and national institutions and agencies.
IV. Projected Benefit of the Program to the University, Local Community, and State

Use information from Tables 1 and 2 in Appendix A, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

Benefit to the University: Research intensive universities, such as USF, exist with a strong complement of science departments and the Department of Computer Science and Engineering is an integral part of our strong science programs. The well-established MSCS program will attract new, highly qualified and talented students to USF. Many of those students will be attracted and continue in our doctoral program. Thanks to this model, the National Research Council in its 2010 report, ranked the department in the top third of computer science programs in the nation in research productivity. This high research productivity makes important contributions to the university in its pursuit to AAU status.

Benefit to the Community and the State of Florida: Faculty and graduate students interact with many agencies and companies in Florida through research projects and internships, and later as employees, making important contributions to the state and local economy. The demand for computer scientist continues to be very strong and local and state companies are obtaining a direct benefit from our program getting very qualified professionals in this important area of the economy.

V. Access and Articulation – Bachelor’s Degrees Only

A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a separate request to the Board of Governors for an exception along with notification of the program’s approval. (See criteria in Board of Governors Regulation 6C-8.014)

Insert response here.

B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see the Common Prerequisite Manual at FACTS.org). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”

If the proposed prerequisites are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

Insert response here.
C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that community college transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in Board of Governors Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see Statewide Articulation Manual at FACTS.org). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

INSTITUTIONAL READINESS

VI. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan.

USF’s strategic plan includes the following goals: (i) Strengthen quality and reputation of academic programs and universities, (ii) Increase the number of degrees awarded in STEM and other areas of strategic emphasis, (iii) Strengthen quality and reputation of scholarship, research and innovation, increase research and commercialization activity, collaboration and external support research activity, and (iv) Increase community and business workforce, among the most important ones. The MSCS program is consistent with all these goals and has made important contributions to all of them. Faculty research grants and publications have contributed to goal (i), our teaching and student research have contributed to goals (i), (ii), and (iii) as our students have already published hundreds of research papers in first rate scientific journals and top tier conferences. Our faculty has contributed to all these goals as well by winning external research grants that also support doctoral research assistantships. Contributions to these three goals have had direct impact on goal (iv) producing very qualified professionals ready to assume challenging positions in the local, state and national market.

The goals of the State University of Florida Board of Governors as stated in the Strategic Plan 2012-2025 focus on (i) Teaching and Learning, (ii) Scholarship, Research and Innovation and (iii) Community and Business Engagement. The MSCS program, as stated before, strongly complies with all these goals. The faculty is composed of numerous distinguished teachers who are engaged in the teaching of both undergraduate and graduate students. We take teaching very seriously and assign senior faculty members to mentor junior faculty to be sure we are all teaching on the same level. Graduate level courses depend heavily on reading and discussing primary literature to be sure our students are up to date in their research area and also trained as broadly as possible for future opportunities. The publication record of the faculty is outstanding and the faculty frequently publishes research papers with their undergraduate and graduate students as first authors. The faculty has an outstanding record in attracting external funds to support their research and educational projects and an equally outstanding record of publishing the results of their research in tier one journals and conferences.
B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.

The MSCS program directly relates to existing institutional strengths being a 100% STEM discipline and supporting the production of computer scientists to satisfy the high demand in the local, state and national economy. Similarly, the MSCS program supports other academic programs, institutes and centers throughout the university providing computer science research expertise in their research endeavors.

C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology (table) of activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.

The Department of Computer Science and Engineering at USF was founded in 1980 with computer science programs at the Bachelor’s, Master’s and doctoral levels, being the MSCS program one of them. In 2012, the faculty of the department and the Graduate Program Committee noticed that the CIP code of the MSCS program was under the Engineering area rather than Computer Science. At that time, it was decided to submit the current proposal to change the program’s CIP code.

<table>
<thead>
<tr>
<th>Planning Process</th>
<th>Date</th>
<th>Participants</th>
<th>Planning Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
<td>Department faculty</td>
<td>Faculty agreed to change the CIP code of the MSCS program. Graduate Program Director tasked with the change</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>Graduate Program Director</td>
<td>Investigate procedure to change the CIP code of the current MSCS program</td>
</tr>
<tr>
<td></td>
<td>2012-2013</td>
<td>Department Chair and Graduate Program Director</td>
<td>Insertion of new program in USF annual work plan and submission of pre-proposal</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>Department Chair and Graduate Program Director</td>
<td>Submission of this proposal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Events Leading to Implementation</th>
<th>Date</th>
<th>Implementation Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>No events. The MSCS program is already implemented and running since 1980.</td>
<td>No events. The MSCS program is already implemented and running since 1980.</td>
<td></td>
</tr>
</tbody>
</table>

VII. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.

All aspects of graduate studies are monitored by the Graduate Programs Committee (GPC). The GPC is chaired by the Graduate Programs Director and consists of five additional faculty members appointed by the Chair of the Department of Computer Science and Engineering. The Graduate Programs Director works closely with a full-time Graduate Program Assistant. The Associate Dean for Academics in the College of Engineering, Dr. Rafael Perez, oversees all graduate programs within the College. Programmatic oversight is provided by a committee composed of the Graduate Programs Directors from the academic departments that form the College of Engineering. The Provost, as chief academic officer, is the administrator responsible for program quality at the institutional level.
The graduate programs of the Department of Computer Science and Engineering are periodically reviewed by the Provost and the Southern Association of Colleges and Schools (SACS). The last Graduate Programs Review Report to the Provost, which included an external evaluator, was submitted in October 2010. This review is submitted every seven years. The report was very well received internally by the Provost and quite positive by the external evaluator.

The University of South Florida is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award degrees at the baccalaureate, master’s, specialist, and doctoral levels, including the Doctor of Medicine. The institution was initially accredited in 1965 and was last reviewed and reaffirmed in 2005. The institution is scheduled to receive its next reaffirmation of accreditation review in 2015.

VIII. Curriculum

A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor’s degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.

The Department’s MS in Computer Science (with non-thesis) graduates will demonstrate:
1. Problem solving skills acquired by mastery of the subject material in the core areas of algorithms, computer architecture and operating systems.
2. Problem solving skills acquired by mastery of the subject material in the areas of advanced algorithms, compilers, databases, parallel computing and distributed systems, security, programming languages, software engineering, robotics, networking and others.

The Department’s MS in Computer Science (with thesis) graduates will demonstrate:
1. Written communication and research skills by writing a thesis that is deemed to contain publication quality material.
2. Knowledge of the relevant literature in their chosen research area of Computer Science.
3. Ability to use modern research methods.
4. All outcomes from non-thesis option above.

B. Describe the admission standards and graduation requirements for the program.

Admission to the MSCS program is granted by the Office of Graduate Studies upon recommendation by the Department of Computer Science and Engineering and the Dean of Engineering.

The applicant must meet the following departmental requirements for admission to the program with regular status:

1. The majority of our accepted students have a 4 yr undergraduate degree in Computer Science, Computer Engineering, Electrical Engineering, or Mathematics. The applicant must have mathematical preparation equivalent to that obtained from courses in Calculus through Differential Equations; demonstrated knowledge (formal course grades) of computer science and computer engineering, including logic design, computer architecture, data structures, operating systems, and analysis of algorithms. The majority of our accepted students have an undergraduate degree in Computer Science, Computer Engineering, Electrical Engineering, or Mathematics. Well prepared students in other majors are encouraged to apply.
2. Minimum grade point average (GPA) of B average (or equivalent) for all coursework completed during the last two years of undergraduate program.
   - Test scores for the Graduate Record Examination (GRE). Scores must be within the five years preceding application to the graduate program. As a reference, the median GRE scores of recently admitted students were Quantitative of 770 and Verbal+Quantitative of 1220 for tests taken prior to August 1, 2011. For GRE tests taken after August 1, we require a minimum of 161 on the Quantitative portion and a minimum of 150 on the verbal. The GRE may be waived for MS-degree applicants with an undergraduate degree from an accredited United States university.

3. Three letters of recommendation.

4. Statement of purpose.

Additional Requirements for International Students

1. Submission of TOEFL scores with an Internet-based score of 79 or higher for applicants from non-English speaking countries. If consideration of an assistantship is desired, the speaking score component of the TOEFL must be 26 or above, or a score of 6.5 on the International English Language Testing System, (IELTS).

2. The TOEFL requirements may be waived if the applicant meets one of the following conditions:
   - Has scored 500 or higher on the GRE Verbal Test, (Old Scores) or 153 with the New GRE scoring.
   - Has earned a college degree at a U.S. institution of higher learning.
   - Has earned a college degree from an institution whose language of instruction is English, (must be noted on the transcript).
   - Has scored 6.5 on International English Language Testing System, (IELTS).

Graduation requirements differ depending on thesis or non-thesis option. Students need to take three required core courses regardless of the option: Computer Architecture, Theory of Algorithms, and Operating Systems. In order to graduate all students need to have a GPA of 3.0 or higher. M.S. candidates need to demonstrate competency in the major area by either a successful defense of a M.S. thesis or by achieving "B" or higher in core courses.

   C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.

The Department of Computer Science and Engineering offers the degree of Master of Science in Computer Science (MSCS) with thesis and non-thesis options. The two options are distinguished on the basis of the relative breadth and depth of the programs. The thesis option requires students to pursue a more concentrated range of topics. The non-thesis option offers students some experience in many areas of computer science and/or engineering.

The great breadth of subjects which are part of computer science and computer engineering together with the immense diversity of the disciplines applications, make it imperative that students in the Master's program maintain close contact with the Graduate Program Director, and after the first semester, with their major professor in order to achieve a coherent plan of study directed towards a specific goal. In particular, election of courses should only be made with prior consultation and approval of the major professor or the Graduate Program Director.
REQUIRED COURSES

All students in the MSCS program are required to take EEL 6764 Principles of Computer Architecture, COP 6611 Operating Systems, and COT 6405 Theory of Algorithms.

Both the thesis option and the non-thesis option require a minimum of 30 credits. The thesis option requires completion of a thesis for six of the credits. A supervisory committee directs the student's thesis work. All committee members must read and approve the thesis. The thesis work must then be publically presented and the student must pass an oral examination before the final acceptance. The major professor and at least one committee member must be from Computer Science and Engineering.

For the non-thesis option, a grade of "B" or higher MUST be achieved in ALL CORE COURSES to earn the non-thesis option degree.

Students can take the remaining credit hours from the pool of graduate elective courses available in the department. In addition, students can take 3 credit hours in Independent Study or Internship course, up to 3 credit hours in a graduate level course outside of the department with prior permission from the Graduate Program Director, and up to 3 credit hours in graduate level seminars in the department.

Upon admission, the Graduate Program Director will provide general guidance and direction in the student's first semester. After completing the first semester, the student should select a major professor (thesis option) in a research area of interest, and together develop a Plan of Work for approval by the Graduate Program Director. The student will not be allowed to take more than twelve credits in the master's program unless the Plan of Work is approved. In the Plan of Work the student will state his/her major and the choice of thesis or non-thesis option.

D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.

A typical sequence of study for MSCS students consists of three graduate level courses every semester during the academic year and independent study, internships, or thesis credits during the summer. All students are strongly advised to take the core courses during the first year in the program. Areas of concentration or emphasis are decided with the major professor and/or Graduate Program Director through the Plan of Work.

E. Provide a one- or two-sentence description of each required or elective course.

Core required courses:

EEL 6764 Principles of Computer Architecture: Arithmetic algorithms, CPU speedup techniques, memory hierarchies, virtual memory, input-output. Study of the number systems and the algorithms used for digital arithmetic computation with emphasis on their implementation, speed and reliability considerations.

COT 6405 Introduction to the Theory of Algorithms: Analysis techniques for algorithms. Characterizing algorithms in terms of recurrence relations, solutions of recurrence relations, upper and lower bounds. Graph problems, parallel, algorithms, NP completeness and approximation algorithms, with relationship to practical problems.

COP 6611 Operating Systems: Operating systems functions and design, resource management, protection systems, process communication, and deadlocks.
Electives:

**CAP 6415 Computer Vision**: Techniques for description and recognition of objects, use of stereo, texture, and motion information for scene segmentation and description, consistent labeling and matching, use of knowledge and planning in computer vision.

**CAP 5400 Digital Image Processing**: Image formation, sources of image degradation, image enhancement techniques, edge detection operators and threshold selection, low-level processing algorithms for vision, image data compression.

**CAP 5625 Introduction to Artificial Intelligence**: Basic concepts, tools, and techniques used to produce and study intelligent behavior. Organizing knowledge, exploiting constraints, searching spaces, understanding natural languages, and problem solving strategies.

**CAP 5771 Data Mining**: An introductory course to mining information from data. Scalable supervised and unsupervised machine learning methods are discussed. Methods to visualize and extract heuristic rules from large databases with minimal supervision are discussed.

**CAP 6100 Human Computer Interface**: Introduction to the design and evaluation of the interface between a computer-based application and a human user.

**CAP 6455 Advanced Robotic Systems**: Unmanned ground, aerial and underwater robots. Modeling, kinematics dynamics and control; navigation and collision avoidance; sensor fusion; vision-based navigation; sensor fault detection and isolation; system architectures and robot swarms.

**CAP 6736 Geometric Modeling**: The course deals with the representation, design, analysis, processing and visualization of shape information used in a variety of fields of science and engineering.

**CAD 5416 Introduction to Computer-Aided Verification**: This course introduces basic concepts of formal verification. Topics include formal specification, algorithms, and methodologies for scalable verification. It is only for CSE majors or non-majors with permission from the instructor, not repeatable.

**EEE 5344 Digital CMOS/VLSI Design**: Design, layout, simulation, and test of custom digital CMOS/VLSI chips, using a CMOS cell library and state-of-the-art CAD tools. Digital CMOS static and dynamic gates, flip flops, CMOS array structures commonly used in digital systems. Top down design example of a bit slice processor.

**EEL 5771 Introduction to Computer Graphics**: An introduction to the evolution of computer graphics including pointplotting, line drawing, two-dimensional transformations and graphics software packages.

**COP 6621 Advanced Programming Language Design**: Grammars and languages, symbols, strings, syntax, parsing, the design of a compiler, storage organization and symbol tables, translator writing systems.

**CNT 6215 Computer Networks**: Design and analysis of data communication networks with an emphasis on the Internet and its protocols. Key topics include protocol models, HTTP, TCP, IP, local area networks, routing, flow control, multimedia networking, and performance evaluation.

**CIS 6930 Advanced Databases**: This course focuses on the design and implementation of modern database management systems. Basics of application development on top of such systems will also be covered.

**CIS 6930 Emerging Topics in Network Security**: This course is a study of the security issues in emerging networked systems. The course covers network security primitives, broadcast authentication techniques,
security and privacy issues in modern wireless systems, and vulnerability analysis of electric power grids.

CIS 6930 Network Security: The course is a study of fundamental concepts and principles of computing and network security. The course covers basic security topics, including symmetric and public key cryptography, digital signatures, cryptographic hash functions, authentication pitfalls, and network security protocols.

CIS 6930 009 Digital Circuit Synthesis: In order to handle the Very Large Scale Integration (VLSI) level complexity of modern IC’s, design automation tools are quintessential. In this course, the student will learn architectural and logic-level synthesis algorithms and implement some of them. The tasks that will be assigned are: developing a module library in VHDL, coding a synthesis algorithm in C/C++, using architectural/logic synthesis systems to synthesize designs, etc.

CIS 6930 Foundations of Software Security: Introduction to research into the foundations of software security. Topics include: basic static and dynamic enforcement of security policies, roles and meanings of policies, properties, mechanisms, and enforcement, language-based security, and tools for specifying security policies.

CIS 6930 Compiler Design: In-depth, graduate-level study of compiler design and implementation. Topics include: lexical, syntactic, and semantic analysis, type safety, code generation, garbage collection, and code optimizations.

CIS 6930 Programming Language Design: In-depth, graduate-level study of basic techniques for specifying, designing, and analyzing programming languages. Topics include: syntax, operational semantics, type systems, type safety, lambda calculus, functional programming, polymorphism, and side effects.

CIS 6930 Parallel and Distributed Processing: This course introduces the basics of parallel and distributed computing with a heavy focus on experimental work. Class time will be spent on a combination of lectures on topics in parallel programming and models, in-class discussions of research papers, brainstorming sessions on parallelizing algorithms, and team project meetings. Programming projects will introduce the practice of parallel and distributed programming with threads, MPI, Google’s MapReduce framework, large graph processing tools such as Pregel, and Amazon Web Services.

CDA 5416 Introduction to Computer Aided Verification: This course is about the study of formal method for building correct concurrent hardware and software systems.

CIS 6930 Machine Learning: Course focuses on techniques to learn models from labeled and unlabeled data. The focus is on theories and basics of statistics and neural networks.

CIS 6930: Bio-Inspiration for Robotics: This course details the application of biologically-inspired algorithms to decision-making, engineering design and control problems, with an emphasis on robotics applications. Algorithms include but are not limited to neural networks, linear least squares, evolutionary and foraging, attentional, planning and learning.

EEL 6706 Testing and Fault Tolerance in Digital Systems: In this course the students will learn the entire gamut of digital system testing issues and solutions, namely, fault modeling, fault detection, development of test-suites, automation of test vector generation, etc. By completing this course, students will: (a) gain a deep understanding of IC testing problem; (b) be able to analyze a given logic-level circuit for fault coverage; (c) learn and implement automatic test generation algorithms; and (d) gain knowledge on design-for-testability methods.
CIS 6930-13: Probabilistic Modeling, Estimation, and Inference: Probabilistic methods are useful tools for manipulating uncertainty. They appear in solutions to many real world solutions. This course concentrates on an extremely useful class of probabilistic solutions based on graphical models and sampling that have found to be effective in many different domains. They have the elegance and rigor of probabilistic modeling, as well as, offer scalable solutions. The emphasis of the course is to give a deep understanding of the underlying theory and to encourage the use of these models in research problems.

CIS 6930-002 Image Based Biometrics: This is a special topics course that looks at pattern recognition and computer vision techniques that can be used to identify humans from image data, be it video sequences or still frames. We consider 2D and 3D faces, hand shape, gait, ears, etc. Biometrics has become an important topic not only for security related applications but also in cyber-trust and security.

CIS 6930 Wireless Ad Hoc and Sensor Networks: This course covers the physical, data link, routing and transport layer of wireless ad hoc and sensor networks. Mobility patterns, topology control and other more advanced topics are also introduced.

CIS 6930 Embedded Systems Design: This course teaches the students to analyze embedded system design requirements in a given application domain and then develop an appropriate architecture to meet the requirements; design a basic printed circuit board (PCB); understand how a real-time operating system (RTOS) works; and know how to interface using SPI, I2C, and USB protocols.

CIS 6930 Seminar Graduate Instruction Methods: this seminar describes the responsibilities of teaching assistants, and helps students create a syllabus based on USF Course Syllabi Policy, identify strategies to assess learning and grade student performance, establish ground rules of classroom behavior, advise students regarding services available to them in the College of Engineering, deal with emergencies, confrontations and other difficult situations according to USF policies, and describe, identify and deal with plagiarism.

CIS 6930 Digital Design Nano-Scaled Technologies: Semiconductor industry has been consistently following Moore’s law (that dictates doubling the transistor density every 18 months) since last three decades. Transistor feature size scaling has been an effective tool to reduce cost and improve performance and functionality. However, conventional scaling has been obstructed by several new challenges e.g., power, reliability, process variations and so forth. Digital design in nano-scaled technologies course addresses these challenges faced by semiconductor industry in sub 32nm nodes and discusses different state-of-the-art principles and methodologies explored at both academia and industry to address them.

F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and indicate whether any industry advisory council exists to provide input for curriculum development and student assessment.

The Department of Computer Science and Engineering has an advisory board consisting of people from both industry and academia. The advisory board meets with the department chair, undergraduate programs director, graduate program director, and any other interested faculty every year. During those meetings, the advisory board also meets with undergraduate and graduate students. After the meetings, the advisory board provides a report to the Chair with its recommendations and perspective of the department. Normally, they provide suggestions for curriculum development that are later analyzed and discussed in the appropriate undergraduate and graduate curriculum committees. However, most curriculum-related suggestions are usually at the undergraduate level. At the graduate level, students are prepared to tackle jobs that require more in depth knowledge in a particular area of computer science; however, the basic foundations both theoretical and practical in terms of programming and software development, are acquired at the undergraduate level. Therefore, the graduate level curriculum is mostly driven by the research areas of expertise of our faculty, teaching high level graduate elective courses in those areas.
G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.

There are no accreditation agencies and learned societies that would be concerned with this program. They have not been concerned in the past and we don’t believe there is any reason to be concerned now. There is no current agency that accredits MSCS programs.

H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor’s or master’s programs associated with the proposed program. Are the programs accredited? If not, why?

N/A.

I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2 in Appendix A. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

Most graduate level courses are traditionally delivered on the Tampa campus. Very few courses are delivered on-line and during evening hours. No special services or additional resources are needed to deliver the program. No plans exist to collaborate with other universities to deliver the program either. The program has been fully delivered by the faculty of the department and will continue to be like that.

IX. Faculty Participation

A. Use Table 4 in Appendix A to identify existing and anticipated ranked (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

Table 4 is included in the Appendix.

B. Use Table 2 in Appendix A to display the costs and associated funding resources for existing and anticipated ranked faculty (as identified in Table 2 in Appendix A). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

Table 2 displays the base E&G funds for the MSCS program, including $377,280, for faculty salaries, $9,720 for two program assistant salaries, $8,280 for the salary of a technical support assistant, $46,920 for graduate research assistantship salaries, and $5,640 of expenses for a total of $449,400. A total of 1.71 person years are dedicated to the MSCS program. The E&G cost per FTE is $11,984 in year one and declines to $10,486 in year five.
C. Provide in the appendices the curriculum vitae (CV) for each existing faculty member (do not include information for visiting or adjunct faculty).

CVs are included in the appendix.

D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.

The following tables summarize the productivity of our faculty in terms of number of graduates, publications, patents, and awards.

**Number of Graduates and Publications:**

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<tr>
<td>Testing/Fault Tolerance Dig Sys</td>
<td></td>
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<tr>
<td>Intro to Embedded Systems</td>
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<tr>
<td>Network Security</td>
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<tr>
<td>Digital Design Nano-Scaled Tech</td>
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<tr>
<td>Emerging Topics Network Security</td>
<td></td>
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</tr>
</tbody>
</table>
The faculty of the department is quite involved in service activities being editors-in-chief and editorial board members of journals, technical program committee members of conferences, conference chairs, co-chairs, IEEE committees, Computer Research Association (CRA) committee members, and many others, as well as engaged in departmental, college and university-wide committees. More information is available in the individual CVs in the Appendix.

X. Non-Faculty Resources

A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university’s students.

University of South Florida Libraries
New Degree Program for the Department of Computer Science & Engineering
Master’s Degree in Computer Science

The University of South Florida’s Library System consists of USF’s main research library, located on the Tampa Campus; two special libraries, the Hinks and Elaine Shimberg Health Sciences Library and the Louis de la Parte Mental Health Institute Library, which are also located on the Tampa Campus; the Nelson Poynter Memorial Library, USF St. Petersburg; the Jane Bancroft Cook Library, USF Sarasota-Manatee; and the USF in Lakeland Library.

Our vision is to become a globally recognized academic library system advancing knowledge through integrated resources, responsive services, research, and instruction. Together, the USF Libraries provide access to more than 2 million volumes and an extensive collection of electronic resources including approximately 12,500 e-journal subscriptions and 800 aggregator databases containing another 52,000 unique e-journal titles, 580,000 e-books, and 826,000 digital images. In addition, students have access to over 58,000 audio/visual materials.

The library endeavors to develop and maintain a collection that will satisfy the needs for resources that support the undergraduate and graduate curriculum in Computer Science and Engineering, as well as serve the more specialized demands from graduate students and faculty for advanced research materials.

The following is a brief summary of the USF Tampa Library’s collections, with a heavy focus on our science, technology, and engineering resources:

Monographs – Totals

Print Books:
The USF Libraries hold 64,009 books in the fields of Computer Science, Engineering & Technology.

Electronic Books:
USF has purchased 21,933 individual electronic books in the fields of Engineering, Computer Science, and Technology. Additional databases, such as Referex and IEEE Xplore provide access to additional online reference books and sources. Comprehensive publisher e-book packages (i.e. Springer, Wiley Online Library, and EBSCOhost) also allow for the purchase of large groups of titles at a substantial discount.

Serials - Totals

Print Journals
The USF Libraries subscribes to very few remaining print-only format science or engineering titles. We do continue to maintain print subscriptions for a few hundred trade and general science titles in the library.
E-Journals:
The USF Libraries provides online subscriptions to 3,484 periodical and journal titles in the fields of Computer Science and Engineering & Technology (direct online subscription titles and multi-publisher aggregator titles). We add numerous new e-journals each year, especially in the new fields and topics in engineering and the computer sciences. These subscriptions include association collections, such as ASCE, ACM, and ASCE, as well as individual and publisher collections (i.e. Elsevier-ScienceDirect, Institute of Physics, etc.).

Periodical titles collected by the USF Tampa Library also represent those that are highest rated in their respective research fields. For example, the USF Tampa Library provides electronic access to all 20 of the top 20 highly rated (ISI impact factor) journals in Computer Science and Engineering. These ratings do not always represent true journal value, but the Tampa Library seeks to obtain virtually all statistically important titles.

Electronic Databases - Totals:

There are over 800 electronic databases provided and managed by the USF Libraries and the USF Tampa Library. These resources are most commonly accessed by Title, or by Subject using the MetaLIB system. In the Engineering category, there are 83 total online resources available, with further breakdown by type and/or subject content. The 6 databases identified as “Key sources” include:
- Applied science & technology full text – Vendor: HW Wilson
- Compendex (1884- ) (Engineering Village) - Vendor: Elsevier
- IEEE Xplore – Vendor: IEEE
- Inspec (1896- ) (Engineering Village) – Vendor: Elsevier
- ScienceDirect – Vendor: Elsevier
- Wiley Online Library – Vendor: Wiley

We also have subscriptions to almost all other major science databases, including a comprehensive journal and book package from the publisher Springer and the complete ISI Web of Knowledge database (which includes the Journal Citation Reports, BIOSIS Previews, and the Web of Science resources).

Use of all of these resources is extremely high, which helps to justify the spending for research-level resources in areas of computer science and engineering research. The USF Libraries pays over $6 million annually for resources and participates in consortial buying with the other state university libraries to provide additional electronic resources in order to ensure maximum products per research dollar.

B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 3 in Appendix A.

Signature of Library Director  Date
B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 3 in Appendix A.

As of September 2013, the collections of the USF Tampa Library and affiliates are sufficient to support a Master's Degree in Computer Science. No new library resources are needed to sustain the MSCS degree. However, sustained annual investments to maintain the recurring elements of this collection and to purchase newly published materials are required to preserve sufficiency. With escalating costs, typical annual increases of 3-6% are likely. Strategic investments are required as new faculty are hired and areas of emphasis evolve.

Certified by:

William Garrison, Dean of USF Libraries

Date: 9/15/13 Email: wgarrison@usf.edu
C. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.

We currently have one classroom for interdisciplinary research, which is shared among the faculty for collaborative research endeavors, dissertation and master’s defenses, research seminars, presentations, and similar activities. The department also has a small conference room for faculty meetings and other meeting with students, external visitors, etc. The department has no classrooms, as all classrooms in the university are centrally managed.

Each faculty has office space, a computer and access to the needed software to support his/her teaching and research. Near the office of each faculty member is a laboratory that is used by a faculty member and his/her graduate students for their research. Doctoral students are provided space in the lab, access to the computers in the lab, and if a TA, an additional office for meeting with the students in her/his classes. Each doctoral student has a dedicated computer and supporting software. All faculty members and graduate students have access to a shared printer, a fax machine, and a copier.

D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2 in Appendix A. Do not include costs for new construction because that information should be provided in response to X (J) below.

No additional space of any kind is needed to implement or maintain the proposed program through Year 5.

E. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.

For instructional purposes there is no need of any additional equipment besides the equipment (mostly computers) installed in instructional labs. For research purposes, specialized research labs have their own equipment, which are usually bought and maintained through grant money. Master’s students involved in research activities have access to this equipment according to the area of research.

F. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2 in Appendix A.

None.

G. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.

None.

H. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2 in Appendix A.

The Department of Computer Science and Engineering allocates funds to support between 20 and 25 full time teaching assistant positions to graduate students every semester. In addition, through external funds, the department provides between 15 and 20 full time research assistant positions every semester. Teaching and research assistantships provides a salary for the academic year of $13,000.00 and cover tuition costs and benefits.
I. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.

Computer science students are in high demand and find internship and practicum experiences without major problems locally, throughout the state, and around the country. Our students have interned in Intel, Microsoft, IBM, Amazon, Honeywell, and many other companies.

J. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university’s fixed capital outlay priority list. Table 2 in Appendix A includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.

No new capital expenditures are required.
# APPENDIX A

**TABLE 1-B (DRAFT)**

**PROJECTED HEADCOUNTER FROM POTENTIAL SOURCES**  
(Graduate Degree Program)

<table>
<thead>
<tr>
<th>Source of Students</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
</tr>
<tr>
<td>Individuals drawn from agencies/industries in your service area (e.g., older returning students)</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Students who transfer from other graduate programs within the university**</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Individuals who have recently graduated from preceding degree programs at this university</td>
<td>6</td>
<td>4.5</td>
<td>6</td>
<td>4.5</td>
<td>7</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at other Florida public universities</td>
<td>2</td>
<td>1.5</td>
<td>2</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td>Individuals who graduated from preceding degree programs at non-public Florida institutions</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Additional in-state residents***</td>
<td>24</td>
<td>18.0</td>
<td>24</td>
<td>18</td>
<td>25</td>
</tr>
<tr>
<td>Additional out-of-state residents***</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Additional foreign residents***</td>
<td>18</td>
<td>13.5</td>
<td>18</td>
<td>13.5</td>
<td>19</td>
</tr>
<tr>
<td>Other (Explain)***</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>50</td>
<td>37.50</td>
<td>50</td>
<td>37.5</td>
<td>54</td>
</tr>
</tbody>
</table>

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.
** If numbers appear in this category, they should go DOWN in later years.
*** Do not include individuals counted in any PRIOR category in a given COLUMN.
### APPENDIX A ****

**TABLE 2 (DRAFT)**

PROJECTED COSTS AND FUNDING SOURCES

<table>
<thead>
<tr>
<th>Instruction &amp; Research Costs (non-cumulative)</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Funding Source</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reallocated Base* (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other New Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal E&amp;G, Auxiliary, and C&amp;G</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuing Base** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Enrollment Growth (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other*** (E&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal E&amp;G, Auxiliary, and C&amp;G</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Faculty Salaries and Benefits**: 377,280
  - Year 1: 377,280
  - Year 5: 396,144
- **A & P Salaries and Benefits**: 8,280
  - Year 1: 8,280
  - Year 5: 8,694
- **USPS Salaries and Benefits**: 9,720
  - Year 1: 9,720
  - Year 5: 10,206
- **Other Personal Services**: 1,560
  - Year 1: 1,560
  - Year 5: 1,638
- **Assistantships & Fellowships**: 46,920
  - Year 1: 46,920
  - Year 5: 49,266
- **Library**: 0
  - Year 1: 0
  - Year 5: 0
- **Expenses**: 5,640
  - Year 1: 5,640
  - Year 5: 5,922
- **Operating Capital Outlay**: 0
  - Year 1: 0
  - Year 5: 0
- **Special Categories**: 0
  - Year 1: 0
  - Year 5: 0

**Total Costs**: $449,400
- Year 1: $449,400
- Year 5: $471,870

---

*Identify reallocation sources in Table 3.

**Includes recurring E&G funded costs ('reallocated base,' 'enrollment growth,' and 'other new recurring') from Years 1-4 that continue into Year 5.

***Identify if non-recurring.

****Program has been running for 33 years, so no start-up cost. This is the current budget to run the MSCS program. No reallocation is necessary.

---

**Faculty and Staff Summary**

<table>
<thead>
<tr>
<th>Total Positions</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty (person-years)</td>
<td>1.71</td>
<td>1.89</td>
</tr>
<tr>
<td>A &amp; P (FTE)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>USPS (FTE)</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

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**Calculated Cost per Student FTE**

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total E&amp;G Funding</td>
<td>$449,400</td>
<td>$471,870</td>
</tr>
<tr>
<td>Annual Student FTE</td>
<td>37.50</td>
<td>45</td>
</tr>
<tr>
<td>E&amp;G Cost per FTE</td>
<td>$11,984</td>
<td>$10,486</td>
</tr>
</tbody>
</table>

---

Worksheet Table 2 Budget
APPENDIX A

TABLE 3 (DRAFT)
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS*

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Totals | $0 | $0 | $0 |

* If not reallocating funds, please submit a zeroed Table 3
<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot;</th>
<th>Highest Degree Held</th>
<th>Academic Discipline or Speciality</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>PY Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 5</th>
<th>% Effort for Prg. Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Kenneth Christensen, Ph.D.</td>
<td>Professor</td>
<td>Computer Networks</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Swaroop Ghosh, Ph.D.</td>
<td>Assistant Professor</td>
<td>Computer Networks</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Dmitry Goldgof, Ph.D.</td>
<td>Professor</td>
<td>Circuit/System design</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Lawrence Hall, Ph.D.</td>
<td>Professor</td>
<td>Image processing/pattern recognition</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Adriana Iamnitchi, Ph.D.</td>
<td>Associate Professor</td>
<td>AI, Machine learning/Data mining</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Henrick Jeanty, Ph.D.</td>
<td>MVS Non-Tenure</td>
<td>Pattern recognition</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Kasturi, Rangachar</td>
<td>Professor</td>
<td>Computer vision and pattern recognition</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Srinivas Katkoori, Ph.D.</td>
<td>Associate Professor</td>
<td>VLSI design</td>
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<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Korzhova, Valentina</td>
<td>MVS Non-Tenure</td>
<td>Computer vision and pattern recognition</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Kouri, Tina</td>
<td>MVS Non-Tenure</td>
<td>Applied algorithms</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>A</td>
<td>Labrador, Miguel</td>
<td>Professor</td>
<td>Computer networks</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Ligatti, Jay</td>
<td>Associate Professor</td>
<td>SW security and programming/languages</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Perez, Rafael</td>
<td>Professor</td>
<td>Network security</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Palmar, Luther</td>
<td>Associate Professor</td>
<td>Robotic safety</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Perez, Rafael</td>
<td>Professor</td>
<td>System security</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Tang, Yicheng</td>
<td>Associate Professor</td>
<td>Database systems</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Zheng, Hao</td>
<td>Associate Professor</td>
<td>Computer graphics and animation</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
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<td>Assistant Professor</td>
<td>New faculty</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
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<td>Assistant Professor</td>
<td>New faculty</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
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</tbody>
</table>

Total Person-Years (PY): 1.71

### APPENDIX A

**TABLE 4 (DRAFT)**

**ANTICIPATED FACULTY PARTICIPATION**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot;</th>
<th>Highest Degree Held</th>
<th>Academic Discipline or Speciality</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>PY Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 5</th>
<th>% Effort for Prg. Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Kenneth Christensen, Ph.D.</td>
<td>Professor</td>
<td>Computer Networks</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Swaroop Ghosh, Ph.D.</td>
<td>Assistant Professor</td>
<td>Computer Networks</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Dmitry Goldgof, Ph.D.</td>
<td>Professor</td>
<td>Circuit/System design</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Lawrence Hall, Ph.D.</td>
<td>Professor</td>
<td>Image processing/pattern recognition</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
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<tr>
<td>A</td>
<td>Adriana Iamnitchi, Ph.D.</td>
<td>Associate Professor</td>
<td>AI, Machine learning/Data mining</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
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<tr>
<td>A</td>
<td>Henrick Jeanty, Ph.D.</td>
<td>MVS Non-Tenure</td>
<td>Pattern recognition</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Kasturi, Rangachar</td>
<td>Professor</td>
<td>Computer vision and pattern recognition</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Srinivas Katkoori, Ph.D.</td>
<td>Associate Professor</td>
<td>VLSI design</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
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<tr>
<td>A</td>
<td>Korzhova, Valentina</td>
<td>MVS Non-Tenure</td>
<td>Computer vision and pattern recognition</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
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<tr>
<td>A</td>
<td>Kouri, Tina</td>
<td>MVS Non-Tenure</td>
<td>Applied algorithms</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
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<td>A</td>
<td>Labrador, Miguel</td>
<td>Professor</td>
<td>Computer networks</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
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<td>0.12</td>
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<td>0.75</td>
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<tr>
<td>A</td>
<td>Ligatti, Jay</td>
<td>Associate Professor</td>
<td>SW security and programming/languages</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
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<td>0.09</td>
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<tr>
<td>A</td>
<td>Perez, Rafael</td>
<td>Professor</td>
<td>Network security</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Palmar, Luther</td>
<td>Associate Professor</td>
<td>Robotic safety</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Perez, Rafael</td>
<td>Professor</td>
<td>System security</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
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<tr>
<td>A</td>
<td>Tang, Yicheng</td>
<td>Associate Professor</td>
<td>Database systems</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
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<tr>
<td>A</td>
<td>Zheng, Hao</td>
<td>Associate Professor</td>
<td>Computer graphics and animation</td>
<td></td>
<td>Non-Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
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<tr>
<td>A</td>
<td>New faculty</td>
<td>Assistant Professor</td>
<td>New faculty</td>
<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
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<tr>
<td>A</td>
<td>New faculty</td>
<td>Assistant Professor</td>
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<td></td>
<td>Tenure</td>
<td>Fall 2013</td>
<td>0.75</td>
<td>0.12</td>
<td>0.09</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Total Person-Years (PY): 1.71
Ken Christensen

Department of Computer Science and Engineering
University of South Florida
4202 East Fowler Avenue, ENB 118
Tampa, Florida 33620

BIOGRAPHICAL DATA

Born: Minneapolis, Minnesota (1960)
Raised: Gainesville, Florida
Languages: English (native), and Danish and Swedish (reading)

EDUCATION

Ph.D., Electrical and Computer Engineering, North Carolina State University, 1991 (Advisor: Arne Nilsson)
M.S., Electrical Engineering, North Carolina State University, 1983
B.S. with Honors, Electrical Engineering, University of Florida, 1981

RESEARCH INTERESTS

Green networks – dynamic power management for reduction of direct and induced energy use of network links, equipment, and hosts. Performance evaluation of computer networks; analytical and simulation modeling.

ACADEMIC APPOINTMENTS

Full Professor, University of South Florida, 2007 to present
Associate Professor, University of South Florida, 2000 to 2007
Assistant Professor, University of South Florida, 1995 to 2000
Adjunct Instructor, Campbell University, North Carolina, 1993 to 1994

SABBATICALS

• Research sabbatical, Department of Communication Systems, Lund University (Sweden), Spring 2004

INDUSTRY EXPERIENCE

• IBM Corporation, Research Triangle Park, 1983 to 1995
  • Team leader for advanced development of future Local Area Network (LAN) directions and products. Generated 12 patents, 8 technical disclosures, and numerous reports and white papers.
  • IBM Resident Study at North Carolina State University for completion of Ph.D., 1989 to 1991

LICENSURE AND AFFILIATIONS

• Licensed Professional Engineer (P.E.) in the state of Florida (license number 53993)
• Senior member of Institute of Electrical and Electronics Engineers (IEEE) with society memberships in Computer Society and Communications Society
• Member of Association for Computing Machinery (ACM) with special interest group memberships in SIGCOMM (communications), SIGMETRICS (performance evaluation), and SIGCSE (education)
• Member of American Society for Engineering Education (ASEE)
• Member of Tau Beta Pi (engineering honor society), Eta Kappa Nu (electrical engineering honor society), and Upsilon Pi Epsilon (computer science honor society)
AWARDS

- USF Excellence in Innovation Award, 2009
- USF Charter Member of Academy of Inventors, 2009
- ITFlorida Award for Excellence in Sustainability through Information Technology, 2008
- USF “spotlight program” recognition as part of the ten year anniversary of the USF Collaborative for Children, Families, and Community (with D. Rundus), 2006
- Second place in Microsoft Windows Embedded Student Challenge (advisor for a team of students), 2006
- USF Outstanding Dissertation Prize (chair for H. Fujinoki), 2001
- USF Outstanding Master’s Thesis Prize (chair for A. Solleti), 2001
- ASEE/NASA Summer Faculty Fellowship at NASA-KSC, 1998 and 1999
- USF Teaching Incentive Program Award, 1998
- USF Outstanding Undergraduate Teaching Award, 1997

GRANTS

2. New Protocol Semantics and Scheduling Primitives for Energy Efficiency: Burst Coalescing at the Link and Application Layers, Google, 2012, $10,000 (co-PI P. Reviriego, Universidad Antonio de Nebrija)
4. Reducing the Energy Consumption of IT: A Focus on Data Centers and End User Devices, USF FESC Seed Grant Initiative, 2010 to 2011, $50,000 (co-PI Y. Tu).
8. REU Supplement to CNS-0520081, National Science Foundation, 2007 to 2008, $12,000.
9. REU Supplement to CNS-0520081, National Science Foundation, 2006 to 2007, $6,000.
13. Collaborative Research (NeTS-NBD): Increasing the Energy Efficiency of the Internet with a Focus on Edge Devices, National Science Foundation, 2005 to 2008, $200,000 plus $15,000 match from Department and College (collaborator: A. George, University of Florida).
15. Student Travel Support for 29th IEEE Local Computer Networks Conference (LCN), National Science Foundation, 2004, $10,300.
16. RET Supplement to ANI-9875177, National Science Foundation, 2002, $10,000.
20. REU Supplement to ANI-9875177, National Science Foundation, 2000, $5,000.
22. Digital and Computer Video Interdisciplinary Center, USF Interdisciplinary Research Center Grant Program, 1999, $80,000, (one of fifteen total faculty founding members, V. Jain primary).

PROFESSIONAL SERVICE

Editorial

Editor-in-chief: International Journal of Network Management (Wiley), 2008 to 2011
Advisory board: International Journal of Network Management (Wiley), 2012 to present

Guest Editorships


Journal and Letters Reviewing

Conference and Workshop Chairing


Program chair: *IEEE LCN* 1999 (Boston), 2000 (Tampa), and 2006 (Tampa), and *IEEE High Speed Local Networks Workshop (HSLN)* 2002 (Tampa) and 2003 (Bonn, Germany), *e-Energy* 2012 (one of three co-chairs, Madrid, Spain), *SustainIT* 2012 (one of three co-chairs, Pisa, Italy), *GreenCom* 2013 (one of three co-chairs, Beijing, China).

Corporate chair: *IEEE LCN* 2010 (Denver).

Local chair: *IEEE LCN* 2000 (Tampa), 2001 (Tampa), 2002 (Tampa), 2004 (Tampa), and 2012 (Clearwater Beach).

Conference and Workshop Organizing Committees

*IEEE LCN* 2008 to 2012 and *IEEE GreenComm* 2009 to 2011 (in conjunction with *IEEE ICC* and *IEEE GLOBECOM*).

Conference and Workshop Program Committees


Conference and Workshop Reviewing (and not on program committee)


Other Organizational Activities

- Founding member and (current) President of *The Pledge of the Computing Professional*, an organization to promote the notion of computing as a recognized profession with ethical responsibilities through the public performance of a rite-of-passage ceremony. Founding completed in 2011 with 15 member institutions.

Other Professional Service

- External reviewer and member of jury for a Ph.D. defense at Télécom ParisTech, 2012
- Judge for IEEEEXtreme 5.0 Global Programming Competition, 2011
- External reviewer and member of jury for a Ph.D. defense at École Normale Supérieure de Lyon, 2011
- External reviewer for research proposals for Nebraska Center for Energy Sciences Research, 2009
- External reviewer for tenure application at Information and Communications University (Korea), 2009
- External reviewer for Austrian Science Fund (FWF), 2009 and 2011
- External reviewer for Netherlands Organisation for Scientific Research (NWO), 2009
- External reviewer for Netherlands Technology Foundation STW, 2009
- External reviewer for tenure applications at Purdue, Penn State Great Valley, University of North Texas, and Clemson University, 2008 and 2009
- External reviewer for South Africa National Research Foundation (NRF), 2006
- Reviewer and panelist for National Science Foundation (NSF), 2000 to 2003
- External examiner for a Ph.D. candidate, Nanyang Technological University, 2002
- Panelist for IEEE Admission and Advancement Panel, 2000 and 2009
UNIVERSITY SERVICE

Directorships

- Director of Department of Computer Science and Engineering Undergraduate Program, 2007 to present

Committees

- University National Awards Resource Faculty Group, 2009 to present
- University Assessment Steering Committee, 2006 to present
- University Undergraduate Council, 2008 to 2011
- University Graduate Council, 2004 to 2007
- University Academic Computing Committee, 2002 to 2004
- University International Admissions Advisory Committee, 2000 to 2003
- University Internet2 Technical Committee, 2000 to 2001 (co-chair)
- College search committee for position of Director of Student Services, 2011
- College Curriculum Committee, 2008 to present
- College Computing Committee, 2008 to present
- College ABET Committee, 2007 to present
- Department faculty search committee 2000 to 2005, 2006 to 2007 (chair), and 2011 to present (chair)
- Department undergraduate committee, 2005 to present, 2007 to present (chair)
- Department promotion and tenure committee, 2001 to 2006, 2007 (chair), 2008 to present
- Department equipment and infrastructure committee, 1995 to 1996, 2011 to present
- Department ABET coordinator, 2005 to present
- Department SACS assessment coordinator, 2008 to present
- Department faculty evaluation committee, 2009, 2010 (chair), and 2011 (chair)
- Department search committee for position of Technical Support Specialist, 2011
- Department graduate examinations committee, 2005 and 2006 (chair)
- Department graduate committee, fall 2005 (chair), 2006 to 2008
- Department 25 Year anniversary celebration committee, 2005 (chair)
- Department planning and external relations committee, 2003 to 2005
- Department graduate admissions committee, 2000 to 2002
- Department ABET/CSAB preparation committee, 2000 to 2001
- Department minority recruiting committee, 1995 to 1996

Other University Service

- Reviewer for USF Division of Sponsored Research internal grant program, 2005 to 2007, and 2010
- Reviewer for USF Graduate School outstanding dissertation and thesis awards, 2006 and 2007
- Coordinator for undergraduate activities at College of Engineering Research Day, 2009 and 2010

COMMUNITY SERVICE

- Reviewer for National Academy of Inventors USF Young Innovator Competition, 2010 and 2011
- Committee member for State of Florida K-12 Computer Science teacher certification, 2006 and 2009
- Judge for Florida-Georgia Louis Stokes Alliance for Minority Participation Expo, 2003
- Volunteer for “Yes, We Care” program, 1995 to 1999
- Judge for Pinellas County and Hillsborough County Science Fairs, 1997
- Judge for Florida High School Programming Contest, 1996
- Advisor for Raleigh, North Carolina Junior Achievement, 1985 and 1986
INTERNATIONAL OUTREACH

- Hosted international visitors in the Department of Computer Science and Engineering
  - Dr. Lillykutty Jacob, National Institute of Technology Calicut (India), 2012.
  - Ms. Anne-Cécile Orgerie, INRIA RESO / Laboratoire de l'Informatique du Parallélisme, Ecole Normale Supérieure de Lyon (France), 2010.
  - Mr. Alessandro Parisi, Dipartimento di Ingegneria Elettronica e dell’Informazione (DIEI), University of Perugia (Italy), 2009 to 2010.
  - Dr. Paul Werstein, Department of Computer Science, University of Otago (New Zealand), 2007.
  - Dr. Yutaka Ishibashi, Department of Electrical and Computer Engineering, Nagoya Institute of Technology (Japan), 2000.
- Initiated and coordinated exchange agreement between USF and Jönköping University (Sweden), 2006
- Visited Fulbright offices in Sweden, Denmark, and Finland on behalf of USF International Affairs, 2004
- Faculty coordinator for IEEE Computer Society student ezine, Looking.Forward, 2002 to 2006
  - Coordinated seven issues (of which three were bilingual) of Looking.Forward from IEEE Computer Society student groups at New Mexico Tech, University of Louisiana at Lafayette, Eastern Mediterranean University (Turkey), École Polytechnique de Montréal (Canada), Norwich University, Universidad Distrial Francisco José de Caldas (Colombia), CENIDET (Mexico), and University of Tehran (Iran).

STUDENT SUPERVISION

Ph.D. Major Professor

Current:
- Ingo McLean, expected graduation 2014.

Finished:
   - Assistant Professor, University of Northern Colorado
   - Assistant Professor at Universidad del Norte, Barranquilla, Colombia
   - Assistant Professor at Youngstown State University
   - Senior Software Developer, Location Labs, Emeryville, California
   - Associate Professor at University of Arkansas at Little Rock
   - Associate Professor at University of North Florida
   - Associate Professor at Southeastern Illinois University Edwardsville

Ph.D. Committees

Current:
- Alphan Sahin (chair H. Arslan)
**Finished:**

**M.S. Major Professor**

**Current:**
- Q. Deng, expected graduation 2013

**Finished:**

M.S. External Supervisor


M.S. Committees

**Current:**
- None

**Finished:**

Undergraduate Honors Students


Supervision of Research Undergraduate Students

3. Research Experience for Undergraduates, Department of Computer Science and Engineering Summer REU program, supervision of R. Viere (from University of Puerto Rico, Arecibo), summer 2011.
4. Research Experience for Undergraduates, Department of Computer Science and Engineering, supervision of M. Olson, 2011.
5. Research Experience for Undergraduates, Department of Computer Science and Engineering Summer REU program, supervision of S. Miranda (from University of Turabo of Puerto Rico), summer 2010.
6. Research Experience for Undergraduates, Department of Computer Science and Engineering Summer REU program, supervision of V. Alvarez (from Polytechnic University of Puerto Rico), summer 2008.
8. Research Experience for Undergraduates, Department of Computer Science and Engineering Summer REU program, supervision of A. Vigo (from University of Puerto Rico, Mayagüez), summer 2007.
10. Research Experience for Undergraduates, Department of Computer Science and Engineering Summer REU program, supervision of G. Quiles (from University of Puerto Rico, Mayagüez), summer 2006.
11. Research Experience for Undergraduates, Department of Computer Science and Engineering Summer REU program, supervision of C. Aviles and E. Torres (from University of Puerto Rico, Mayagüez), summer 2005.

Supervision of K-12 Teachers (summer research)

1. Research Experience for Teachers, College of Engineering, supervision of T. Shaw (from Terrace Community Middle School, Tampa), summer 2002.
2. Research Experience for Teachers, College of Engineering, supervision of K. Bennett (from Terrace Community Middle School, Tampa), summer 2001.

TEACHING

Courses Taught

<table>
<thead>
<tr>
<th>Course name and number</th>
<th>Credits</th>
<th>Semester and year taught</th>
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<tr>
<td>Computer Tools for Engineers (EGN 2210)</td>
<td>3</td>
<td>Su97, F97, F98, and F99</td>
</tr>
<tr>
<td>Foundations of Engineering (EGN 3000)</td>
<td>1</td>
<td>F03</td>
</tr>
<tr>
<td>Logic Design (CDA 3201)</td>
<td>3</td>
<td>F96 and F01</td>
</tr>
<tr>
<td>Computer Networks (CNT 4004)</td>
<td>3</td>
<td>S96, F96, S97, S00, F02, S06, F08, F09, and F10</td>
</tr>
<tr>
<td>CSE Volunteers (CIS 4900)</td>
<td>1</td>
<td>F04, S05, F05, S06, F06, S07, F07, S08, F08, and S09</td>
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<td>Senior Project (CIS 4910)</td>
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<tr>
<td>Simulation (CIS 4930)</td>
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<td>S96, S98, S99, S05, Su09, Su11, and Su13</td>
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<tr>
<td>Capacity Planning (CIS 4930)</td>
<td>3</td>
<td>S01 and F01</td>
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<tr>
<td>Computer Networks (CNT 6215)</td>
<td>3</td>
<td>F95, F96, F97, S99, S00, F00, F03, F11, and F12</td>
</tr>
<tr>
<td>Advanced Networks (CIS 6930)</td>
<td>3</td>
<td>S98, S03, and F04</td>
</tr>
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<td>Discrete Mathematics (CSC 340)</td>
<td>3</td>
<td>F93 (Campbell University)</td>
</tr>
<tr>
<td>Introduction to “C” Programming (CSC 375)</td>
<td>3</td>
<td>S94 (Campbell University)</td>
</tr>
</tbody>
</table>

Courses Developed and Teaching Innovations

- Developed (with D. Rundus) the CSE Volunteers service learning program in 2004. This program coordinated groups of students (about 15 to 20 per semester) to serve four hours per week in Hillsborough County K-12 schools to provide technology assistance. Students earn one hour of independent study credit.
- Re-designed the existing course Senior Project (CIS 4910) in 2001. This course now contains a lecture component, a formal development process, and incorporates industry-contributed projects that have resulted in significant department-industry connections.

Other Teaching Related Activities

- Coach for USF ACM Programming Contest teams, 2000 and 2001 (with B. Albrecht)
  - Prepared three teams of four students and took them to the regional ACM programming contest at Georgia College and State University. Placed in the top 50% in 2000 and top 25% in 2001.
PRESENTATIONS, PANELS, SHORT COURSES, AND INVITED MEETINGS

Presentations and Seminars

5. “Green Networks: Reducing the Energy Consumption of Networks” (extended version), invited presentation at the University of Carlos III, Madrid, Spain, June 2, 2010.
12. “Presentation to the Board of Trustees of USF: The USF Intelligent Scarecrow,” invited presentation, USF Board of Trustees, September 7, 2006 (with students F. Blanquicet, A. Ng, and J. Ramsamooj).

Panels

Short Courses and Tutorials


Invited Meetings


PUBLICATIONS

Journals and Magazines (refereed)


**Conferences and Workshops (refereed)**


**Letters (refereed)**


**Columns (refereed)**


**Book Chapters (refereed)**


**Textbook Supplements (not refereed)**


**Magazines and newsletters (not refereed)**


**White Papers (not refereed)**


**Internet RFCs (not refereed)**


**Reports (not refereed)**


**Technical Disclosures (not refereed)**


**PATENTS**


**CONTRIBUTIONS TO STANDARDS**

Key contributor to the founding of two green networking standards initiatives

- Ecma 393 proxZZZy for sleeping hosts in 2009 (with B. Nordman, LBNL)
  - Standard completed and approved in February 2010
- IEEE 802.3az Energy Efficient Ethernet in 2006 (with B. Nordman, LBNL)
  - Standard completed and approved in September 2010

**PUBLICITY**

- Cited and quoted in numerous press articles and YouTube video clips describing research in improving the energy efficiency of networks including:
  - M. Bennett, “Mike Bennett of Lawrence Berkley Labs discussing Energy Efficient Ethernet,” YouTube, March 9, 2009.

- Received significant press, including international radio and television, for the Microsoft Windows Embedded Student Challenge second place win in 2006. The following statement was made on August 4, 2006 by Randy Fillmore of USF Media Relations:
  - “The ‘intelligent scarecrow’ named J.J. – designed and built by four USF College of Engineering Computer Science and Engineering students to protect both the investment of aqua-farmers and the lives of birds that may prey upon their fish – placed second in Microsoft’s Third Annual Windows Embedded Student Challenge in 2006. Filmed by a crew from Discovery TV, Canada, and making two appearances on local TV (channels 10 and 13), over three months the smart scarecrow was featured in several radio interviews and appeared in newspapers, magazines, and websites throughout the U.S., Canada, Europe, Australia, the United Kingdom, the Middle East, and Asia, including India and China. J.J., the students who created him, and their faculty mentor, Ken Christensen, became the most widely traveled and longest lasting positive media story in USF history.”
Dr. Swaroop Ghosh
Assistant Professor
Computer Science and Engineering, University of South Florida
Email: sghosh@cse.usf.edu, Voice: 813-974-4184 (O), Web: www.cse.usf.edu/~sghosh

Overview

Dr. Swaroop Ghosh has made significant contributions in the area of low-power, energy-efficient and self-healing circuit and system design. His Ph.D. research has been published in numerous high quality journals including Proceedings of the IEEE which is the top journal in electrical and electronic engineering area in terms of impact factor. His design principles on error-resilient, low-power and energy-efficient design resulted in technology transfer to Intel Corporation’s Circuit Research Lab. From 2008-2012, Dr. Ghosh worked as a senior R&D engineer in Advanced Design, Intel Corp where he pioneered ultra low-power and high density embedded memory designs for Intel’s next generation products. His research on emerging embedded memories has achieved 5-10X reduction in the total die area and an order of magnitude reduction in power. He was a key member of the design team that pioneered semiconductor industry’s first high volume 22nm SRAM (Static Random Access Memory) and Intel’s first eDRAM (embedded Dynamic Random Access Memory) design. His inventions at Intel led to filing of four US patents (lead inventor in three patents). He received several internal recognitions for defining Intel’s 22nm SoC process technology, transition to products and eDRAM design/debug activities. His current research on emerging high density Domain Wall Memory is funded by Semiconductor Research Corporation.

Dr. Ghosh has published 10 journals (Proc. of the IEEE, TCAD, TVLSI, TODAES), over 25 articles in refereed conferences (DAC, ICCAD, DATE, CICC, ITC, ISLPED) and filed 7 US patents (3 granted). He has authored an invited book chapter in “Low-power variation-tolerant design in nanometer silicon” published by Springer. His work has been cited over 275 times by researchers around the world according to google scholars. Dr. Ghosh has served in the technical program committees of IEEE conferences such as ISLPED, Nanoarch, VLSI Design, ISQED, VLSI SOC and ASQED.

Industrial Impact

- Lead subarray designer of Intel’s first eDRAM design in 22nm Haswell graphics processor that demonstrated 75X performance benefit over baseline.
- Lead designer of semiconductor industry’s first high volume 22nm SRAM test-chip.
- SRAM assist technique (column based supply voltage collapse) developed by Dr. Ghosh and his co-workers are widely used in Intel products.
- Technology transfer of part of his PhD research to Intel Corporation’s Circuit Research Lab.
- Lead validation engineer of Bluetooth Baseband controller IP of Mindtree Consulting that was used in Ericsson handset.

Education

- PhD [2004-2008]: School of ECE, Purdue University, IN, USA
  Primary Research Area: VLSI Circuit and Micro-architecture
  Research Advisor: Prof. Kaushik Roy
  Thesis: Voltage-scalable adaptive system design for low-power and error-resilience in nanometer technologies.

• Master of Science [2002-2004]: ECECS Department, University of Cincinnati, OH, USA
  Primary Research Area: VLSI Design and Testing
  Research Advisor: Prof. Wen-Ben Jone
  Thesis: Scan chain fault identification using weight-based m-out-of-n codes.

• Bachelor of Technology [May 2000]: Indian Institute of Technology, Roorkee, India
  Major: Electrical Engineering
  Thesis Advisor: Prof. H. K. Verma and Prof. Vinod Kumar
  Thesis: Design and development of remote data acquisition module.

Research Interests

My primary research interest is in the areas of reliable, secure, energy-efficient and heterogeneous circuit and system design. In particular, I am interested in following topics:

• Emerging energy-efficient memory circuits and systems.
  - Energy-efficient circuit and system design using emerging non-volatile memory technologies such as Spin Transfer Torque Random Access Memories (STTRAM), Domain Wall Memories (DWM) and eDRAM.
  - Novel energy-centric approach to improve energy-efficiency, bandwidth and capacity of memory sub-systems.
  - Exploration of 3D heterogeneous integrated memories to improve energy-efficiency, performance and latency.

• Energy-centric circuits and systems in nano-scale technologies.
  - Novel energy-centric system design for improved energy-efficiency and error rates.
  - Application aware design and optimization for emerging electronic gadgets such as smartphones, ipad, Wii etc.
  - Heterogeneous systems to harness the benefits of emerging non-Silicon devices in assisting CMOS scaling in terms of speed, functionality, power, energy-efficiency, error-resilience etc.

• Hardware security.
  - Exploration of board level attack models and reverse engineering as a tool for Trojan detection.
  - Reverse engineering resistant design to prevent Trojan attacks.

• Application of non-Silicon technologies for non-conventional computing.
  - Exploration of emerging non-Silicon technologies in non-Boolean computation for special purposes such as pattern recognition, data mining.
  - Application of emerging technologies in Neuromorphic computation paradigm.
  - Extending the principle of heterogeneous systems to achieve energy-efficiency by segregating computations between Silicon and Non-Silicon technologies.

Work Experience

• August 2012-Present: Assistant Professor, Computer Science and Engineering, University of South Florida
  - Energy-centric memory design.
  - Circuit and system design using emerging memory technologies such as Spin Transfer Torque Random Access Memories (STTRAM), Domain Wall Memories (DWM) and eDRAM.
  - Secure hardware systems.

• Sept 2008-July 2012: Senior Research and Development Engineer, Intel Corporation, Portland, OR
- Development of high density memory circuit for high-performance and low-power in future technologies (i.e., 32nm, 22nm and beyond). *This work has already transitioned to high volume manufacturing and resulted in 5-10X reduction in the silicon die area occupied by these circuits.*

- Lead designer of *semiconductor industry’s first high volume 22nm SRAM* test chip.

- Lead subarray designer of *Intel's first eDRAM* (128MB) product (22nm Haswell graphics) that demonstrated 75X performance benefit over competitors. *This work has resulted in filing of four US patents [P4-P7].*

- Developed various read/write assist techniques (wordline boosting and underdrive, negative bitline and supply voltage collapse) to maintain memory stability while achieving low-power and high performance.

- Development of current writable embedded Magnetic Tunneling Junction (MTJ) memory technology to meet high bandwidth, low-power requirement of future graphics processors.

- Driven tape-out of > 10 test chips containing memory arrays and various process sensors in 32nm and 22nm technology.

- **June-August 2007:** Co-op engineer at Advanced Micro Devices (AMD) Inc, Sunnyvale, CA
  - Development of memory test algorithms for AMD’s upcoming flagship processor.

- **May-August 2006:** Summer intern at Intel Corporation, Portland, OR
  - Sleep transistor variability analysis in L2-cache in 65nm process and its test implications.

- **August 2004-May 2005:** Teaching Assistant (TA), School of ECE, Purdue University
  - Tutored students, conducted once a week recitations, prepared questions for exams, quizzes, home-works and their corresponding solutions.

- **August 2000-July 2002:** VLSI design Engineer at Mindtree Technologies, Bangalore, India
  - Design and validation of Bluetooth Baseband Controller.

### Major Achievements

- Intel’s departmental recognition award for outstanding contribution in eDRAM transition to product, 2012.
- Intel’s divisional recognition for outstanding contribution in developing Intel’s 22nm eDRAM array, 2011.
- Intel’s departmental recognition for outstanding contribution in defining 22nm process model, 2011.
- Spontaneous award for providing excellent training on DRAM operating principles to product teams at Intel, 2011.
- Spontaneous award at Intel for excellent contributions in 22nm test prototype debug, 2011.
- Intel’s Technology and Manufacturing Group excellence award in 2010.

- Speaker travel grant to attend Design Automation Conference (DAC), 2006.
- Selection in young student support program to attend Design Automation Conference (DAC), 2005, 2006.
- Summer Research Fellowship granted by University of Cincinnati for summer quarter (July - August 2003).
- Recipient of University Graduate Scholarship and Research Assistantship at University of Cincinnati, Ohio.
- Recipient of University Merit Scholarship, IIT Roorkee, India (1996-2000).
- R.D. Verma Merit Scholarship awarded in sophomore year of undergraduate study at IIT Roorkee, India.
- Shamji Memorial Trust Merit Scholarship at IIT Roorkee, India.
- Second Prize in annual exhibition of Hobbies club for electronic project at IIT Roorkee.
Research Grants


Equipment Grants

- **S. Ghosh** (PI), “Low power and energy efficient signal processing,” Xilinx University Program, Donation: 4 XUPV5 boards of market value $10,000 and software tools worth $54,000 (**Total: $64,000**).

- **S. Ghosh** (PI), “Reverse engineering of hidden hardware Trojans in high speed circuits,” Altera, Donation: 2 DE5 boards of market value $6,000 and 10 DE2 boards of market value $2,000 (**Total: $8,000**).

Teaching Experience

- **New Graduate/Undergraduate Course (Fall 2012)**: Digital Design in Nano-scaled Technologies.

  *Course Content:* Semiconductor industry has been consistently following Moore’s law (that dictates doubling the transistor density every 18 months) since last three decades. Transistor feature size scaling has been an effective tool to reduce cost and improve performance and functionality. However, conventional scaling has been obstructed by several new challenges e.g., power, reliability, process variations and so forth. Digital design in nano-scaled technologies course addresses these challenges faced by semiconductor industry in sub 32nm nodes and discusses different state-of-the-art principles and methodologies explored at both academia and industry to address them.

  *Enrollment:* 12 undergraduate students and 5 graduate students

  *Average Student Rating:* 4.5/5

- **New Undergraduate Course (Spring 2013)**: Fundamentals of Low Power VLSI Design.

  *Course Content:* The computation in year 2020 time frame would be dominated by “internet of things” where billions of devices would be connected to each other. These devices will be running millions of applications and transferring trillions of gigabytes of data. Furthermore each of these devices will have billions of transistors that will be toggling and consuming battery power. Therefore, power will continue to play an important role and low power design will be at the forefront of the future digital systems. “Low power VLSI Design” introduces the basic principles of reducing power consumption in advanced process nodes. This course introduces new challenges in designing low power digital systems (e.g., iPhone, iPad, Nintendo Wii) in sub 22nm process nodes and methodologies to address them.

  *Enrollment:* 37 undergraduate students

  *Average Student Rating:* 4/5

- **Fall 2004 and Spring 2005:** Teaching Assistant for the undergraduate senior year course titled “Introduction to electronic design and analysis” at ECE, Purdue University.

  *Course Content:* Basic electrical characteristics of common semiconductor devices (pn-junctions, MOSFET’s, and BJT’s), analyze/design of D.C. bias circuits, utilizing D.C. and A.C. models of semiconductor devices in both analysis and design, single and multistage amplifiers at low, mid and high frequencies, CAD tool (e.g., SPICE) for circuit analysis and design.

  *Responsibilities:* Tutoring students, once a week recitations, preparing questions for exams, quizzes,
home-works and solutions.

- **Trainings:** Provided trainings to product groups at Intel Corporation on “Basics of DRAM operating principles, array design and test features”, 2011. *One of these trainings was selected for spontaneous award.*

**Research Experience**

**August 2012-Present:** Assistant Professor, Computer Science and Engineering, University of South Florida

At USF, my research is focused on development of innovative design principles for reliable, secure, energy-efficient and self-healing nano-scale circuits and systems.

- **Energy-centric system design**
  1. Developing a framework for energy centric system design where optimization goal is energy-efficiency instead of power and delay [C26][Po2].

- **Circuit and system design using emerging memory technologies (collaborator: Dr. Chris Wilkerson, Intel)**
  1. Exploring robust memory circuit and system using Domain Wall Memories (DWM). This work is sponsored by SRC [C23][C25].
  2. Exploring robust Spin Transfer Torque Random Access Memory (STTRAM) design using novel design-for-test and correction. *This is a collaborative work with Intel [Po1].*
  3. Low power embedded Dynamic Random Access Memory (eDRAM) design [C24] [J11].

- **Secure hardware systems (collaborator: Prof. Swarup Bhunia, CWRU)**
  1. Board level Trojan detection using reverse engineering [J12]
  2. Reverse engineering resistant design to prevent Trojan attacks.

**Sept 2008-July 2012:** Senior Research and Development Engineer, High Density Memory Group, Intel

At Intel, I pioneered the high density embedded memory design (SRAM and eDRAM) for high-performance and low-power in future technologies. My research has provided me extensive circuit design and debug experience as I drove tape-out of >10 memory test chips and their derivatives in 32nm and 22nm technologies.

- **128MB high density eDRAM design in 22nm technology for high end graphics**
  1. Designed 32KB eDRAM subarray and 256KB databank with density 17Mb/mm². This work has resulted in 5-10X reduction in the silicon die area compared to standard memory and has been transferred to high volume manufacturing. Also owned the validation and post-Si debug of 0.5MB datablock.
  2. Invented several techniques for design and debug of eDRAM arrays that has resulted in filing of four US patents [P4-P7] and transition to products (Haswell graphics). *The inclusion 128MB of last level eDRAM cache resulted in 75X performance boost over baseline.*

- **Low power and robust SRAM design in 32nm and 22nm technology**
  1. Design and debug of voltage-scalable, robust and high-performance SRAM arrays in 32nm and 22nm technologies. Developed read assist (wordline underdrive) and write assist techniques (supply voltage collapse) to maintain memory stability while achieving low voltage operation and high performance [C21].
  2. Lead designer of semiconductor industry’s first high volume 22nm SRAM testchip.

- **High density STTRAM array design in 22nm technology**
1. Research and development of current writable embedded Magnetic Tunneling Junction (MTJ) memory technology to meet high bandwidth requirement of graphics processors. This work involved peripheral circuit design to perform robust read and write operations on the MTJ devices.

2. Investigated various current sensing mechanisms and write assist techniques to achieve this goal.

**Fall 2004-Fall 2008:** Research Assistant (RA), School of ECE, Purdue University

Developed adaptive and self-healing design principles for delivering voltage-scalable, low-power, energy-efficient and error-resilient circuits. The long paths are isolated and made predictable under variations. The supply voltage is allowed to drop below failing point (known as voltage overscaling) for aggressive power saving. Concurrently, the possible failures due to long paths are predicted in advance and avoided by clock stretching. Furthermore, the design also provides knobs for self-healing of timing failures. In contrast to conventional low-power techniques, the proposed solution achieves highly reliable nano-scaled systems under low voltages without compromising on operating frequency and yield. This approach is elucidated as follows:

- **Novel Adaptive Design Principle for Voltage Overscaling (CRISTA)**
  1. Proposed CRISTA (Critical path ISolution for Timing Adaptiveness) methodology [P3, J5, J7, C9, C14] to isolate critical paths, make them predictable and avoid the possible errors by adaptive clock stretching. CRISTA is employed for correct computation under voltage overscaling in order to achieve low-power and energy-efficient operation. The CRISTA design also enables post-Silicon self-healing.
  2. Employed CRISTA in non-speculative superscalar processor (both In-Order and Out-Of-Order) [J8] to detect and exploit subcritical paths in arithmetic and logic units (ALU) and issue logic for low-power.
  3. Designed hybrid adders and multipliers using CRISTA for voltage-scalable and energy-efficient execution units of high-speed, low-power, and variation-tolerant processors [J5, C18].
  4. Designed a test prototype in IBM 130nm technology to implement a low voltage pipelined system in order to demonstrate the feasibility of CRISTA under process variation [C14].

- **Self-Calibrating and Self-Healing Design Principle**
  1. Developed a self-healing design principle that leverages the inherent redundancy present in high speed functional units (FUs) in time efficient manner to compute in presence of faults. These self-healing FUs are used to design error-tolerant pipelines in high performance systems [J10, C16].
  2. Proposed circuit design using CRISTA for self-healing in presence of timing failures. If manufacturing test or on-chip speed binning suggest failure of long paths then adaptive clock stretching is enabled to avoid timing errors. Designed a prototype of built-in delay sensor for efficient speed binning in IBM 130nm technology [J5, C3, C5, C6, C11].
  3. Employed CRISTA to design low-overhead temperature-adaptive systems [C12]. The supply voltage is adaptively scaled during die-overheating to heal the high temperature without sacrificing the clock frequency. The timing errors at scaled supply are adaptively healed by clock stretching.
  4. Exploited the above methodology for successful prevention of die-overheating while maintaining rated frequency and healing the delay failures at micro-architectural level (In-order processors) [C17].
  5. Developed an adaptive source-biasing system and auto-repair scheme for low-power and error-tolerant cache. The optimal choice of adaptive source-biasing and body-biasing reduces power and heal the retention failures [P2, C6, C7].

- **Hybrid Integrated Systems**
  An orthogonal approach to address the scaling challenges associated with Silicon technology is to enhance it with the emerging nano-electronic devices by creating hybrid design. The hybrid system achieves best of both worlds. It draws benefits from both the immense computational power of CMOS technology and the unique features of emerging devices. The feasibility of this concept has been demonstrated in my thesis by creating hybrid Thin Film Transistor (TFT)-CMOS system. The low cost TFT devices reduce test overheads from the Silicon die and monitor the critical sections of system for improved robustness and
energy-efficiency. The details of this work are provided below:

1. Developed robust CMOS compatible TFT devices by device optimization [C13].
2. Developed 3-D integration scheme to attach the TFT circuits on top of CMOS system [P1, J6, C13]. The low cost, fully reconfigurable TFT layer implements design-for-test circuitries for online test/validation, energy-efficiency and improved robustness of the Silicon design.

- Other Research Projects on VLSI Testing

1. Developed an integrated tester-on-chip consisting of low overhead delay sensors to improve the test coverage, test time and delay fault diagnosis. The delay sensors are also used for fast speed binning of high performance dies [J3, C3, C5].
2. A novel CAD framework using Shannon expansion and dynamic supply gating to improve test power, IDDQ testability, test cost and parametric yield [J4, C4].

Fall 2002- Fall 2004: Research Assistant (RA), ECECS Department, University of Cincinnati, OH

1. Developed scan chain fault identification scheme in the presence of signal integrity issues using weight-based m-out-of-n codes [C2].
2. Developed a serial interfacing technique for testing embedded multi-port memory arrays [J2, C1].
3. Developed embedded core test generation methodology using broadcast test architecture and netlist scrambling [J1].
4. Worked on pseudo-exhaustive testing of interconnect noises of high speed deep submicron VLSI circuits.

Patents


Publications

Book Chapters

Journal Papers (in preparation/under review)


Journal Papers


Conference Papers


Peer Reviewed Posters


Tutorial Presentations


Selected Invited Talks

1. “Breaking the barrier for low-power and energy-efficiency: an adaptive and self-healing approach”,
   c. Drexel University, 2012.
   f. Indian Statistical Institute, Kolkata, 2013.


4. “CRISTA: An integrated adaptive technique for voltage-overscaling and error-resiliency”
   b. Washington University, St. Louis, 2008.
SERVICE

Professional Contributions

- Member of Semiconductor Research Corporation (SRC).
- Member of following technical program committees
  - IEEE Interdisciplinary Engineering Education Conference (IEDEC) 2012.
- Paper review for following journals:
  - IEEE Design and Test of Computers (DT).
  - IEEE Transactions on Circuits and Systems-I (TCAS-I).
  - IEEE Transactions on Circuits and Systems-I (TCAS-II).
  - IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS).
  - Microelectronic Journal (MEJ).
  - Journal of Institution of Electronics and Telecommunication Engineers (IETE).
- Reviewer of following conferences:

On-Campus Contributions

- ECE Graduate Committee – 2012-2013.
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EDUCATION
Ph.D. Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, 1989.  
B.S. Computer Science, Moscow Forest Engineering Institute, Moscow, Russia, 1979.

PROFESSIONAL EXPERIENCE
5/06 - Associate Chair, Department of Computer Science & Engineering, University of South Florida  
8/00 - Professor, Department of Computer Science & Engineering, University of South Florida  
8/99 - Member, H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL  
3/13- Professor, Department of Oncological Sciences, USF Health  
1/06 - 5/06 Director of Graduate Studies, Dept. of Computer Science and Engineering, USF  
7/02 - 5/03 Professor, Cancer Control, Bioinformatics, H. Lee Moffitt Cancer Center, Tampa, FL  
7/99 - 5/02 Director of Graduate Studies, Computer Science and Engineering, USF  
5/99 - 5/03 Professor, Department of Psychology, University of South Florida  
8/94 - 7/00 Associate Professor, Computer Science and Engineering, USF  
4/96 - 5/96 Visiting Associate Professor, Computer Science, University of Bern, Bern, Switzerland  
9/95 - 3/96 Visiting Associate Professor, Computer Science, University of California at Santa Barbara  
8/89 - 7/94 Assistant Professor, Computer Science and Engineering, USF  

CURRENT RESEARCH INTERESTS
Image and Video Analysis, Biomedical Imaging, Computer Vision and Pattern Recognition, Bioinformatics and Bioengineering

HONORS
- Awarded Fellow status by International Association for Pattern Recognition (IAPR)”for contributions to computer vision, pattern recognition, and biomedical engineering” effective 2010.  
- USF Academy of Inventors, Charter Member, USF, 2009  
- Theodore and Venette Askounes-Ashford Distinguished Scholar Award, USF, 2008  
- Elevated to the Fellow status by the Institute of Electrical and Electronics Engineers (IEEE) ”for contributions to computer vision and biomedical applications” effective January 2007  
- IEEE Distinguished Visitor Program (DVP), 2004-2006  
- Keynote Speaker, Mexican International Conference on Computer Science, Puebla, Mexico, 9/2005  
- Together with two of his recent doctoral students Professor Goldgof was honored by USF Outstanding Dissertation Awards in 1999 (Dr. Leonid Tsap) and 2002 (Dr. Min Shin).  
- Selected a Favorite Professor by USF chapter of the National Society of Collegiate Scholars in 2001.  
- Paper ”Automatic tumor segmentation using knowledge-based techniques” selected by International Medical Informatics Association for 2000 IMIA Yearbook containing ”the best of medical informatics”.  
- Nineteenth Annual Pattern Recognition Society Award, 1993.  
- University of South Florida, College of Engineering Outstanding Young Investigator Award, 1992-1993.  
- General Electric Foundation Teaching Incentive Award, 1988.
EDITORIAL BOARDS AND COMMITTEES

• Managing Guest Editor, *Pattern Recognition Letters*, Special Issue on Depth Image Analysis, publication date: 2013
• IEEE Press Editorial Board, 2012-2014 terms
• Associate Editor - *IEEE Transactions on Systems, Man and Cybernetics, Part B* (2001 - present)
• Associate Editor - *International Journal of Pattern Recognition and Artificial Intelligence* (2008 - present)
• NII, Quantitative Imaging Network (QIN), Image Analysis & Performance Metrics Working Group (IAPMWG), member 2010 - present, Co-Chair 2011-2013.
• RSNA, Quantitative Imaging Biomarkers Alliance (QIBA), Algorithm Comparison Group, 2012 - present.
• Member-at-Large, Board of Governors, Systems, Man and Cybernetics Society, 2010-2011, 2007
• Founding Member - *Translational Bioinformatics Focused Interaction Group* at H. Lee Moffitt Cancer Center and Research Institute (2003 - 2005)
• Provost Academic Review Team for the Department of Computer and Information Sciences, University of Delaware (2002 -2003)
• International Association of Pattern Recognition Education Committee (2000 - 2002)
• Associate Editor - *PATTERN RECOGNITION* (1990 - 2001)

GRANTS

• Computational Fluid Dynamics of Pharmaceuticals Processing, Graduate Education and Research in Pattern Recognition (USF), 2007-2009, $60,000, (co-PI's Sunol, Khavinson).
• A Computer Science and Engineering REU Site, National Science Foundation, 01/01/2008 - 12/31/2010, $308,056, (co-investigator, PIs M. Labrador, R. Perez).
• Increasing the Accrual to Clinical Trials, National Institutes of Health, 6/01/05 - 11/30/07, $310,000 (co-PIs L. Hall, K. Fields).
• Effects of HYD1 on melphalan sensitivity in a SCID-Hu in-vivo multiple myeloma model, Multiple Myeloma Research Foundation, 1/01/06 - 12/31/06, $100,000 (co-investigator, PI L. Hazlehurst).
• Bioengineering Research Partnership for MR imaging spectroscopic data processing, National Institutes of Health, 7/1/02-6/30/07, $480,000 (co-inv, PI L. Hall, with UCSF, U Miami, UCLA, total funds $4.9M).
• Vision-based on-board collision avoidance system, National Science Foundation I/UCRC, 1/01/05 - 12/31/06, $140,000, (co-PI, PI R. Kasturi, co-PIs S. Sarkar, H. Jeanty).
• Outdoor Biometrics at a Distance for Video Surveillance, National Science Foundation I/UCRC, 1/01/05 - 12/31/06, $140,000, (co-PI, PI S. Sarkar, co-PI R. Kasturi).
• Film Flow in a Spinning Disk Reactor: Image Based Techniques, Collaboration in Basic Science and Engineering (COBASE), The National Academies, National Research Council, 1/1 - 12/31/2004, $7,800.
• Enhancing Undergraduate Computer Science Curriculum Through Image Computations, National Science Foundation, Course, Curriculum, and Laboratory Improvement (CCLI), 1/1/2000 - 12/31/2001, $75,205 (co-PI’s S. Sarkar, K. Bowyer).
• Segmentation and Combination of Range Data using Color-Texture Information, Sandia Laboratories, 7/8/98 - 8/31/99, $27,902 (co-PI’s S. Sarkar).
• Acquisition of a Cyberware 3D Scanner to Facilitate State of the Art Research in Computer Vision, National Science Foundation, Major Research Instrumentation (MRI) Program, 9/15/97 - 9/14/98, $115,000 ($164,286 with USF matching) (co-PI’s S. Sarkar, K. Bowyer, L. Piegl).
• Adaptive Segmentation of the Cardiac 3D Motion for MR images, National Institutes of Health, Office of Naval Research, 6/1/96 - 5/31/98, $31,026.
• Cardiac Segmentation, Hewlett-Packard Company, 4/1/95 - 6/1/95, $2,500.
• Analysis of Cardiac Tagged MR Images, Siemens Medical Systems Inc., 7/1/94 - 6/31/95, $12,500.
• 3D Image Segmentation and Cardiac 3D Motion Analysis from MR data Siemens Medical Systems Inc.,(co-PI with L. Clarke), 11/1/91 - 10/31/93, $50,000.
• Three-Dimensional Nonrigid Motion Analysis, National Science Foundation, Robotics & Intelligent Systems, Research Initiation Award, 7/15/90 - 6/30/93, $67,564 ($97,772 with USF matching funds). REU - supplement to IRI-9010357, 7/15/91 - 6/30/92, $8,000 ($11,000 with USF matching funds).
• Center for Engineering and Medical Image Analysis, Sun Microsystems Inc., Hardware Grant. (Co-PI with L. Clarke) 5/1/91 - 4/31/92, $131,600 ($161,600 with USF matching funds).
• Techniques for the Left Ventricle Wall Motion Analysis, The Whitaker Foundation, Biomedical Engineering Research Grants, 11/01/90-12/31/92, $102,549 ($112,549 with USF matching), 1/1/93-12/31/93, $52,449.

AFFILIATIONS

Fellow of IEEE, Fellow of IAPR, member of IEEE Computer Society, IEEE Systems, Man and Cybernetics Society, IEEE SMC Technical Committee on Medical Informatics, IEEE Engineering in Medicine and Biology Society, American Society of Engineering Education, Member of SPIE - The International Society for Optical Engineering, Member of OSA, Optical Society of America, Member of Pattern Recognition Society, Member of Phi Kappa Phi, The National Interdisciplinary Honor Society, Tau Beta Pi, The National Engineering Honor Society, Sigma Xi, The Scientific Research Society

RECENT CONFERENCES CHAIR/COMMITTEES

• International Conference on Pattern Recognition (22th ICPR), 8/2014, Stockholm, Sweden, Program Committee, Area Chair (Pattern Recognition and Machine Learning)
• 26th International Symposium on Computer-Based Medical Systems (CBMS 2013, IEEE/ACM), 6/2013, Porto, Portugal, Program Committee
• Big Data Computer Vision 2013, First IEEE Workshop on Large Scale Computer Vision, 6/2013, Portland, Oregon, Program Committee
• IEEE Workshop on the Applications of Computer Vision (WACV 2013, 1/2013, Clearwater Beach, Fl, Local Arrangements
• International Workshop on Depth Image Analysis (WDIA), 11/2012, Tsukuba, Japan, Workshop Chair
• International Conference on Pattern Recognition (21th ICPR), 11/2012, Tsukuba, Japan, Program Committee, Area Chair (Pattern Recognition & Applications)
• 25rd SIBGRAPI Conference on Graphics, Patterns, Images, 8/2012, Ouro Preto, Brazil, Program Committee
• 25th International Symposium on Computer-Based Medical Systems (CBMS 2012, IEEE/ACM), 6/2012, Rome, Italy, Program Committee
• 24rd SIBGRAPI Conference on Graphics, Patterns, Images, 8/2011, Macei, Brazil, Program Committee
• International Conference on Computer Analysis of Images and Patterns (CAIP 2011), 8/2011, Seville, Spain, Program Committee
• 23rd SIBGRAPI Conference on Graphics, Patterns, Images, 9/2010, Gramado, Brazil, Program Committee
• International Conference on Pattern Recognition (20th ICPR), 8/2010, Istanbul, Turkey, Program Committee
• The First IEEE International Conference on Biometrics, Identity and Security (BIdS), 9/2009, Tampa, FL, Program Committee
• International Conference on Computer Analysis of Images and Patterns (CAIP 2009), 9/2009, Munster, Germany, Program Committee
• IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA 2009), 7/2009, Miami, FL, Program Committee
• IEEE International Conference on Systems, Man, and Cybernetics (SMC 2008), 10/2008, Singapore, Program Committee
• International Conference on Pattern Recognition (19th ICPR), 12/2008, Tampa, Florida, Local Arrangement Chair
• IEEE Conf. Comp. Vision and Pattern Recognition, 6/2007, Minneapolis, MN, Demos Chair
• IEEE Workshop on Motion and Video Computing, 2/2007 in Austin, Texas, Program Committee
• International Conference on Pattern Recognition (18th ICPR), 8/2006, Hong Kong, Program Committee, Session Chair
• European Conference on Computer Vision (ECCV 2006), 5/2006, Graz, Austria, Program Committee
• 2nd International Workshop on Computer Vision Approaches to Medical Image Analysis (CVAMIA 2006), 5/2006, Graz, Austria, Program Committee
- Asian Conference on Computer Vision (ACCV 2006), 1/2006, Hyderabad, India, Program Committee
- Third International Conference on Image and Graphics, 12/2004, Hong Kong, Program Committee
- International Conference on Bioinformatics and its Applications (ICBA04), 12/2004, Fort Lauderdale, FL, Program Committee
- IEEE Workshop on Articulated and Nonrigid Motion, 6/2004, Washington, DC, General Co-Chair
- Computer Vision Approaches to Medical Image Analysis Workshop (CVAMIA), 5/2004, Prague, Czech Republic, Program Committee
- IEEE Conf. Comp. Vision and Pattern Recognition, 6/2003, Madison, WI, Program Committee
- IEEE Workshop on Motion and Video Computing, 12/2002, Orlando, FL, Program Committee
- International Conference on Pattern Recognition (16th ICPR), 8/2002, Quebec City, Canada, Program Committee
- IEEE Workshop on Mathematical Methods in Biomedical Image Analysis, 12/2001, Hawaii, Program Committee
- IEEE Workshop on Human Motion, 12/2000, Austin, TX, Program Committee
- IEEE Workshop on Applications of Comp. Vision, 12/2000, Palm Springs, CA, Program Committee
- IEEE Conf. Computer Vision and Pattern Recognition, 6/1999 Denver, CO, Area Chair
- IEEE Workshop on Biomedical Image Analysis, 6/1998 Program Committee
- IEEE Conf. Computer Vision and Pattern Recognition, 6/1998, Santa Barbara, CA, General Chair
- IEEE Workshop on Nonrigid and Articulated Motion, 6/1997, Puerto Rico, Program Committee
- IEEE Workshop on Applications of Computer Vision, 12/1996, Sarasota, FL, Program Committee
- IEEE Conf. Computer Vision and Pattern Recognition, 6/1996, San Francisco, Program Committee
- IEEE Workshop on Computer Vision, 11/1995, Miami, FL, Program Co-Chairman
- International Conference on Pattern Recognition (12th ICPR), 1994, Jerusalem, Session Chair
- IEEE Workshop on Biomedical Image Analysis, 1994, Seattle, WA, Program Co-Chairman

RECENT UNIVERSITY COMMITTEES

USF ResearchOne Funding Review Committee (2011-)
USF BME Graduate Program Steering Committee (2011-)
USF Distinguished University Professor Discipline Committee, Chair (2011)
USF Sabbatical Committee (2008-2010)
USF Engineering Dean Search Committee (2006-2007)
USF College of Engineering Executive Taskforce (2006-2007)
USF Provost Ad Hoc Committee (2006)
USF Council on Technologies for Instruction and Research (2005-2006)
USF College of Engineering Governance Committee (2005-2008)
Distinguished University Professor Committee (2003-2004)
Department Infrastructure Committee, Chair (2003-2005)
Department Graduate Committee (1990 - present)
Department Promotion and Tenure Committee (1995 - present)
College of Engineering CS&E Chair Search Committee (2002-2003)
USF Bioengineering Institute, Member of the Steering Committee (1999 - 2002)
Department Faculty Search Committee (1999-2000)
Department Technical Support & Lab Equipment Committee - Chairman (1994 - 1999)
Department Undergraduate Curriculum and Advising Committee (1997 - 1998)
Department Engineering Building III Committee (1997 - 1999)
Department Graduate Examinations Committee (1990 - 1997)
STUDENT SUPERVISION

Ph.D. Dissertation Guidance as Major Professor

12. Yong Zhang, "Robust Algorithms for Property Recovery in Motion Modeling, Medical Imaging and Biometrics", August 2005 (with S. Sarkar).

M.S. Thesis Guidance as Major Professor

3. Chandra Kambhamettu, "Curvature-Based Approach to Point Correspondence Recovery in Nonrigid Motion", 12/91.
4. Chin-Tzay Lin, "Motion Estimation from Scaled Orthographic Projections without Corresp.", 12/91.
10. Adam Hoover, "Creating a boundary representation from a range image", 12/93 (with K. Bowyer).
11. Mathew Clark, "Segmentation of Brain MRI with Knowledge-Based Clustering", 8/94 (with L. Hall).
18. Li Zhou, "Computer Aided Image Analysis of Skin Histology Images", 12/00 (with S. Sarkar).
19. Jamie Freeman, "Compression techniques for microarray images", 8/00.
23. Haiying Zhang, "Detecting Red Tides off West Florida Shelf by Classification of SeaWiFS Satellite Imagery", 12/02 (with L. Hall).
25. Mugdha Tembey, "Computer-Aided Diagnosis for Mammographic Microcalcification Clusters", 12/03 (with M. Kallergi).
27. Yan Qiu, "3D Deformation Model for Lesion Correspondence in Breast Imaging", 12/03 (with L. Li)
28. Bhawesh Goswami, "Optimizing Cost and Data Entry for Assignment of Patients to Clinical Trials Using Analytical and Probabilistic Web-Based Agents", 12/03 (with L. Hall)
29. Sangeeta Kundu, "Facial Strain Maps as a Biometric Source", 8/05 (with S. Sarkar).
33. Valentina Korzhova, "Tracking Fluid Flow in a Spinning Disk Reactor", 4/06
34. Vasant Manohar, "Video-based Person Identification using Facial Strain Maps as a Biometric", 4/06
35. Tim V. Ivanovskiy, "Mining Medical Data in a Clinical Environment", 7/06 (with L. Hall)
36. Chintan Thakkar, "Ventricle Slice Detection In MR Images Using Hough Transform and Object Matching Techniques", 12/06 (with L. Hall)
37. Sergiy Fefilatyev, "Detection of Marine Vehicles in Images and Video of Open Sea", 6/08
39. Sridhar Godavarty, "Microexpression Spotting in Video using Optical Strain", 8/10
40. Om Pavithra Bonam, "Automated Quantification of Biological Microstructures Using Unbiased Stereology", 6/11 (with L. Hall)
41. Daniel Toby Elozory, "Using a Focus Measure to Automate the Location of Biological Tissue Surfaces in Brightfield Microscopy", 6/11 (with L. Hall)
42. Joshua Kidd, "Detecting Surface Oil using Unsupervised Learning Techniques on MODIS Satellite Data, 5/12 (with L. Hall)
43. Owen Watson, "Full 3D Reconstruction from Multiple RGB-D Cameras", 5/13 (with S. Sarkar)
PUBLICATIONS (citations impact: h-index 39, g-index 70)

Journal:


Books:


Book Chapters:


Recent Conference Publications:


Conference - 2011:


Conference - 2010:

Conference - 2009:


Conference - 2008:


Conference - 2007:


Conference - 2006:


Conference - 2000-2005:


Conference - 1996-2000:


Conference - 1991-1995:


Conference - 1988-1990:


Biography: Larry Hall serves as the Chairperson of the Department of Computer Science and Engineering at the University of South Florida. The department has 23 faculty including 19 tenure-track faculty. Funded research for CSE typically exceeds 1.5 million dollars each year, and comes from both federal and business sources. Professor Hall played an instrumental role in significantly increasing the stipends for graduate students during his eight years as the graduate program coordinator allowing admission standards to be raised as enrollment increased.

Professor Hall is a past president of the IEEE Systems, Man, and Cybernetics Society, a former EIC of the IEEE Transactions on Systems, Man, and Cybernetics Part B: Cybernetics and a fellow of the IEEE and the International Association of Pattern Recognition. He has served on the North American Fuzzy Information Processing Society board and as their President for three years. He has served on the administrative committee of the IEEE Computational Intelligence Society and the International Fuzzy Systems Association.

He has published over 70 journal papers in the areas of approximate reasoning, data mining, and pattern recognition. He has published numerous conference papers and given a number of keynote addresses. He has mentored eighteen Ph.D. students as well as over forty Masters students. He earned an award for outstanding mentorship in the McNair program for minority undergraduate students.

Education:
Ph.D. in Computer Science, Florida State University, 1986.
M.S. in Mathematics - Computer Science Option, Florida State University, 1982.

Work Experience:
8/86 - University of South Florida
Tampa, Florida
Distinguished University Professor (11), Dept. Chair (08-), Professor (96),
Associate (91-), Assistant (86-91)
8/99-12/99 University of California, Berkeley
Division of Computer Science, Visiting Scholar

SUMMER 90 USAF Summer Faculty Research Program
Automated Target Recognition Branch, Wright Patterson AFB

SUMMER 89 Navy Summer Faculty Research Program
Naval Research Lab, Artificial Intelligence Center

SUMMER 87-88 NASA-Ames Research Center

NASA-ASEE fellowship to participate in the Stanford-Ames summer research program. Researched parallel inference algorithms and the specification of the space borne symbolic processor.

6/84 - 8/86 Florida State University
Tallahassee, Florida

Research Assistant: Developed concepts for an Intelligent Computer Aided Instructional System. Developed theory and practice of a multiple knowledge source Fuzzy Expert System. System has been applied to tree classification.

9/82 - 5/84 E-SYSTEMS, ECI DIVISION
St. Petersburg, Florida

Engineer: Worked on several packet switched networks. Designed TCP, IP, and Telnet protocol layers for a Satellite packet system. A working prototype was implemented in Ada on a MC68000. Designed and implemented upgrades to an in house packet radio system. Designed and implemented an emulation of a cryptographic transmission device. Both in house system and emulation were done in Z8000 assembly language.

9/80 - 8/82 Florida State University
Tallahassee, Florida

Teaching Staff: Taught Trigonometry, College Algebra, and Business Math. Assisted with Pascal, Data Structures and Assembly Language. Designed and taught FORTRAN 77 class for specialists and non-specialists. Taught computer use class.
Awards and Memberships:

Refereed Journal Publications:


• Divide and Conquer Neural Networks, Neural Networks, V. 6, pp. 1105-1116, 1993. (With S. G. Romaniuk).


• A. Bensaid, J. Bezdek, L.O. Hall, L.P. Clarke, Partially Supervised Clustering for Image Segmentation, Pattern Recognition, V. 29, No. 5, pp. 859-871, 1996.


• Velthuizen, Robert P., Hall, Laurence O., Clarke, Laurence P. Initial investigation of feature extraction with genetic algorithms for fuzzy clustering. Biomedical Engineering Applications Basis Communications 8(6), 496-517, 1996.


• L. Shoemaker, R. E. Banfield, L. O Hall, K. W. Bowyer, W. P. Kegelmeyer, Detecting and Ordering Salient Regions, Data Mining and Knowledge Discovery (DOI: 10.1007/s10618-010-0194-6), Published online 8/3/2010.


• Yuhua Gu, Virendra Kumar, Lawrence O. Hall, Dmitry B. Goldgof, Ching-Yen Li, Ren Korn, Claus Bendtsen, Emmanuel Rios Velazquez, Andre Dekker, Hugo Aerts, Philippe Lambin, Xiuli Li, Jie Tian, Robert A. Gatenby, Robert J. Gillies, Automated delineation of lung tumors from CT images using a single click ensemble segmentation approach, Pattern Recognition, Volume 46, Issue 3, March 2013, Pages 692-702, ISSN 0031-3203, 10.1016/j.patcog.2012.10.005.
  (http://www.sciencedirect.com/science/article/pii/S0031320312004384)


Books and Edited Volumes:


Chapters in Books:


Refereed Conferences:

- **Possibilistic Image Analysis**, the Third Annual Scandinavian Conference on Image Analysis, Copenhagen, Denmark, pp. 42-45, 1983. (With A. Kandel)

- **Algorithms for Fuzzy Classification**, the Fourteenth annual Symposium on Multiple Valued Logic, Winnipeg, Canada, pp. 142-147, 1984. (With A. Kandel)


• A Hybrid, Connectionist, Symbolic Learning System, AAAI-90, Boston, Ma., pp. 783-788, August. (With S. Romaniuk).


• An investigation of methods of combining functional evidence for 3-D object recognition,


• An Expert System for a Distributed Memory Multiprocessor Architecture, 4th Florida AI Research Symposium 1991, April, Cocoa Beach, pp. 121-124. (With Gary Whitehead)

• A Study of Machine Learning Approaches for some Classification Knowledge Bases, 4th Florida AI Research Symposium 1991, April, Cocoa Beach, pp. 125-129. (with S. Romaniuk and H. Lee)


• The Use of Connectionist Networks to Recognize Airplanes from Radar Returns, Artificial Neural Networks in Engineering '91, St. Louis, Mo., pp. 921-926, Nov. 1991. (with S. Romaniuk, J. Leonard, and R. Mitchell)


• Dynamic Neural Networks with the use of Divide and Conquer, International Joint Conference on Neural Networks, Baltimore, Md., June 1992, pp. I-658 - I-663. (with S. Romaniuk)


• A Partially Supervised Fuzzy c-Means Algorithm for Segmentation of MR Images SPIE conf. on the Science of Neural Networks Proc., Apr. '92, Orlando, Fl. (with Bensaid AM, Bezdek JC, Velthuizen RP and Clarke LP)

• A Connectionist Architecture for Production Rules with Variables, Iizuka'92, 2nd International Conference on Fuzzy Logic and Neural Networks, July. (with S.G. Romaniuk and K. Sanou).

• Towards Automatic Classification and Tissue Labeling of MR Brain Images, International Association for Pattern Recognition Workshop on Structural and Syntactic Pattern Recognition, Bern, Switzerland. In Advances in Structural and Syntactic Pattern Recognition, edited by H. Bunke, pp. 520-529. (with C. Li and D. Goldgof)


• *Unsupervised fuzzy segmentation of 3D magnetic resonance brain images*, Biomedical Image Processing and Biomedical Visualization, San Jose, Ca. (1993) (with R. Velthuizen).


• *Parallel Clips for Current Hypercube Architectures*, FLAIRS’93, Ft. Lauderdale, Fl. (with L. Prasad, E. Jackson).

• *A Connectionist Implementation of a Production System on the Connection machine*, FLAIRS’93 (with K. Sanou and S. Romaniuk).


• *Knowledge Based (Re-)Clustering*, 12th International Conference on Pattern Recognition, Israel, pp. 245-250, Oct. 1994 (with C. Li, D. Goldgof, M. Clark).


• Fuzzy rule generation with an instance-based learner, IFSA 95, Brazil, pp. 29-32, Vol. 1. (with T. Majchrzak)

• The use of Fuzzy Rules in Classification of Normal Human Brain Tissues, ISUMA-NAFIPS’95, pp. 157-162. (with Anand Namasivayam).

• Scaling Genetically Guided Fuzzy Clustering, ISUMA-NAFIPS’95, pp. 328-332. (with Burak Ozyurt).


• J. Lei and L. O. Hall, Speaker Recognition with a self-configuring neural network, ICNN’97, pp. 2351-2354.

• L.O. Hall and M.A. Pokorny, Averaged Reward Reinforcement Learning Applied to Fuzzy Rule Tuning, FUZZY’97.

• L.O. Hall and M.A. Pokorny, Reinforcement Tuning of Fuzzy Rules, NAFIPS’97, pp. 124-129, Syracuse, N.Y.


• Steven Eschrich, Nitesh V. Chawla, Lawrence O. Hall, Generalization Methods in Bioinformatics, BIOKDD02 Workshop at KDD’02, Edomonton, Ca., 2002.


• Lawrence O. Hall and Ajay Joshi, Building Accurate Classifiers from Imbalanced Data Sets, IMACS’05, Paris, Fr., July 2005.

• N.V. Chawla, L.O. Hall and A. Joshi, Wrapper-based Computation and Evaluation of Sampling Methods for Imbalanced Datasets, Workshop on Utility-Based Data Mining, KDD’05, Chicago, IL, August 2005.


Shibendra Pobi and L.O. Hall, Predicting Juvenile Diabetes from Clinical Test Results, International Joint Conference on Neural Networks, pp. 4161-4167, Vancouver, Ca., July 2006.


• Kurt Kramer, Dmitry B. Goldgof, Lawrence O. Hall, Andrew Remsen, Increased Classification Accuracy and Speedup Through Pair-wise Feature Selection for Support Vector Machines, IEEE SSCI, April, 2011.

• Larry Shoemaker and Lawrence O. Hall, Anomaly Detection using Ensembles, Multiple Classifier Systems, June 2011.


• Sergiy Fefilatyev, Kurt Kramer, Lawrence Hall, Dmitry Goldgof, Rangachar Kasturi, Andrew Remsen, Kendra Daly, Detection of Anomalous Particles from Deepwater Horizon Oil Spill Using SIPPER3 Underwater Imaging Platform, IEEE ICDM Workshop on Data Mining Case Studies, Honorable Mention Best Paper, Dec. 2011.
• Jonathon K. Parker and Lawrence O. Hall and James C. Bezdek, Comparison of Scalable Fuzzy Clustering Methods, WCCI 2012, June, Brisbane Australia.

• Lawrence O. Hall, Exploring Big Data with Scalable Soft Clustering, SMPS'12, 6th International Conference on Soft Methods in Probability and Statistics, Konstanz Germany, October 2012.


• Fefilatyev, Sergiy, Shreve, Matthew, Kramer, Kurt, Hall, Larry, Goldgof, Dmitry, Kasturi, Rangachar, Daly, Kendra, Remsen, Andrew, Bunke, Horst, Label-Noise Reduction with Support Vector Machines, 21st International Conference on Pattern Recognition, Nov. 2012, Japan.

Non-refereed Conferences:
(With T. Higgins and C. Eggert)


A Genetic Approach to Fuzzy Clustering, First International Conference on Neural Networks, Optimization, and nonlinear dynamics, Atlanta, May 1995.

Presentations:

Effective Knowledge Acquisition from Experts, Conference on Knowledge- Seeking by Questioning, Florida State University, Tallahassee, April 1985.

Parallel Fuzzy Logic Inference, Second Annual Engineering Research Seminar, University of South Florida, Tampa, April 1987.


Invited Talks and Panels:


Panel member of the Knowledge Worker Productivity Challenge discussion panel sponsored by Tampa Bay Chapter of the ACM, Nov. 10, 1988, Hillsborough C.C.


Artificial Intelligence, Tau Beta Pi awards banquet, April 1990.

Recognizing Airplanes from Radar Returns, Embry-Riddle Aeronautical University, April 1992.

A Fuzzy Hybrid Connectionist System, Third International Workshop on Neural Networks and Fuzzy Logic'92, Pg. 12, Houston, TX, June 1992.


Fast Fuzzy Clustering with Application to Fuzzy Rule Generation, Tokyo, Japan, April, 1995.


Generating Fuzzy Rules from Decision Trees, IFSA’97, June 97.

Speaker Recognition with a self-configuring neural network, International Conf. on Neural Networks, June 97.


Distributed Data Mining, University of Missouri, Columbia, Missouri, February, 2002.

Distributed Data Mining to Build Models of Extreme Data Sets and its Applications to Complex Systems,
International Conference on Systems Complexity, Qingdao, China, May 2002.

Segmenting (Non-)enhanced Brain Tumors from Normal Tissues in Magnetic Resonance Images, Neurology and radiology department seminar, University of Illinois at Chicago, October, 2002.


Distributed Learning for the Analysis of Extreme Data sets, Keynote address at the Fifth International Symposium on Intelligent Data Analysis, Berlin, Germany, August, 2003.

Adapting Computational Intelligence to Large Data Sets, Keynote talk at: The second international conference on Computational Intelligence, Robotics and Autonomous Systems, Singapore, Dec. 16, 2003.

Learning from Large Amounts of Data, Keynote talk at: The International Conference on Machine Learning and Cybernetics, August 27, 2004, Shanghai, China.


Scaling and Fortifying Fuzzy Clustering for Data Analysis, Semi-Plenary, German Classification Conference, Magdeberg, Germany, March 10, 2005.

Swarm Based Clustering with Partition Validity, University of Konstanz, Konstanz Germany, July 20, 2005.

Learning from Large Amounts of Data, University of Concordia/IEEE SMC Society Chapter, Montreal, CA, Dec. 13, 2005.

Panel on: The future of biometrics - research, application and social challenges and how do we overcome, at the CVPR 2006 Biometrics Workshop, June 18, 2006.

Learning in the extreme: Lots of data, lots of features, and/or lots of class skew, Keynote, IEEE Adaptive Learning Workshop (SMCALS), Logan Utah, July 25, 2006.


Learning from Large Amounts of Data, University of Bern, Bern Switzerland, October 31, 2006.

Multiple Classifier Systems and their Evaluation, Univ. of Konstanz, Konstanz Germany, November 8, 2006.

Learning from Large Amounts of Data, SMC Hiroshima Chapter, Okayama University, Okayama, Japan, Dec. 15, 2006.

What are Classifier Ensembles Good for Anyway and How Would You Know?, Dept. of CS Grad made Good series, Florida State University, October 26, 2007.

Scalable Fuzzy Clustering Algorithms, Keynote, NAFIPS 2008, N.Y., N.Y.

Scaling Soft Clustering to Very Large Data Sets, Jinwen University of Science and Technology, Taipai, Taiwan, and National I-Lan University, National Taichung University, Taiwan, August 2009.

Finding the right genes for Disease and Prognosis Prediction, **Plenary**, International Conference on Systems Science and Engineering, Taipei, Taiwan, July 2010.

Scaling Soft Clustering to Very Large Data Sets, National Taiwan University, July 2010.

Finding the right genes for Disease and Prognosis Prediction, Suzhou University, Suzhou China, March 2011

What are Classifier Ensembles Good for Anyway and How Would You Know?, Nanjing University, Nanjing, China, March 14 2011

Scaling Soft Clustering to Very Large Data Sets, Xidian University, X’ian, China, March 2011

Exploring Big Data with Scalable Soft Clustering, SMPS’12, Konstanz, Germany, October 2012.

Technical/Internal Reports:


Research Grants:


7) Florida Space Grant Consortium, Undergraduate Space Research Participation, $4,000.00, ($2,000.00 matching from USF), May 1, 1990-September 1, 1990.
9) Honeywell Systems and Research Center, Validation of Knowledge-based Systems, 6/15/90-6/30/91, $44,800.
11) Florida High Technology and Industry Council, Software Section Parallel Expert Systems, 1/1/91-12/31/93, $65,000.00.
12) National Science Foundation, Research Experiences for Undergraduates Supplement to NSF grant CDA-8920890, $13,000.00, ($3,000.00 matched by USF), 5/1/91-4/1/92.
13) Whitaker Foundation, The Use of Hybrid Methods to Segment Magnetic Resonance Images for Improved Cancer Detection and Treatment, $176,000.00, 5/1/92-4/31/95.
14) Honeywell Systems and Research Center, Parallel Expert Systems for Grid Architectures, $25,000.00, 5/1/92-4/31/93.
15) National Institutes of Health, NCI (CA59 425-01), MRI Segmentation for Tumor Volume Measurements, $370,000.00, 4/1/93-3/31/96, (Co-PI with L.P. Clarke).
16) Seaway Technologies, Inc. Speaker Recognition with Neural Networks in a Phrase Independent System, $12,100.00, July 1, 1994- June 31, 1995.
17) Harris Corporation, Parallel ART, $49,000.00, Sept. 1, 1994-May 1, 1996.
18) Moffitt Cancer Center, A Qualitative Reasoning Expert System for Assigning Patients to Clinical Trials, $30,200.00, May 1, 1997 - May 1, 1999. (Co-PI Dmitry Goldgof)
20) National Science Foundation, Acquisition of a Computer Server for Image Analysis Research that Emphasizes Empirical Performance Characterization, $88,848, 1/1/98-12/31/98. (Co-PI Kevin Bowyer, Dmitry Goldgof, Sudeep Sarkar)
21) Army Research Laboratory, Robust Recognition of Interesting Objects from Images, $50,000, 12/99-9/31/01
22) Army Breast Cancer Research Program, Automated Matching of Patients to Clinical Trials, $307,000, 7/3/00-8/2/03 (Co-PI's D. Goldgof and J. Krischer)
23) Tripos, Inc., $160,000, 8/1/00-7/31/02, Approximate Data Mining from High Throughput Screening Data.
24) A Computer-Intensive Sensor-Based Environment for Research in Computer Vision and Artificial Intelligence, National Science Foundation, 9/15/01-9/14/02,$141,213+$72,000 matching, (S. Sarkar, P.I., D. Goldgof, E. Fink (co-PIs)).
25) Partnership for MR imaging spectroscopic data processing, National Institutes of Health, 7/1/02-6/30/08, $480,000 (with UCSF, U Miami, UCLA, total funds $4.9M).
27) Rare Diseases Data and Technology Coordinating Center, National Institutes of Health, 8/1/03-7/31/05, $35,000.00 (Overall P.I. Jeff Krischer)
28) Increasing the Accrual of Clinical Trials, National Institutes of Health, NCI, 6/1/05-11/30/07 (co-PI's D. Goldgof, C. Garrett),$286,325
29) Graduate Student Support in Bioinformatics, Moffitt Cancer Center, 8/15/08-5/10/11, $110,000, co-PI, D. Goldgof


34) Radiomics of Lung Cancer Screening, James and Esther King Program Grant, 9/1/2011- 8/31/2014, $277,000.00 subcontract from $1.275M with Moffitt P.I.’s Bob Gillies and Bob Gatenby, (Goldgof and Hall, Co-P.I.’s on subcontract).

**Selected Professional Service:**

1. Referee for NAFIPS 1986
2. Referee for Southeastcon 1987
3. Referee for Computer - Special Issue On Multiple Valued Logic
4. Referee for Journal of Mathematical Geology
12. Referee for A.I. Magazine
13. Program Committee SPIE 10-12th Conference on AI Applications
14. **Associate Editor** for IEEE Transactions on Systems, Man and Cybernetics, 1992-.
15. Program advisory board, NAFIPS’92,93.
20. Co-program Chair NAFIPS’94 Conference.
24. National Institutes of Health grant reviewer.
25. **Associate Editor** for IEEE Transactions on Fuzzy Systems, 1995-.
27. Program Committee’s 1996: NAFIPS, Fuzz-IEEE, SPIE (Fuzzy Logic), FLAIRS.
28. Program Committee’s 1997: NAFIPS, Fuzz-IEEE, SPIE (Fuzzy Logic), FLAIRS, AAAI, IJCAI.
29. Associate Editor Handbook of Fuzzy Computation.
30. Associate Editor Journal of Intelligent Data Analysis.
31. General Chair FLAIRS’98.
32. Program Chair NAFIPS’98.
34. Program Committee FLAIRS’99-00, FUZZ-IEEE’99-08
35. Program committee 4th International Conference on Advances in Pattern Recognition and Digital Techniques, 99.
42. Program Committee Workshop on Multi-Media Datamining, KDD 2004.
43. Program Committee ICTAI conference 2002-04
44. Co-Program Chair NAFIPS 04.
45. Program Committee ACM Southeast Conference 2006
46. Program Committee Siam Data Mining Conference 2006-08,10
47. Program Committee Multiple Classifier Systems conference 2005,07-09
48. Program Committee IPMU 2006,08.
49. PC Second International Conference on Pattern Recognition and Machine Intelligence
51. PC International Conference on Machine Learning and Cybernetics, 2006-08.
53. Program Committee IEEE International Conference on Data Mining 2005, 07, 09, 10, 11, 12
55. Program Committee CIDM 2008.
57. IEEE TAB Representative to EAB, 2008, PSPB 2008
58. IEEE Periodicals Committee, 2009
59. IEEE PSPB SPC 2010-12
60. Associate Editor International Journal of Pattern Recognition and Artificial Intelligence, 2007-
61. IEEE PSPB 2012-13, IEEE Institute Editorial Board 2012-13

Courses Taught:
5. Fortran For Non-Specialists
at U.S.F.:
4. Fuzzy Sets and Intelligent Systems - CDA 6930, (Text: Fuzzy Mathematical
Techniques by Kandel)
7. Introduction to Artificial Intelligence - CAP 5625, (Text: The Elements of Artificial Intelligence, Using Common Lisp by Tanimoto)
8. Introduction to Artificial Intelligence and Expert Systems, CIS 4930, (Text: Artificial Intelligence, Structures and Strategies for Complex Problem Solving 2nd, by Luger and Stubblefield.)
10. Program Design – CIS 4930, (Text: C: How to Program by Deitel and Deitel)
12. Data Mining (Texts: Data Mining, I. Witten and E. Frank, Machine Learning by Tom Mitchell)

Graduate Students:
18 Ph.D. (Steve Romaniuk, Amine Bensaid, Robert Velthuizen, Matt Clark, Burak Ozyurt, Mingrui Zhang, Lynn Fletcher-Heath, Nitesh Chawla, Steven Eschrich, Tong Luo, Robert Banfield, Prodip Hore, Yuhua Gu, Larry Shoemaker, Juana Canul-Reich; as co-Major Prof. with Robin Murphy - Jennifer Gage, Cindy Bethel, Jeff Craighead)
Currently directing 1 M.S. Theses and 4 Ph.D. Dissertations.

Senior Projects: 7 completed
Undergraduate Research Students: Aneesh Karve, Remy Losaria, Richard Banasiak, Daniel Garcia, Andrew Stella-Vega, Stacey Francis (McNair Fellow), Anthony Hildoer (McNair Fellow), Edwin Miguel

Consulting: IBM, Group Technologies, WCS, Harris.

Service:
1. Departmental/University Committee Duties:
Chairman Colloquium Committee (86-88)
Chairman Unix VAX Committee (86-88)
Undergraduate curriculum committee (86-89)
Equipment committee (86-88,90)
3B Users group committee (86/87)
College computer committee (87/88)
Accreditation committee (87/88)
Master’s Exam Committee 86-90
Graduate Admissions Committee (90)
2. Member of Florida State University Institute for Expert Systems and Robotics.
3. Univ. Representative to the Florida A.I. Center working group (89-90).
4. Chair Sarasota Faculty Search Committee 1991.
5. College representative to campus committee on computers for teaching and research (CCTR).
6. Graduate Program Coordinator (1991-99)
7. Graduate Dean Search Committee (1993-1994)
9. University Research Council 1995- (Vice-chair 96-97), (Chair 97-98)
10. Technical support committee (93-96)
11. Graduate Dean Search Committee (96-97)
12. Provost committee for research enhancement (97-98)
13. University Graduate Council (00-01)
14. Associate Dean for Research search committee (COE) (07)
15. Department Chairperson (1/08)-
16. Student Success Task Force 09-10
RESEARCH SUMMARY

Distributed systems, with emphasis on designing, implementing and experimenting with algorithms, services and applications for large-scale networked-systems. In particular: socially-aware distributed systems, system characterization for Grids and peer-to-peer networks, usage-aware resource management, data management in distributed scientific collaborations, social networks characterization, cloud computing.

EDUCATION

Ph.D. in Computer Science, University of Chicago 2003
M.Sc. in Computer Science, University of Chicago 1999
M.Sc. in Computer Science, Politehnica University of Bucharest, Romania 1996
B.Sc. in Computer Science, Politehnica University of Bucharest, Romania 1995

EMPLOYMENT

Associate Professor, Computer Science and Engineering, University of South Florida since August 2011
Assistant Professor, Computer Science and Engineering, University of South Florida 2005–2011
Visiting Assistant Professor, Computer Science Department, Duke University 2004–2005

AWARDS AND HONORS

• NSF Faculty Early Career Development (CAREER) Award, 2010.
• Teaching Award, Department of Computer Science, University of Chicago, 2001 and 2002.
• Exceptional Contribution Award, Department of Computer Science, University of Chicago, 2002.

PUBLICATIONS (Available at http://www.cse.usf.edu/~anda)

Note:
- h-index: 24; over 5,000 citations as returned by Google Scholar in April 2013.
- Co-authors who were students at USF at the time of the research effort are marked with *.

Journal Articles (Refereed)


**Conference Publications (Refereed)**


Adriana Iamnitchi, PhD


[34] Lavanya Ramakrishnan, Jeffrey S. Chase, Laura Grit, Adriana Iamnitchi, David Irwin, Aydan Yumerefendi. Toward a Doctrine of Containment: Grid Hosting with Adaptive Resource Control. In Supercomputing’06: Proceedings of the ACM/IEEE conference on Supercomputing, Tampa, FL, USA, November 2006. (acceptance rate: 22%)


Book Chapters, Invited Papers, and Editorials
Short Papers and Posters (Refereed)


Participation in Art Festivals and Performances (with contributed software)


FUNDING


- **Tango Panopticon** (College of Engineering Interdisciplinary Scholarship Program, University of South Florida). Adriana Iamnitchi and Robert Lawrence (Department of Art & Art History). Project dates: 03/2009–05/2010. Amount: $15,000 (+$5,000 matching funds from the College of The Arts).


- **Ice Deposits in Caves: a Novel Paleoclimate Archive** (Interdisciplinary Research Grant, University of South Florida). Bogdan Onac (PI, USF Department of Geology), Jonathan Wynn (co-PI, USF Department of Geology), Adriana Iamnitchi (co-PI), Robert Lawrence (co-PI, USF Department of Art & Art History), Angelica Feurdean (co-PI, Oxford University), Norel Rimbu (co-PI, Alfred Wegener Institute). Project dates: 05/2008–04/2010. Amount: $42,000.

- **CT-ISG: Collaborative Research: Trustworthy Enforcement of Domain-independent Run-time Policies** (National Science Foundation). Jay Ligatti (PI), Adriana Iamnitchi (co-PI), and Lujo Bauer (PI at Carnegie Mellon University). NSF CyberTrust awards CNS-0716343 (USF) and CNS-0716216 (CMU). Project dates: 8/1/07–7/31/10. Amount: $300,000 (USF) + $50,000 (CMU).


TEACHING AND COURSE DEVELOPMENT

**Instructor**, University of South Florida
- Basics of Parallel and Distributed Systems (*new*, graduate and undergraduate level) Spring ’09, ’11
- Operating Systems (graduate level) Spring ’08, ’09, ’10, ’12
- Internet-Scale Networked-Systems (*new*, graduate level) Spring ’08
- Operating Systems (undergraduate level) Spring ’06, ’07, Fall ’07, ’08, ’10, ’11
- Federated Distributed Systems (*new*, graduate level) Fall ’05, ’06
- Terrain Analysis for Human-Robot Interaction (*new*, seminar, graduate level) Spring ’07
- Distributed Systems (*new*, seminar, graduate level) Spring ’07

**Invited Lecturer**, Universidad Carlos III de Madrid, Departamento de Informatica
- Peer-to-Peer Systems, Grid and Cloud Computing: Real-life Instances of Distributed Systems (graduate level) 8-hour seminar March 2009

**Instructor**, Duke University
- Federated Distributed Systems (graduate level) Fall 2004

**Teaching Assistant**, University of Chicago
- Algorithms; Practicum in Distributed Objects; Advanced Object Oriented Design & Development; Unix Systems Programming; Networks; Large-Scale Networked Systems (all at graduate level)

**Teaching Assistant**, Politehnica University of Bucharest, Romania
- Formal Languages (undergraduate level) Spring 1996
RESEARCH SUPERVISION

Graduated PhDs:

Current PhD students:
– Jeremy Blackburn (since 2010)
– Xiang Zuo (since 2010)
– Imrul Kayes (since 2011)

Graduated MS students (with thesis):

VISITING RESEARCHER

• Telefonica Research, Barcelona, Spain, September 2012–July 2013 (sabbatical year).
• Universidad Carlos III de Madrid, Spain, July 2008. Resulted published work: [6].
• Argonne National Laboratory, June–August 2007. Resulted published work: [29].

INVITED TALKS

• The Social Hourglass: Enabling Socially-Aware Applications and Services
  – Telefonica Research, Barcelona, September 2012.

• Enabling Socially-Aware Distributed Systems
  – University of Chicago, February 2011.
  – Boston University, September 2010.
  – INRIA Saclay-Ile de France, Laboratoire de Recherche en Informatique, Université Paris-Sud, June 2010.

• Filecules and Small Worlds in Scientific Communities: Characteristics and Significance
  – New Jersey Institute of Technology, Department of Computer Science, February 2007.

• Filecules and Small Worlds in the DZero Workload: Characteristics and Relevance for Data Management, Fermi National Accelerator Laboratory, August 2007

• What do scientists & peer-to-peer users have in common? Usage Patterns in Distributed System

• Amazon S3 for Science Grids: When Simple is Expensive, Distributed Systems Laboratory Workshop, Department of Computer Science, University of Chicago, May 2007.
• Exploiting Small-World Usage Patterns in File-Sharing Communities
  – Microsoft Research (Silicon Valley), December 2004.

• On the Convergence of Peer-to-Peer and Grid Computing, Winter 2004 Joint Techs/APAN (Asia

• Capabilities of P2P that Grids Should Exploit: Looking at Deployed Systems, Peer-to-Peer and Grids:
  Synergies and Opportunities Workshop at Global Grid Forum (GGF9), Chicago, October 2003.

• Locating Data in (Small-World?) Peer-to-Peer Scientific Collaborations
  – INRIA Saclay-Ile de France, Laboratoire de Recherche en Informatique, Université de Paris-Sud,
    June 2002.
  – Fermi National Accelerator Laboratory, August 2002.

• Centralized vs. Decentralized Design for Internet Applications, The Workshop on Internet-scale

PROFESSIONAL SERVICE

Guest editor for:
  – Special Issue on Global and Peer-to-Peer Computing, Journal of Grid Computing (Springer
    Netherlands), September 2006.
  – Special Issue on Peer-to-Peer Computing and Interaction with Grids, Future Generation

Program chair for:
  – EuroPar 2010, Peer-to-Peer Topic.


Participant in the NSF/EU workshop Focus on Future Directions of Pervasive Computing and
Social Networking and their Adaption to Emerging Applications, Mannheim, Germany, March 2010.

Organizer of the Grid@Duke workshop – a forum of grid leaders and Duke scientists aimed at
exploring the opportunities that grid technologies can bring to the Duke research community.

Technical Program Committee Member for:
  – IEEE BigData 2013
  – CoNext 2013
  – International ACM Symposium on High Performance Distributed Computing (HPDC) 2013,
    2012, 2011
  – IEEE P2P 2012
  – International Symposium on Stabilization, Safety, and Security of Distributed System (SSS),
    Social Networks track, 2012
  – International Conference on Contemporary Computing (IC3), Systems Track, 2011
  – Supercomputing 2011, Cloud Computing track
  – DataCloud Workshop 2011
Adriana Iamnitchi, PhD

- WWW 2010
- Supercomputing 2010, Cloud Computing track
- EuroPar, Peer-to-Peer Topic vice-chair 2009
- International Conference on High Performance Computing and Communications (HPCC) 2009
- International Heterogeneity in Computing Workshop (HCW) 2009, 2008
- Workshop on Large-Scale System and Application Performance (LSAP) 2009
- Decentralized Self-Management for Grids, P2P, and User Communities (Selfman) 2008
- Data-Aware Distributed Computing workshop (DADC) 2008
- International Workshop on Middleware for Grid Computing 2006
- Supercomputing 2006
- GridNets 2006
- International Conference on Grid Computing (Grid) 2007, 2006
- Modeling and Simulation of P2P networks 2006
- International Conference on Parallel Processing (ICPP) 2006, 2005, 2004
- International Conference On Principles Of Distributed Systems (OPODIS) 2004


**Reviewer** for grant funding programs such as Kentucky Science and Engineering Foundation, and research funding programs of Sweden, Israel, The Netherlands, and Austria.
HENRY HENRICK JEANTY, Ph.D.
2126 Harcourt Place
Odessa, Florida 33556
(813) 852-1291
henrickjeanty@gmail.com

EDUCATIONAL BACKGROUND

- **Doctorate of Electrical Engineering** – 1990
  City University of New York, New York, NY
  Specialization in Pattern Recognition, Signal Processing, Optical Character Recognition, Handwriting Recognition and Image Processing

- **Masters of Science in Electrical Engineering** – 1982
  Purdue University, West Lafayette, IN

- **Bachelor of Engineering in Electrical Engineering with Minor in Mathematics** – 1981
  Manhattan College, Riverdale, NY
  Summa Cum Laude
  Winner of outstanding Engineer of the Year Award
  2nd in Merit for the Outstanding Electrical Engineer of the Year Award.

PROGRAMMING LANGUAGES, TOOLS & PLATFORMS

- Multithreading, Sockets.
- MS SQL server
- Windows3x, Windows9x, Windows NT, Windows XP, UNIX, AIX, DOS, VM, OS/2, CPM.

FAMILIARITY:

- Software Design Life Cycle (SDLC)
- Agile Development
- Concurrent Version System (CVS)
- Object Oriented Programming (OOP)
- Unified Modeling Language (UML)
- Customer Relations Management (CRM)
- Enterprise Resource Planning (ERP)
- Cost Benefit Analysis (CBA) & Risk Assessment

EXPERIENCE

August 2004 – Present
Computer Science & Engineering Department, University of South Florida (USF)
Faculty Member
Courses designed and taught: Object-Oriented Design & Programming (C++), Software System Development in C#, Programming for Engineers (C), Computer Architecture, Computer Organization, Logic Design, Ethics, Foundation of Engineering.

Course emphasis on Stock Market Analysis, Software Architecture, Object-Oriented Analysis & Design, Pattern Recognition, Computer Architecture, and Logic Design.

Use C++ and C# courses to teach a bit of Technical Analysis and use technical analysis problems as the basis for class projects.

Supervised USF’s annual “Engineering Expo”, which takes place over a two-day period and is the largest recruiting tool for the College of Engineering.

July 2012 – Present
Director of Research at You Can Learn, Inc. (http://www.youcanlearn.com/)

- Responsible for researching improved electronic teaching applications based on a patent pending method.

May 2010 – December 2011
Researcher at UNATION, a Social Network (http://www.unation.com/)

- Responsible for researching targeted advertising algorithms.

February 2010 – December 2011
Consultant at The HighStreet Group hedge fund (http://www.highstreet-group.com/)

- Responsible for architecting and implementing stock analysis applications with an emphasis on Real-time Technical Analysis. The implementation was done in C# using Windows Forms and eSignal as a data feed. The application was first written in C++ and then redone in C#.

December 2000 – Present
Software Architect

- Designed an Object-Oriented software to perform automatic recognition of price patterns in stocks in (C++) and (C#) in Windows environment.
- Designed a fully Object-Oriented library of Classes for automatic Pattern recognition in stocks, commodities and currencies.
- Developed the entire program from Communication with Data Feeds (knowledge of TAL, TWS, eSignal feed API's) to interfacing with Databases (SQL) to designing graphical user interfaces to generating Real-Time trading signals.
- The program automatically detects technical patterns along with target and stop-loss prices on a real-time basis and generates spreadsheet output for Statistical Analysis.

May 2000 – December 2000
The Buy, Sell or Hold Company, Inc., Tampa, FL.
Principal Research Engineer

- Designed and implemented Stock Price Pattern Analysis algorithms and Automatic trading application frameworks in an Object-Oriented fashion, using (C++ and STL) in a Windows 2000 environment and using Townsend Analytics (TAL) feed API.

August 1995 – April 2000
Nielsen Media Research, Dunedin, FL.
Lead Software Architect

- Designed and implemented a multithreading, socket based, Object-Oriented metering application to monitor Internet Explorer Browsers (track websites visited) to determine downloaded pages and to detect the types of interaction users had with the website, which became the basis for a new line of business for Nielsen.
- Designed Object-Oriented tools to gather streaming information from Digital TV card and track viewing patterns of Digital TV, which resulted in a new source of revenue for Nielsen.
- Used COM (Component Object Model) to design and implement meters to detect channel information from PC-TV applications (WebTV for Windows, Intel's Intercast), which also resulted in a new source of revenue for Nielsen.
- Designed and implemented the Data Collector which all internet and PC-TV meters at Nielsen would use to send data across the internet to a remote collection facility using sockets and TCP/IP.
• Designed and implemented an Object-Oriented Automatic Audience Metering System. The system uses multiple cameras and automatically detects the presence of viewers in multiple rooms, tracks and recognizes them on a continuous, real-time basis.

• Designed and implemented an Object-Oriented learning module to automatically learn faces and create a face library for the Automatic Audience Metering System.

• Designed and implemented an Object-Oriented testing module to automatically verify the accuracy of the Automatic Audience Metering System.

• Designed and implemented multithreading socket based internet transport mechanisms and client-server algorithms.

• Designed a Voice Recognition system using Basic Stamps to be attached to Automatic Audience Metering System.

United Parcel Service Research & Development Optical Character Recognition Group, Danbury, CT.
Software Engineer

• Supervised an international contract with an outside contractor that was based in Russia and supervised the temporary workers for the project.

• Designed and implemented Object-Oriented OCR algorithms on machine printed text, which helped automatically read machine printed address labels on UPS packages.

• Designed and implemented segmentation algorithms for OCR.

• Designed and implemented algorithms for address validation and address parsing, which helped to automate address recognition in UPS delivered packages.

• Designed and implemented class libraries in (C++). The libraries contain classes for images, recognizers, segmenters, interconnection networks.

• Designed and implemented testing frameworks used for the automatic evaluation of performance of OCR algorithms.

• Evaluated and selected case tools and (C++) compilers and class libraries.

• Organized (C++) courses, contacted vendors, reviewed the curricula, and selected the final course.

• Worked on networking algorithms to remotely gather data using TCP/IP and Client/Server paradigm.

April 1990 – Nov. 1992
IBM T.J. Watson Research Center, Image Processing & Handwriting Recognition Groups, Hawthorne, NY.
Post-Doctoral Researcher

• Taught (C++) class to members of a handwriting recognition group and initiated the move from (C) to Object-Orientation and (C++) in the handwriting recognition group using AIX. C++ became the de facto language for the Handwriting Recognition group.

• Designed, implemented and patented on-line handwritten segmentation algorithms that were used on IBM pen computers.

• Designed, implemented, tested and patented on-line handwritten character recognition algorithms used on IBM pen computers.

• Designed and implemented Object-Oriented image processing algorithms in (C++) and real-time software interface to a high resolution full color scanner to produce digital images of artwork created by Andrew Wyeth (as part of the Andrew Wyeth Project) using AIX, RS6000 and National Instruments GPIB Bus.

• Designed and implemented Object-Oriented check recognition systems in (C++).

• Wrote Class library in (C++) for Hidden Markov Model (HMM) for speech recognition algorithms.

PATENTS


• U.S. Serial #463770 – United States Patent 5,005,205: "Handwriting Recognition Improvement by Pair-wise Discrimination".
PUBLICATIONS & PRESENTATIONS

Pattern Recognition and the Stock Market. October 7, 2008. For the Association of Computing Machinery (ACM) at the University Of South Florida, Department of Computer Science. With special emphasis on analyzing the historical moves of the DOW made on October 6, 2008.

Pattern Recognition and the Stock Market. June 28, 2006. For the Association of Computing Machinery (ACM) at the University Of South Florida, Department of Computer Science.


AWARDS & MEMBERSHIPS

Awarded Fully Endowed Fellowship to Massachusetts Institute of Technology (MIT) – 1983
Outstanding Engineer of the Year Award – Manhattan College – 1981
2nd in Merit for the Outstanding Electrical Engineer of the Year Award – Manhattan College --1981
High school Valedictorian at Cours Descartes. Kinshasa, Zaire.

Member of TAU BETA PI (The National Engineering Honor Society)
Member of ETA KAPPA NU (The National Electrical and Computer Engineering Honor Society)
Member of PI MU EPSILON (The National Mathematics Honor Society)
Member of EPSILON SIGMA PI (College-wide Honor Society)

Member of the Institute of Electrical Engineers and Electronic Engineers (IEEE)

LANGUAGES

French – Fluent Spoken and Written
French Canadian – Fluent Spoken and Written
Creole – Fluent Spoken
Spanish – Elementary proficiency
Lingala – Elementary proficiency
Rangachar Kasturi

Address: Rangachar Kasturi, Ph. D.
Douglas W. Hood Professor
Department of Computer Science and Engineering
University of South Florida
4202 East Fowler Avenue, ENB 118
Tampa, Fl 33620-5399

Telephone: (813) 974-3561 (Office)
(813) 974-5456 (Fax)
E-Mail: R1K@cse.usf.edu
Web: http://www.cse.usf.edu/~r1k/

Research Interests: Image Processing, Computer Vision, Pattern Recognition,, Video Sequence Analysis, Document Image Analysis

Education:
Ph.D., Texas Tech University, Electrical Engineering, August 1982
M.S., Electrical Engineering, Texas Tech University, May 1980
B.E.(Electrical), Bangalore University, India, 1968

Professional Experience:

Aug. 2003-present: Douglas W. Hood Professor, Department of Computer Science and Engineering, University of South Florida
2003-2007: Chair, Computer Science and Engineering Department
1982-86: Assistant Professor of Electrical Engineering
1986-95: Associate Professor of Electrical Engineering; tenured in 1988
1995-2003: Professor of Computer Science and Engineering and Electrical Engineering
Aug. 1999 - Dec. 99: Fulbright Visiting Professor, Indian Institute of Science, Bangalore
May 1991 - Aug. 91: Summer Visiting Professor, NASA Langley Research Center
Sept. 1989 - May 90: Visiting Scholar (on sabbatical from Penn State), Artificial Intelligence Lab., Department of EECS, University of Michigan
Sept. 1978 - Aug. 82: Part-time Instructor and Research Assistant, Department of Electrical Engineering, Texas Tech University
June 1976 - Aug. 78: Engineering Officer, Visvesvaraya Industrial and Technological Museum, Bangalore, India
May 1969 - June 76: Research and Development Engineer, VHF Communication Systems Group, Bharat Electronics Ltd., Bangalore, India
Sept. 1968 - April 69: Engineering Trainee: Mysore Electrical Industries Ltd., Bangalore, India

Personal: Born on June 4, 1949 in Bangalore, India. Citizen of USA through naturalization, 1990

Honors and Awards:
Commencement Speaker and Chief Guest, IIT, Bangalore, India, 2007
Alfred P. Sloan Foundation, Certificate of Appreciation, 2007
Penn State Engineering Society Premier Research Award, 2002 (highest research award in the College; recipient chosen from among those who have previously won PSES Outstanding Research Award)
Fulbright Scholar, 1999
Elected to Texas Tech Electrical Engineering Academy, 1997
Elected Fellow of the International Association for Pattern Recognition (IAPR), 1996 (up to 0.25% of total membership may be elected as Fellows every two years).
Penn State College of Engineering Outstanding Research Award, 1996 (two to three faculty members are recognized each year from among some 275 College faculty).
Elected Fellow of the Institute of Electrical and Electronics Engineers (IEEE), 1996 (up to 0.1% of total membership may be elected as Fellows each year).
Outstanding Advising of Honors Theses Students, IEEE Student Branch, Penn State, 1989
IEEE CS Golden Core Member, Meritorious Service (several), Certificates of Appreciation (several), Distinguished Visitor
IAPR Meritorious Service and Certificates of Appreciation (several)

Leadership Responsibilities:

Chair, IEEE President’s Focus on India initiative, 2008 and Co-Chair, IEEE India Ad Hoc Committee, 2009
President and Chair of the Board of Governors, IEEE Computer Society, 2008; President-elect, 2007; Vice President, Member and Geographic Activities, 2011; First Vice President, Conferences and Tutorials, 2006; Treasurer, 2004-2005; Vice President, Publications, 2001-2003; Member of the Executive Committee and Board of Governors, 2001-2009, 2011
General Co-Chair, International Conference on Pattern Recognition, 1,100 Delegates from 47 countries, Tampa, 2008
Chair, Department of Computer Science and Engineering, USF, August 2003 - December 2007
President, International Association for Pattern Recognition, 2002-2004; First Vice President, 2000-2002; Second Vice President, 1998-2000; Member of the Executive Committee, 1998-2006
General Co-Chair, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2001
General Co-Chair, International Conference on Document Analysis and Recognition, 1999
Editor-in-Chief, IEEE Transactions on Pattern Analysis and Machine Intelligence, 1995-1998
Acting Director, Computer Engineering Program, Penn State University, 1990-91

Professional Activities (other than those listed above):

Member, Board of Governors, Computing Research Association, 2009-12
Chair, ICPR Standing Committee, International Association for Pattern Recognition, 2008-12
Chair, Membership Committee, Nominations Committee, Inter-Society Cooperation Committee, and Personnel and Compensation Committee, IEEE Computer Society, 2009
Member, IEEE Executive Director Search Committee, 2008-09
Chair, Planning Committee and Constitution and Bylaws Committee, IEEE Computer Society, 2007
Member, Nominations Committee, Finance Committee and Personell and Compensation Committee, IEEE Computer Society, 2007
General Co–chair, Indian Conference on Computer Vision, Graphics, and Image Processing, 2006
Co-chair, Transformation Planning Committee, IEEE Computer Society, 2006
Member, Transformation Task Force, IEEE Computer Society, 2006
Co-Chair, Presidential Task Force on Conference Business Model, IEEE Computer Society, 2006
Member, Indirect Infrastructure Ad Hoc Committee, IEEE TAB FinCom, 2005
Member, Periodicals Packages Committee, IEEE TAB, 2004-2005
Member, IEEE Technical Activities Board Periodicals Committee, 2001-2005
Member, IEEE Publication Services and Products Board, 2001-2003
General Co-Chair, Technical Program, *International Conference on Pattern Recognition*, Quebec City, 2002

Chair, Transactions Operations Committee, *IEEE Computer Society*, 2000

Governing Board Member, IAPR, 2000-2010


Associate Editor, *Machine Vision and Applications* journal, 1995-2005

Associate Editor, *Pattern Recognition*, 1994-2009

Guest Editor (with K. Bowyer and P. Flynn), 20th Anniversary Special Issue of *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2000

Chair, *Transactions Review Committee*, IEEE Computer Society, 2000

Chair, Editor-in-Chief Search Committee, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2000

IAPR Representative to the *International Federation of Information Processing Societies*, 1998-2000

Local Arrangements Chair, *International Conference on Document Analysis and Recognition*, IAPR, Bangalore, India, September 1999


Program Co-Chair, *International Conference on Document Analysis and Recognition*, IAPR, Montreal, Canada, August 1995

General Chair, *IAPR Workshop on Graphics Recognition*, 1995

Chair, Publications and Publicity Committee, IAPR, 1992-94

Associate Editor, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 1991-94


General Co-Chair, *IAPR Workshop on Machine Vision Applications*, Tokyo, November 1990

Chair, Technical Committee on Graphics Recognition, IAPR, 1988-92

Program committee member at the following conferences and workshops (1991-2004; have not been tracking these since 2004):

- Symposiums on Document Analysis and Information Retrieval, Las Vegas, 1993 and 1994
- IAPR Workshop on Syntactic and Structural Pattern Recognition, Haifa, Israel, 1994
- IAPR Workshop on Image Databases and Multimedia Search, Amsterdam, 1996
- IAPR Workshop on Visual Form, Capri, Italy, 1997, 2001
- IEEE Workshop on Content-based Access of Image and Video Libraries, San Juan, Puerto Rico, 1997
- International Workshops on Graphics Recognition, Nancy, France, 1997, Jaipur, India, 1999
- First and Second Brazilian Symposia on Document Image Analysis, Curitiba, Brazil, 1997
- Vision Interface, Canada, 1998, 1999
- Indian Conferences on Computer Vision, Graphics, and Image Processing, New Delhi, 1998, Bangalore, 2000
- International Conference on Artificial and Computational Intelligence, Tunisia, 2000
- IEEE Workshop on Applications of Computer Vision, Palm Springs, CA, 2000

Session chairman at numerous conferences
Invited speaker at numerous institutions and conferences
Tutorial speaker at numerous events
Consultant, United Nations Development Program TOKTEN in India, 1993
Consultant, AT&T Bell Labs, 1990-92

Service to the Department and University:

At the University of South Florida:
University Class Scheduling Advisory Committee 2003-2004
Search Committee, Assistant VP, Institutional Research 2004-2005
Numerous other committees in my role as the Chair of CSE department 2003-2007
(ABET visit in 2007 - CS and CE Programs received full accreditation)
Search Committee, Electrical Engineering Department Chair 2009
Search Committee, Provost and Executive Vice President 2009
Several departmental committees 2008-present

At Penn State:
CSE Personnel Committee - Faculty Recruitment 1997-99, 2000-2003
CSE Publications Committee 2002-2003
CSE Department Head Search Advisory Committee 2000-2001
CSE Awards Committee (Chair 2000-2001) 1999-2001
IST-CSE Building Committee 2000-2001
College Endowed Professor Evaluation Committee (Chair: 2001-02) 2000-02
CSE ABET-2000 Planning Committee 1998-99
CSE Promotion and Tenure Committee (Chair 1995-97) 1995-99
CSE Strategic Planning Committee 1997-98
CSE Department Head Search Advisory Committee 1996-97
CSE Graduate Committee 1994-97
CSE Climate Committee: 1993-95
Engineering Advising Center, Faculty Representative: 1993 - 94
Computer Engineering Area Committee (EE): 1993 - 94
Electrical Engineering Laboratory Committee: 1993 - 94
Implementation Team, CS and Computer Engineering Merger 1993
EE Space Committee: 1992 - 93, 90 - 91
EE Personnel Committee (Faculty Recruiting): 1991
EE Promotion and Tenure Committee: 1990-93, 88 - 89
Faculty Coordinator, PC Lab 1990 - 93
Acting Director, Computer Engineering Program: 1990 - 91
EE Advisory Committee: 1990 - 91
EE Graduate Steering Committee: 1987 - 89
Systems Manager, Computer Engineering Research Lab: 1985 - 93
EE Department Head Search Committee: 1985 - 86
Singer Professorship Search Committee: 1984 - 86
Leonhard Professorship Search Committee: 1984 - 86
EE Undergraduate Curriculum Committee: 1983 - 86
Courses Taught (* New courses developed by R. Kasturi):

At USF:

*CAP 4410: Introduction to Computer Vision
CAP 6638: Pattern Recognition
*CIS 6930: Document Image Analysis
CAP 4401: Image Processing

At Penn State:

*CSE 597: Special Topics: Document Image Analysis
*CSE/EE 586: Computer Vision
*CSE/EE 583: Pattern Recognition
*CSE/EE 486: Fundamentals of Computer Vision
*CMPEN 485: Introduction to Applications of Artificial Intelligence

CMPEN 472: Mini/Microcomputers
EE/CSE 447: Digital Integrated Circuits
EE/CSE 585: Digital Image Processing II
EE 561: Information Theory
EE/CSE 485: An Introduction to Digital Image Processing
EE 352: Signals and Circuits
EE 305: Electronic Measuring Systems
EE 163: Electrical Measurements
PSU 012: Lights, Camera, Algorithms! (Freshman Seminar)

At Texas Tech:

EE 3311: Electronics I
EE 3323: Communication Systems
EE 231,232: Principles of Electrical Engineering
EE 233: Electrical Systems Analysis
EE 234: Electrical Instrumentation
EE 4332: Experimental Problems
Research Projects (R. Kasturi - Sole or lead principal investigator unless indicated otherwise)
Organized chronologically by ending date.

Image Analysis Techniques for Cartographic Data Processing, NSF Research Initiation Grant ECS-8307445 and ECS-8414389, 1983-86, $53,000
Singular Value Decomposition for Image Restoration, Naval Sea Systems Command (through ARL - Penn State), Co-PI: Prof. L.H.Sibul, 1985-86, $22,600
Research and Instruction in Image Processing, AT&T Foundation, 1985-86, $26,900
Center for Intelligent Information Processing, HRB Systems (an E-Systems/ Raytheon Company), 1994-95, Start-up funds of $200,000 cash plus $100,000 in equipment (S. Kumara ,Lead PI)
Classification of Invoices by Graphical Signature Analysis, Xerox Document Services Technology Center, 1995, $15,000
A Visual Information Management System, IBM Shared University Research Program, 1994-96, $167,018 (equipment grant based on a research proposal)
Intelligent Interpretation of Central Office Engineering Drawings, NYNEX Corporation, 1992-97, $526,602
An Evaluation of the State-of-the-Art in Video Indexing, Department of Defense, 1995-98, $282,828
Video Text Detection, Department of Defense, 1998 - 2001, $389,694
Biometric Technology Study, DoD (through STS International) and Florida High Technology Corridor Matching Grant, Col: D. Morel, J. Zayas-Castro, S. Sarkar, and R. Sankar, Aug. 2003 - May 2006, $1,200,000
Research and Education in Pattern Recognition, USF Investment in Graduate Education and Research, Aug. 2007- Dec. 2009, $1.0 Million
Tactical Networks and Workforce Training, TeamTACLON (US SOCOM), Co-PI: J. Zayas-Castro, 2007 - 2009, $1,645,000 Million
Annotation and Scoring Task for NeoVision2 Software Evaluation, SET Corporation (DARPA), (Co-PI: D. Goldgof)June 2011-January 2012, $100,000

Selected but Unfunded:
Florida Imaging and Recognition Systems and Technology Center of Excellence (with UCF), $11.7M 2008 (selected by Florida Technology, Research, and Scholarship Board after extensive peer review but the Florida legislature redirected the allocated funds after the process was completed)
**Miscellaneous Grants** (not associated with a specific research project):


SPIE Educational Grant, *SPIE*, 1986, $1,500

AT&T Computer Equipment Donation (coordinator), *AT&T*, 1985-1988, $1,091,625

Analysis of Fourier Images for Semiconductor Wafer Monitoring, *Semiconductor Research Corporation*, (R. Jain - Principal Investigator); part of my sabbatical salary was covered through this research at the University of Michigan, 1990, $10,000

NASA/ASEE Summer Faculty Fellowship, *NASA Langley Research Center*, 1991, $10,000


First International Workshop on Graphics Recognition (held at Penn State), *Department of Defense*, 1995, $39,942


Gift to Computer Vision Research Laboratory by *Hwa-Tse Liang*, a former advisee, $40,000

**Patents:**


**Professional Memberships:**

Association for Computing Machinery, Member
IEEE, Fellow

Member (and published in the Transactions) of the following Societies:
IEEE Aerospace and Electronic Systems Society
IEEE Circuits and Systems Society
IEEE Computer Society
IEEE Engineering in Medicine and Biology Society
IEEE Instrumentation and Measurement Society
IEEE Signal Processing Society
IEEE Systems, Man and Cybernetics Society
Sigma Xi, Eta Kappa Nu, Optical Society of America, SPIE (past memberships)
Publications:

Citations on Google Scholar (as of 1/28/2010): Over 4,000, **H-Index**: 26

Books:


Book Chapters:


Journal Articles:


Devaux, P. M., D. B. Lysak, R. Kasturi., “A Complete System for the Intelligent Interpretation of


**Messages/Editorials:**


**Papers in Conference Proceedings:**


Gargi, U., and R. Kasturi, “Image Database Querying Using a Multi-Scale Localized Color Representation”, *Proceedings of the IEEE Workshop on Content-Based Access of Image and
Video Libraries, pp. 28-32, Fort Collins, CO, June 1999


Chhabra, A.K., S. Chandran, and R. Kasturi, "Table Structure Interpretation and Neural Network Based Text Recognition for Conversion of Telephone Company Tabular Drawings,"


Other Papers and Presentations:


Kasturi, R., “Computer Vision and Image Analysis Research: An Overview,” presentation at the 8th Iberoamerican Congress on Pattern Recognition, Havana, Cuba, November 2003

Kasturi, R., “Computer Vision and Image Analysis Research at the Pennsylvania State University: An Overview,” presentation at the Sixth International Conference on Pattern Recognition and Image Analysis, Velikiy Novgorod, Russian Federation, October 2002


Muralidhar, N., R. Kasturi, O. Camps. Collection of Training Data for Optical Character Recognition of Printed Kannada Characters. Open Research Forum at the Fifth International Conference


Theses and Dissertations Supervised:


V. Kamath, Use of random subspace analysis on gene expression profiles to enhance the accuracy of survival prediction for colon cancer patients, M.S., 2005


S. Antani, *Video Content Characterization via Robust Recognition of Scene and Caption Text*, Ph.D., 2001

D. Crandall, *Detection of Stylized Text in Video*, M.S. CSE and BS (Honors), May 2001


S. Devadiga, *Detection of Obstacles in Monocular Image Sequences*, Ph.D., August 1997

S. Natarajan, *A Hierarchical Scheme for Invoice Classification*, MS, CSE, August 1997

J. Arias, *Efficient Techniques for Line Drawing Interpretation and Their Application to Telephone Company Drawings*, PhD, August 1995

A. Prasad, *A System for the Intelligent Interpretation of Text from Telephone Company Drawings*, MSCmpE, August 1995

P. Devaux, *An Experimental Verification of a System for the Automated Interpretation of Engineering Drawings*, MSEE, May 1995


S. Balasubramanian, *Information Extraction From Tabular Drawings*, MSEE, May 1994


S. Chandran, *Structural Recognition of Tabulated Data*, MSCmpE, 1993

S. U. Kumar, *Text Data Extraction from Microfilm Images of Punched Cards*, MSCmpE, 1992


**M.S./M.Eng. Papers Supervised:**

N. Muralidhar, *Collection of Training Data for OCR of Kannada Characters*, 1999


J.Tyson, *Classification and Recognition of Invoice Documents*, 1993


M.I. Kahn, *Collision Free Path Planning in Unstructured, Dynamic Environments for Mobile Robots and Manipulators*, 1987
Y.Choe, *Two-Dimensional Multiresolution Matching Algorithm*, 1987
M.C. Chen, *Thresholding and Edge Detection Techniques in Computer Vision*, 1987

**B.S. (Honors) Theses Supervised:**

S. Oswald, *Hierarchical Segmentation of Video Sequences*, 1995
N.T. Nguyen, *Microprocessor Controlled Voice Synthesized Real Time Clock*, 1987
Curriculum Vitae of

SRINIVAS KATKOORI
Associate Professor
Department of Computer Science and Engineering
University of South Florida

ADDRESS

- **Office:** 4202 East Fowler Avenue, ENB 118, Tampa, FL 33620.
  Email: katkoori@cse.usf.edu
  Phone: (813) 974-5737
  Fax: (813) 974-5456
  Webpage: http://vcapp.csee.usf.edu/~katkoori

RESEARCH INTERESTS

- High Level Synthesis
- Low Power Synthesis
- FPGA Based Synthesis
- Reconfigurable Computing
- Radiation Tolerant CAD for FPGAs
- Evolutionary Algorithms
- IC Reliability

EDUCATION

  Department of ECECS, University of Cincinnati, Cincinnati.
  *University Graduate Scholarship (UGS) for the entire duration of doctoral studies.*

- **Bachelor of Engineering, Electronics and Communication Engineering** 1988 – 1992
  Department of Electronics and Communication Engineering (ECE), Osmania University, Hyderabad, India.
  *Admission by state wide Engineering entrance (EAMCET) test. Stood in top 1% of test takers.*
  *Passed in first class with distinction.*

WORK EXPERIENCE

- **Associate Professor** Aug. 2004 – present
  Department of Computer Science and Engineering,
  University of South Florida, Tampa, Florida.
• **Sabbatical Leave**
  Bio-Inspired Technologies & Systems
  NASA Jet Propulsion Labs (JPL), Pasadena, CA.

• **Assistant Professor**
  Department of Computer Science and Engineering,
  University of South Florida, Tampa, Florida.

• **Research Assistant**
  1993–95, 1996–97
  Digital Design Environments Laboratory (DDEL),
  Department of Electrical and Computer Engineering and Computer Science (ECE&CS),
  University of Cincinnati, Cincinnati, Ohio.

**AWARDS & HONORS**

• 2012 SIGDA Service Award, “In Appreciation for Contributions To ACM/SIGDA.”

• 2009 Certificate of Recognition by USF Computer Science & Engineering Department, “For his leadership and outstanding service as Graduate Program Director,” for service from May 2006 to April 2009.

• 2008 Elevation to Senior Member Status, Association of Computing Machinery (ACM).

• 2007 Certificate of Appreciation, Alfred P. Sloan Foundation, “In appreciation for your commitment to advancing under-represented minority students in mathematics, science and engineering and for your leadership in the Alfred P. Sloan Foundation’s Minority Ph.D. Program.”

• 2007-2008 USF Outstanding Undergraduate Teaching Award.

• Recognition of IEECS student chapter with “2003 Outstanding Chapter Award,” under Dr. Katkoori’s Advisorship.

• 2005 National-level IEEE-USA Professional Achievement Award. *Nominated by IEEE Florida West Coast Section.*

• 2005 Outstanding Engineering Educator Award, IEEE Florida Council Award (Region 3), *Nominated by the IEEE Florida West Coast Section (FWCS).*

• Member, Sigma Xi, The Scientific Research Society, 2004 (By Invitation).

• 2004 Elevation to Senior Member Status, IEEE.

• Best Paper Nomination at 2003 International Conference on Asian and South-Pacific Design Automation Conference (ASP-DAC).

• 2003 University of South Florida Outstanding Faculty Research Achievement Award.

• 2001 Faculty Early Career Development Grant (CAREER), National Science Foundation, Design Automation Program, to conduct research for five years on “Interconnect centric High Level Synthesis in Deep-Sub-Micron Regime.”

• 1997-98 Outstanding Doctoral Dissertation, Honorable Mention, Department of Electrical and Computer Engineering and Computer Science, University of Cincinnati.

2

• Research Assistantship, Digital Design Environments Laboratory, University of Cincinnati, June 1993-95, 1996-97

• University Graduate Scholarship, University Of Cincinnati, Fall 1992 - 1997

• Third Place at Under-Graduate level AP State Mathematics Olympiad, India, 1990.

RESEARCH GRANTS & CONTRACTS

• National Science Foundation, CCF 2013 - 2016
  Title: SHF: Small: Reduction Based Approximation
  Algorithms for Nano VLSI Synthesis
  Amount: $461,915
  Status: PI. Co-PIs: None. Under Review.

• USF Student Green Energy Fund Jan – Dec 2013
  Title: Event Based Scheduling Optimization
  for Building Air Handlers
  Amount: $28,000
  Status: Co-PI. PI: R. Meana (Graduate Student).

• National Science Foundation, CCF 2010 - 2011
  Title: CADathlon 2010: International Graduate
  Student Progg. Contest in EDA
  Amount: $10,000

• National Science Foundation, 2006 - 2008
  Title: CRI: Infrastructure acquisition for
  sub-100 nano VLSI research
  Amount: $215,023

• NASA Jet Propulsion Labs (JPL) RHESE Project 2006
  Title: Hardware and Software Implementations of Intelligent and Evolvable Algorithms
  Amount: $100,000
  Role: Sole PI. Sub-contract to USF by NASA JPL.

• I4 High Tech Corridor Initiative 2003-2004
  (Industry Partner: Honeywell, Inc, Clearwater)
  Title: STMR based Software Tool and Application
  Development Targeted to HRSC Board
  Amount: $45,000
  Role: Sole PI.

• I4 High Tech Corridor Initiative 2002-2003
  (Industry Partner: Honeywell, Inc, Clearwater)
Title: *Requirements Analysis for an Automatic Synthesis Framework for Honeywell Reconfigurable Space Computer*
Amount: $25,000
Role: Sole PI.

- National Science Foundation, Design Automation Program
  Faculty Early Career Development Grant (CAREER)
  Title: *CAREER: Interconnect-centric High-Level Synthesis in Deep Sub-Micron (DSM) Regime*
  Amount: $310,000
  Role: Sole PI.

- I4 High Tech Corridor Initiative
  (Industry Partner: Honeywell, Inc, Clearwater)
  Title: *High-Throughput and Low-Power Implementations of Space-Based Radar Algorithms on RC Hardware*
  Amount: $150,000
  Role: Sole PI.

- Honeywell Incorporation
  SASSO/CSO Academic Initiatives IR&D Program 2001
  Title: *SEU-tolerant Synthesis for FPGA based Space Systems*
  Amount: $11,000
  Role: Sole PI.

- Honeywell Space Systems Inc.
  SASSO/CSO Academic Initiatives IR&D Program 2000
  Title: *Reconfigurable Computing Architectures for Payload Processing (Signal & Datastream) Applications*
  Amount: $13,000
  Role: Sole PI.

- Design Automation Graduate Scholarship
  Design Automation Conference Council
  Title: *RT-level Route-and-Place Design Methodology for Delay and Power Optimization in DSM Regime*
  Amount: $24,000
  *Proposed for Stelian Alupoaei and Udaykumar Anumalachetty*

- Research & Creative Scholarship,
  University of South Florida Research Council and Division of Sponsored Programs.
  Title: *Interconnect Power Analysis and Optimization in High Level Synthesis Framework*
  Amount: $7,500.00

**PROFESSIONAL MEMBERSHIPS**

- American Association for Advancement of Science (AAAS)
- Association for Computing Machinery (ACM)
- ACM Special Interest Group on Design Automation (SIGDA)
- The Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Computer Society
- IEEE Circuits and Systems Society
- Sigma Xi, The Scientific Research Society
TEACHING EXPERIENCE

- Associate Professor, Department of Computer Science & Engineering, University of South Florida, August 2004 – present.
- Assistant Professor, Department of Computer Science & Engineering, University of South Florida, August 1997 – July 2004.
- Teaching Assistant, Department of ECE&CS, University of Cincinnati, 1995–1996.
- Completed “Advanced Teaching Techniques,” course offered bi-annually by the Department of Advanced Teaching Institute, University of Cincinnati, Winter 1994.
- Attended a Teaching Workshop entitled “Preparing Future Faculty,” Division of Research and Advanced Studies, University of Cincinnati, May 1996.

LIST OF ALL COURSES TAUGHT AT USF

Undergraduate Courses

- Computer Organization (Gate Course)
- Computer Logic Design (Core Course)
- Computer Architecture (Core Course)
- Computer System Design (Core Course)
- CMOS VLSI Design (Core Course)
- Digital Circuit Synthesis (Senior Elective)
- CMOS VLSI Testing (Senior Elective)
- Advanced Computer Architecture (Senior Elective)

Graduate Courses

- Principles of Computer Architecture (Core Course)
- CMOS VLSI Design
- Low Power CMOS VLSI Design
- Digital Circuit Synthesis
- Testing & Fault Tolerance in Digital Systems

COURSE OFFERINGS (SEMESTER-BY-SEMESTER)

Undergraduate Core Courses:
- **Computer Organization (CDA 3103)**
  Offered in: Fall 2009.

- **Computer Logic Design (EEL 4705 / CDA 3201)**
  Offered in: Fall 1999, Fall 2000. Note: Course number changed in Fall 2000.

- **Computer Organization & Architecture (CDA 4100)**

- **Computer System Design (CDA 4203) & Lab (CDA 4203L)**
  Offered in: Fall 1997, Fall 2007.

- **CMOS VLSI Design (CIS 4213) & Lab (CDA 4213L)**

**Undergraduate Senior Electives:**

- **Advanced Computer Architecture**
  Offered in: Spring 2000.

- **Digital Circuit Synthesis**

- **CMOS VLSI Testing**
  Offered in: Spring 2007.

**Graduate Core Courses:**

- **Principles of Computer Architecture (EEL 6764 001)**

**Graduate Electives:**

- **CMOS VLSI Design**

- **Low Power CMOS VLSI Design and CAD**

- **Advanced Computer Architecture**
  Offered in: Spring 2000.

- **Digital Circuit Synthesis**

- **Testing & Fault Tolerance in Digital Systems (EEL 6706 001)**
  Offered in: Spring 2007.
NEW COMPUTER ENGINEERING COURSES DEVELOPED AT USF

- **Digital Circuit Synthesis:** This course is a dual-level course (advanced Senior Elective as well as Graduate Elective) for Computer Engineering students. The main learning outcomes are: (a) familiarity with principles of high-level electronic design automation (EDA) of digital circuits; (b) development of behavioral and structural VHDL models; (c) experience in using the state-of-the-art industry-strength VHDL simulator; and (d) experience in coding synthesis algorithms in C/C++. The main focus is on high-level (behavioral) synthesis and logic synthesis algorithms. VHDL, a hardware description language widely used in EDA industry, is introduced in this course. Students develop behavioral and gate-level library in VHDL and validate it using CADENCE VHDL simulator. For the final project, students code a basic data-path synthesis tool in C/C++ that accepts a data flow graph and the VHDL component library and generates a valid RT-level datapath and associated controller in VHDL. Parallels between software compilation and silicon compilation are drawn. Two texts are used, namely, “Synthesis and Optimization of Digital Circuits,” by Giovanni De Micheli, and “The Student’s Guide to VHDL,” by Peter Ashenden.

- **Low Power CMOS VLSI Design:** This course is an advanced graduate elective that introduces students to the estimation and optimization techniques of power consumption in CMOS VLSI designs at all levels of design abstractions (physical, logic, RT-level, behavioral, and system). Over last two decades, power optimization has emerged as an important design objective, besides the traditional area and timing objectives. As power optimization is a highly active research area, the students learn about latest power estimation and optimization techniques by reviewing survey papers as well as latest research papers published in conferences and archival journals. As a final project, the students can choose between the following: (a) Software project: need to implement a published power estimation algorithm in C/C++; or (b) Hardware project: need to implement a published power optimization technique (such as Guarded Evaluation or Pre-computation) at gate-level or layout-level. The course text is a collection of papers from the literature.

ENHANCING COMPUTER ENGINEERING COURSE CURRICULUM AT USF

- **CMOS VLSI Design and Lab (CDA 4213/CIS 6930):** This is a dual level course. For Computer Engineering undergraduates, this course is a core course. For Graduate students, this is an introductory course and is a pre-requisite for other graduate courses such as Digital Circuit Synthesis, Low Power VLSI Design, VLSI Testing, etc. Topics include, CMOS technology, MOSFET operation, non-ideal behavior of MOSFETs, bit-sliced (modular) design, delay and power models, PLAs and memory (SRAM and DRAM), interconnect, reliability, etc.

  *Course Enhancements:* In the current deep-sub-micron regime, several new design factors have emerged as key determinants of system performance. The lecture is enhanced to cover these topics in more depth: (a) interconnect design and analysis; (b) detailed delay estimation and optimization based on logical effort; and (c) power estimation and optimization techniques.

  Dr. Katkoori introduced a co-requisite design lab in which students learn and use CADENCE Virtuoso (Layout editor) for circuit layout and extraction followed by detailed simulation with Synopsys HSPICE and nanosim. As part of weekly assignments, basic cell library is built which is used in the final project. Students in groups of two (graduates) or three (undergraduates) design a digital thermometer ASIC that can log average, minimum, and maximum temperatures and can report in either Celsius or Fahrenheit scales. The main design constraint is on the chip area of approximately 1 mm x 1mm. The layout is integrated with the MOSIS pad frame (Tiny Chip)
and is fabricated via MOSIS Educational Program. The fabricated ICs are tested in the following semester either in CMOS VLSI Testing course or as an independent study (if the testing course is not offered). The textbook for the course is “CMOS VLSI Design - A Circuits and Systems Perspective,” by Neil Weste and David Harris.

**Computer System Design & Lab (CDA 4203):** From Fall 2008, this is an advanced core course for Computer Engineering undergraduate majors and a recommended elective to Computer Science majors. Prior to CDA 4203, the students have dealt the hardware design and software development as two different and independent activities. In this course, for the first time, the student will see the interplay between hardware design and associated software development.

*Course Enhancements:* In 2006 ABET Mock visit, the Computer Engineering Program Evaluator (Dr. Joe Hughes, Georgia Tech) in the Final Report has indicated that the Computer System Design and associated Lab needs a major overhaul for successful ABET Accreditation of the program. The following is the relevant excerpt from the Mock Visit Final report: “The computer engineering curriculum appears to be satisfactory, with the exception of system design related to hardware/software interactions and trade-offs. There appears to be a broadly perceived need to revisit the existing hardware-oriented course sequence (both required and electives) to eliminate redundancy and provide more content and hands-on experience in hardware/software systems and co-design.”

In response to the above, Dr. Katkoori in consultation with senior hardware faculty (Dr. N. Ranganathan) has taken lead: (a) to re-design the course lecture as well as (b) architect and implement a brand new companion lab (CDA 4203L).

- The lecture is enhanced in the following ways: (a) highly interactive class room discussions; (b) mini-projects that require independent research on COTS components and system design; (c) digital camera design project; (d) structured system design approach; (e) analysis of hardware/software trade-offs; and (f) a new text is adapted, namely, *Embedded System Design - A Unified Hardware/Software Introduction*, by Frank Vahid and Tony Givargis.

- The design lab is enhanced as follows: (a) Xilinx University Program Virtex II Pro (XUP V2P) board is used as a design platform. The board consists of Virtex II Pro FPGA, two embedded PowerPC processors, memory, transceivers, Clock Managers, and variety of I/O interfaces (Ethernet, Serial, parallel, USB interface, Audio/Video, and PS/2). Using this board, the student can gain great experience in hardware and software interfacing; (b) 10 design work stations, each equipped with a PC, XUP V2P FPGA board, logic analyzer, PC-based oscilloscope, bread-board, etc., are developed. These workstations are also used in CMOS VLSI Testing and FPGA design courses.

In Fall 2008, the Computer Engineering program has been successfully accredited for another 6 years.

**Testing & Fault Tolerance of Digital Systems (CIS 4930/EEL 6706):** This course was regularly taught by another Computer Engineering faculty member. After he had left USF, this course was dormant for 5+ years. Dr. Katkoori has taken initiative to teach this course, as it will enhance a Computer Engineering student’s repertoire and improves their chances of employment with leading IC design companies. Topics include fault models (single- and multiple- stuck-at-fault models), detectable and undetectable faults, fault simulation, test generation algorithms (Critical Path Tracing, D-algorithm), memory testing, design-for-testability, built-in-self-test,
and contemporary testing topics. As part of the course assignments, students code an ATPG algorithm. The ICs fabricated in CMOS VLSI class are used for testing experience with logic analyzers. The course textbook is “Digital Systems Testing and Testable Design,” by M. Abramovici, M. A. Breuer, and A. D. Friedman.

VLSI CAD TOOL RELATED EXPERTIZE

- **Physical Design**: CADENCE Tool Suite (Virtuoso), MAGIC, HSPICE, Nanosim, Fire & Ice, Celtic Crosstalk Analyzer.
- **Logic Synthesis**: SIS, Synopsys Tool Suite
- **High-level Synthesis**: Developed AUDI (Automatic Design Instantiation), an in-house high-level synthesis system in C language. This system is extended by several PhD and MS students for their thesis work.
- **FPGA Related Tools**: Xilinx ISE, Embedded Design Kit (EDK).
- **Hardware Description Languages (HDLs)**: VHDL and Verilog.
- **Automatic Translators/Parsers**: lex, flex, yacc, bison, ANTLR.
- **Other Languages**: C, C++, Java, Unix shell scripting, Awk, sed.

GRADUATE STUDENT SUPERVISION

- **PhD Theses supervised**

1. **Dr. Soumyaroop Roy (PhD Candidate)** Summer 2005 – Summer 2010
   - Co-advised with Dr. N. Ranganathan, CSE, USF
   - Dissertation Title: *Architecture and Compiler Support for Leakage Reduction Using Power Gating in Microprocessors*
   - First Employment: AMD, Texas, Austin.

2. **Dr. Pradeep Fernando** Summer 2005 – Fall 2009
   - Dissertation Title: *Genetic Algorithm Based Design and Optimization of VLSI ASICs and Reconfigurable Hardware*
   - First Employment: Post-doc, EPFL, Lausanne, Switzerland.

3. **Dr. Hariharan Sankaran** Spring 2003 - Fall 2008
   - Dissertation Title: *High-Level Synthesis Framework for Crosstalk Minimization in VLSI ASICs*
   - First Employment: Synopsys, Bangalore, India.

4. **Dr. Vyas Krishnan** Spring 2003 - Fall 2008
   - Dissertation Title: *Temperature And Interconnect Aware Unified Physical And High Level Synthesis*
   - First Employment: Assistant Professor, St. Leo University, Tampa, FL.

5. **Dr. Suvodeep Gupta** Spring 2002 - Fall 2004
   - Dissertation Title: *Behavioral and RT-level Cross-talk Estimation and Optimization in VLSI ASICs*
   - First Employment: Intel, Phoenix, AZ.
6. Dr. Hao Li (Co-advised with Dr. W-K. Mak) Fall 1999 - Fall 2004
   Dissertation Title: Low Power Technology Mapping and Performance Driven Placement for Field Programmable Gate-Arrays
   First Employment: Assistant Professor, CSE, University of North Texas at Denton.
   Currently working for Synopsys Inc, San Jose, CA.

7. Dr. Chandramouli Gopalakrishnan Spring 2000 - Fall 2003
   Dissertation Title: High Level Techniques for Estimation and Optimization of Leakage Power of VLSI ASICs
   First Employment: CADENCE, Noida India.
   Currently working for Synopsys Inc, Bangalore, India.

8. Dr. Stelian Alupoaei Summer 1999 - Spring 2003
   Dissertation Title: Interconnect-centric Macrocell Placement Approaches in DSM Regime
   First Employment: Intel, Portland, OR.

• PhD Theses currently supervising

1. Shilpa Pendyala, PhD Candidate Fall 2009 – present
   Topic: High level Synthesis
   Master’s in Computer Science from Univ. of Missouri Rolla.

• MS Theses supervised

1. Ananth Durbha Summer 1998 - Fall 1999
   Thesis Title: A Novel Route-and-Place RTL Design Methodology for Interconnect Optimization in DSM Regime.
   First Employment: Intel Corporation, Santa Clara, CA.

2. Smitha Myneni Fall 1997 - Spring 2000
   First Employment: Intel Corporation, Santa Clara, California.

3. Chandramouli Gopalakrishnan Fall 1997 - Fall 2000
   Thesis Title: Power Optimization via Input Transformations.
   Continued for a doctoral degree.

4. Gayatri Garudadri
   Project Title: Register Transfer (RT) Level Simulation of the MIPS Pipelined Processor in JAVA.

5. Suvodeep Gupta Fall 1999 - Spring 2002
   Thesis Title: Force-directed Scheduling for Dynamic Power Optimization.
   Continued for a doctoral degree.

6. Joe Rogers (Co-advised with Dr. Ken Christensen) Fall 1998 – Summer 2002
   Thesis Title: Network Traffic Study of Internet2.
   First Employment: Academic Computing, USF.
7. Praveen Samudrala Fall 2001 - Spring 2003  
   *Thesis Title*: Selective Triple Modular Redundancy based Single Event Upset (SEU) Mitigation for FPGAs  
   *Currently working for Qualcomm, San Diego.*

8. Praveen Bamini Fall 2001 - Fall 2003  
   *First Employment*: Verizon, Tampa, FL.

9. Anulekha Bilhanan Fall 2001 – Spring 2004  
   (Co-advised with Dr. John Heine, Moffitt Cancer Research Institute)  
   *Thesis Title*: Implementation of Mammograph analysis algorithms on FPGA.  
   *First Employment*: Fischer Imaging Inc, Denver, CO.

10. Umadevi Kailasam Fall 2001 – Spring 2004  
    *First Employment*: Golden Gate Technology, San Jose, CA.

11. Viswanath Daita Fall 2002 – Fall 2004  
    (Co-advised with Dr. Wilfredo Moreno, EE, USF)  
    *Thesis Title*: Behavioral VHDL Implementation of Coherent Digital GPS Signal Receiver.

12. Ranganath Gopalan Fall 2002 – Spring 2005  
    *Thesis Title*: Behavioral Synthesis of Low Leakage Pipelined Datapaths  
    *First Employment*: Intel, San Jose, CA.

13. Hariharan Sankaran Fall 2001 – Summer 2005  
    *Thesis Title*: System level energy optimization for location aware computing.  
    *Continued for a doctoral degree.*

    *Thesis Title*: Partial Evaluation Based Triple Modular Redundancy for SEU Mitigation.

15. Supriya Sunki Fall 2003 – Summer 2005  
    *Thesis Title*: Performance optimization in three-dimensional programmable logic arrays (PLAs).

16. Pradeep Fernando Fall 2003 – Summer 2005  
    *Thesis Title*: Genetic Algorithm Based Two-Dimensional and Three-Dimensional Floorplanning for VLSI ASICs  
    *Continued for a doctoral degree.*

17. Soumyaroop Roy Fall 2003 – Summer 2005  
    (Co-advised with Dr. N. Ranganathan, CSE, USF)  
    *Thesis Title*: A Compiler Based Leakage Reduction Technique by Power-Gating Functional Units in Embedded Microprocessors  
    *Continued for a doctoral degree.*

    (Co-advised student with Dr. R. Tripathi, CSE, USF)  
    *Thesis Title*: Study of FPGA implementation of entropy norm computation for IP data streams
• **MS Theses currently supervising**

1. Chris Bell  
   Topic: Secure Hardware Design  
   Fall 2011 – current

2. Matthew Lewandowski  
   Topic: Secure Hardware Design  
   Fall 2011 – current

3. Richard Meana  
   Topic: Secure Hardware Design  
   Fall 2011 – current

4. Noureddine Elmehraz  
   Topic: Embedded System Design for Bio-medical Application  
   Fall 2011 – current

5. Daniel Ashley  
   Topic: Robotics for Rehabilitation Technology  
   Spring 2012 – current

6. David O’Donnell  
   Topic: Thermal Runaway Minimization  
   Fall 2012 – current

7. Matthew Johnson  
   Topic: Embedded System Design for Highway Light Measurement  
   Fall 2012 – current

8. James Coakley  
   Topic: Embedded System Design for Highway Light Measurement  
   Spring 2013 – current

• **UNDERGRADUATE SUPERVISION**

  – James Muldoon, Senior Project, Spring 2012.
  – Matthew Johnson, Senior Project, Spring 2012.
  – Daniel Ashley, REU Project, Fall 2011.
  – Richard Meana, Senior Project, Fall 2011.
  – Matthew Lewandowski, Senior Project, Fall 2011.
  – Chris Bell, REU Project, Spring 2011.
  – Matthew Lewandowski, REU Project, Spring 2011.
  – Qi Zhao, Senior Project, Fall 2009.
  – Khris Martinez, Senior Project, Fall 2009.
  – Rey Cablong, Senior Project, Fall 2009.
  – Andrew Mast, Senior Project Spring 2008.
  – Jamie Montelegre, Senior Project, Spring 2008.
  – Bhavna Kumar, REU, Spring 2005.
– Billy Klerk, REU, Summer 2004.
– Andrew White, Senior Project, Spring 2003.

PATENTS

   Abstract: A method for reducing circuit sensitivity to single event upsets in programmable logic devices, involves identifying single event upset sensitive gates within a single event upset sensitive sub-circuit of a programmable logic device as determined by the input environment and introducing triple modular redundancy and voter circuits for each single event upset sensitive sub-circuit so identified.

INVITED TALKS

• Drexel University, Philadelphia, PA.
• Arizona State University, Tempe, AZ.
• University of Tennessee, Knoxville, TN.
• Rochester Institute of Technology, Buffalo, NY.
• University of Texas, El Paso, TX.
• Honeywell Space Systems, Clearwater, FL.
• Osmania University, Hyderabad, India.
• Navigational Electronics Research & Training Unit (NERTU), Osmania University, Hyderabad, India.
• National Institute of Technology (NIT, formerly REC), Warangal, India.
• AFRL Workshop on Radiation Hardening by Design, Albuquerque, NM.
• University of Southern California, CA.
• Jet Propulsion Laboratory, CalTech, Pasadena, CA.
• IBM, Seminar on Selective Triple Modular Redundancy.
• Center for Ocean Technology, College of Marine Science, USF.
• University of North Texas, Denton.
• Georgia Institute of Technology, Atlanta.
• Univ. of Southern California, LA.
• Seminar Speaker, Center for Communication & Signal Processing (CCSP), USF.
• Communications Network Group, USF.
BOOKS


LIST OF PUBLICATIONS

Peer-Reviewed Journal Articles


**Refereed Conferences**


**Peer-reviewed Extended Abstracts**


**ADMINISTRATIVE SERVICES TO UNIVERSITY**

- Member, USF Tampa Technology Fee Advisory Council, 2010-2012.
- Chair, USF CoE Outstanding Undergraduate Teaching Award Committee, 2010-2011.
- CSE Department Representative, USF CoE Faculty Governance Committee, 2011-2014.
- CoE Senator, USF Senate, 2010-2013.
- CoE Representative, USF Honors and Awards Council, 2010-2013.
- Member, CSE Graduate Committee, 2009-2010.
- Member, Planning & External Relations Committee, 2009-2010.
• Departmental representative, Inaugural CoE Eminent Lecture Series, Spring 2009.
• Graduate Program Director, Computer Science & Engg., May 2006–April 2009.
• College Grievance Committee, Summer 2006 (Chair), Spring 2009 (Member).
• Departmental Tenure & Promotion Committee, 2004–present.
• Member, Graduate Admissions Committee, 2003–2009.
• Member, Departmental Infrastructure Committee, 2003–present.
• Departmental representative on the Safety and Health Committee 2000–present.
• Departmental representative on the interdepartmental committee on Packaging 1998-99.
• 1998/99 Departmental representative to Graduation.
• MS Comprehensive and PhD Qualifiers Examination Committee, Computer Architecture Section (Fall & Spring Semesters, 1997–present).
• MS Comprehensive and PhD Qualifiers Examination Committee, Member of the sub-committee on the Advanced Digital Systems (ADS)(Fall 1998, Spring 1999).
• On the undergraduate curriculum evaluation committee for planning, development, and evaluation of computer engineering program (Fall 1997).

SERVICE TO PROFESSION

Journals

• Associate Editor, IEEE Transactions on VLSI Systems, Nov 2006 - present.
• Reviewer, IEEE Transactions on Computer-Aided Design of ICs and Systems.
• Reviewer, IEEE Transactions on Computers.
• Reviewer, IEEE Transactions on Evolutionary Computation.
• Reviewer, IEEE Transactions on VLSI Systems.
• Reviewer, ACM Transactions on Design Automation of Electronic Systems (TODAES).
• Reviewer, Journal on Low Power Electronics (JOLPE).
• Reviewer, Journal of Intelligent and Robotic Systems.
Reviewer, Journal of Micro/Nanolithography, MEMS, and MOEMS (JM3).
Reviewer, Integration, the VLSI Journal.

Conferences

• General Co-chair & Registration Chair, 2001 IEEECS Workshop on VLSI, Orlando, FL.
• Registration & Publicity Chair, 2000 IEEECS Workshop on VLSI, Orlando, FL.
• Local Arrangements Chair, 2009 Intl. Symposium VLSI 2009, Tampa, FL.
• Session Chair, IMAPS 2007 Workshop on Extreme Cold Electronics
• Session Chair, “Synthesis,” 1999 Great Lakes Symposium on VLSI (GLSVLSI)
• Session Chair, “Low Power Design,” 2008 International Conference on VLSI Design
• TPC Member, Intl. Symposium on Quality of Electronic Design (ISQED) 2006, 2008
• TPC Member, IEEE Computer Society Symposium on VLSI (ISVLSI)
• TPC Member, Intl. Conference on Computer Design (ICCD)
• TPC Member, Reconfigurable Architectures Workshop (RAW), (Years: 2005, 2008)
• TPC Member, Field Programmable Logic (FPL), 2008,
• TPC Member, IFIP VLSI System-on-a-Chip (SOC) Conference
• TPC Member, Asian Symposium on Quality of Electronic Design (ASQED)
• TPC Member, IEEE SOC Conference, Portland, OR, 2003.
• Reviewer, Micro-electronics System Education (MSE), 2007
• Reviewer, Design Automation Conference (DAC), 2008
• Reviewer, Military and Aerospace Programmable Logic Devices (MAPLD), 2005
• Reviewer, Intl. Symposium on Circuit and Systems (ISCAS)
• Reviewer, Midwest Symposium on Circuit and Systems (MWSCAS) 2008
• Reviewer, Intl. Conf. on Embedded Software and Systems (ICESS) 2007
• Reviewer, Intl. Conf. on VLSI Design, 2008
• Reviewer, IEEE System on a Chip (SOC) Conference
• Reviewer, Adaptive Hardware Systems AHS 2006
• Reviewer, DAC PhD Forum, 2004
• Reviewer, International Conference on Computer Design (ICCD), 2004

Other Service

• Lecturer, 2011 ACM SIGDA Design Automation Summer School (DASS).
• General co-chair, 2011 ACM Student Research Competition.
• Treasurer, ACM SIGDA, Fall 2010 – present.
• Board Member, ACM SIGDA Fall 2010 – present.
• Publicity Chair and Organizing Member, ACM Cadathlon Contest, Nov. 2009.
• IEEE Senior Member Review Panel, Tampa, FL, Spring 2009.
• Mentor, Undergraduate Research Competition, Spring 2008.
• Editor-in-Chief, The Suncoast Signal, IEEE Florida West Coast Section (FWCS) Monthly Newsletter,
• Judge, USF EE Senior Project Poster Competition, Fall 2006.
• Faculty Advisor, USF IEEE Computer Society Student Chapter 1999-2005.
• Mentor, Research Experiences for Teachers (RET), Summer 2004.
• Proposal Reviewer, Florida I4 High Tech Corridor Grant Program, Summer 2004.

GRADUATE THESIS/DISSERTATION COMMITTEES

PhD Dissertation Committee Member

At USF:

1. Madhusmita Behera, Moffitt Cancer Center (Advisor: Dr. John Hines), USF
2. Jorge Galvis (Advisor: Dr. Wilfredo Moreno, EE, USF)
3. Alberto Rodriguez (Advisor: Dr. Tom Weller, EE, USF)
4. Upavan Gupta (Advisor: Dr. N. Ranganathan, CSE, USF), Summer 2008
5. Ashok Murugavel (Advisor: Dr. N. Ranganathan, CSE, USF), Spring 2003
6. Koustav Bhattacharya (Advisor: Dr. N. Ranganathan, CSE, USF), Fall 2009
7. Mahalingam Venkataraman (Advisor: Dr. N. Ranganathan, CSE, USF), Spring 2009
8. Sanjukta Bhanja (Advisor: Dr. N. Ranganathan, CSE, USF), Fall 2002
9. Thara Rejimon (Advisor: Dr. Sanjuktha Bhanja, EE, USF),
10. Saraju Mohanty (Advisor: Dr. N. Ranganathan, CSE, USF), Fall 2003
11. David Aguilar (Advisor: Dr. Rafael Perez), Fall 2007
12. Elizabeth Horton (Advisor: Dr. N. Ranganathan, CSE, USF)

Outside USF:
1. Jawad Khan, ECECS, Univ. of Cincinnati (Advisor: Dr. Ranga Vemuri)
2. Xin Jia, ECECS, Univ. of Cincinnati (Advisor: Dr. Ranga Vemuri)
3. Shubhankar Basu (Advisor: Dr. Ranga Vemuri, ECECS, Univ. of Cincinnati), Spring 2008
4. Madhubanthi Mukherjee, ECECS, Univ. of Cincinnati (Advisor: Dr. Ranga Vemuri)
5. Manish Handa, (Advisor: Dr. Ranga Vemuri, ECECS, Univ. of Cincinnati),
6. Preetham Lakshmikanthan (Advisor: Dr. Adrian Nunez, ECE, Syracuse University)

MS Thesis Committee Member
1. Brian Hayes, CSE (Advisor: Dr. Ranganathan),
2. Vasanth Ramesh, CSE (Advisor: Dr. Ranganathan),
5. Alejandro G. Munoz (Advisor(s): Dr. Larry Hall and Dr. D. Goldgof), Fall 2008.
6. Zornitza Genova (Advisor: Dr. Martha Escobar Moleno)
7. Arun Solleti (Advisor: Dr. Ken Christensen)
8. Jared Ahrens, (Advisor: Dr. Hao Zheng)
9. Khalid N. Hamzan, (Advisor: Dr. Peter Maurer)
10. Rohini K. Jella, (Advisor: Dr. Dewey Rundus)
11. Praveen Ikkurthy (Advisor: Dr. Miguel Labrador)
12. Subodh Kerkar (Advisor: Dr. Miguel Labrador)
13. Vipul Mistry (Advisor: Dr. Murali Varanasi)
14. Sunil Chappidi (Advisor: Dr. N. Ranganathan)
15. Sivakumar Bakthavachalu (Advisor: Dr. Miguel Labrador)

16. Alejandro G. Munoz (Advisor: Dr. Larry Hall)

17. Joshua Johnson (Advisor: Dr. Eugene Fink)

18. Srinath Chavali (Advisor: Dr. N. Ranganathan)

19. Mohammed Gharawi (Advisor: Dr. Peter Maurer)

20. Karthikeyan Balakrishnan (Advisor: Dr. N. Ranganathan)

PhD Dissertation Defense Chair

At University of South Florida, the Graduate School requires the PhD defense to be chaired by a Professor outside the candidate’s department.

1. Bhaskar Tetali, EE (Advisor: Dr. Chris Ferrikides), Spring 2005

2. Balaji Lakshminarayanan, EE (Advisor: Dr. Tom Weller), Fall 2005

3. Charles Baylis (Advisor(s): Dr. Larry Dunleavy and Dr. Dave Snider, EE, USF), Spring 2007

4. Son Ho (Advisor: Dr. Muhammad Rahman, MechE, USF), Summer 2007

5. Saravana Natarajan (Advisor: Dr. Tom Weller, EE, USF), Fall 2007

6. Sathyaharish Jeedigunta, EE, USF (Advisor(s): Dr. Ashok Kumar, MechE, and Dr. Shekhar Bansali, EE), Spring 2008

7. Subramanian Krishnan, EE, USF (Advisors: Dr. Shekhar Bhansali, EE, and Dr. Lee Stefanakos, EE), Spring 2008

8. Carlos L. Castillo (Advisors: Dr. Wilfredo Moreno, EE, and Dr. Kimon Valavanis, CSE), Spring 2008
Valentina Korzhova
831 Grove St. N., St. Petersburg, FL 33701
(617) 888-0317 • vkorzhova@pmu.edu.sa • http://www.csee.usf.edu/~korzhova

PROFILE
• Computer vision, image processing, and pattern recognition
• Video-based fluid flow dynamics methods, non-rigid motion analysis
• Mathematical modeling of information system development
• Data mining, statistical analysis, biometrics, and biomedical applications
• Software development and optimization methods
• Formal proposal writing

EDUCATION
Ph.D. in Computer Science (GPA: 3.93) 2010
University of South Florida, Tampa, FL

M.S. in Computer Science (GPA: 3.88) 2006
University of South Florida, Tampa, FL

B.E. (Honors) in Computer Science & Engineering (GPA: 3.94) 2003
University of South Florida, Tampa, FL

RESEARCH EXPERIENCE
Computer Science & Engineering, University of South Florida, Tampa, FL (2000 - 2010);
Computational mathematics & Programming System Development, Institute of Cybernetics,
Kiev, Ukraine (1976-1994)

Research:
• Dynamics of fluid flow over a spinning disk reactor. Detecting and tracking waves in video. Estimation of fluid flow characteristics.
• Developing a framework for correspondence recovery of image features identified in two-view temporal mammograms.
• Cooperatively developed performance metrics for face, text, hand, person, and vehicle detecting and tracking tasks in domains such as broadcast news segments, meeting room videos, surveillance videos, and UAV (ARDA funded).
• Developing a portion of USF-data, the scoring software used in the evaluation of the face, text, hand, person, and vehicle detecting and tracking.
• Designing and developing the system of crack detection on concrete bridges in videos.
• Optimization methods.
• Software Development.
• Mathematical Modeling

TEACHING EXPERIENCE
University of South Florida – Visiting instructor (2012-present)
• Operating systems
• Computational geometry
• Database systems design
• Formal languages and automata
• Computer impact on society
• Introduction to computer programming

Prince Mohammad Bin Fahd University, KSA – Assistant Professor (2010-2012):
• Information System Analysis and Design
• Object-Oriented System Analysis and Design
• Introduction to Telecommunications and Internet
• Build E-Commerce
• Introduction to Management Information Systems
• Introductory to Programming Language (Java)
• Security Assurance

University of South Florida, USA - Instructor, Assistant teacher (2000-2010):
• Operating System
• Program Design
• Software System Development
• Computer Organization
• Engineering Statistics,
• C/C++

• Calculus,
• Differential Equations
• Linear Algebra
• Analytic Geometry, Statistics

Kievian University, instructor (part time) (1986-1994):
• Computer Science Courses
• Calculus,
• Differential Equations
• Linear Algebra
• Analytic Geometry, Statistics
• Theory of Probability,

AWARDS and MEMBERS
• Certificate of Appreciation, Prince Mohammad Bin Fahd University
• Graduate Certificate “Statistical Data Analysis”
• Graduate Multidisciplinary Scholarship
• Recipient of Mozelle Beverly Endowed Scholarship
• Recipient of Excellence in Tutoring Award
• Recipient of SPJC Hazel Webb Scholarship Award
• Recipient of Lucille Herring Mathematics Award
• Member of Kappa Xi, Eta Kappa Nu
• Member - IEEE, IEEE Computer Society, and IEEE Signal Processing Society
• Member of USF-women group, USF
• Member of the college Grade Appeal committee

COMPUTER SKILLS
• Programming: C/C++, Java, Visual Basic, HTML, XHTML, CSS, JavaScript, Fortran 90, COBOL
• Tools: MatLab, ANSYS, R, LATEX, Viper, Maple, and Microsoft Office
• Libraries: OpenCV, PointGrey Digiclops and Triclops SDK, Video Encoding/Decoding Tools (FFMPEG, VirtualDub)
• Operating Systems: DOS, Solaris, Linux, UNIX, Windows
PUBLICATIONS

Journals:

Conferences and workshops:
- V. Ivanov, V. Korzhova, S. Golin. Further development of academician V. Glushkov mathematical models and their applications. International Mathematical School, Yalta, Ukraine, 2013 (accepted)
- V. Korzhova, V. Ivanov, N. Ivanova. Evolutionary systems agents’ mathematical model. ICAART, Barcelona, Spain, 2013, pp.60-65
- V. Ivanov, V. Korzhova, M. Saleh. Unemployment in USA mathematical modeling. ICTA, Orlando, USA, 2012, pp. 177-190
- V. N. Korzhova, M. F. Saleh, V. V. Ivanov. Mathematical modeling of Information Systems. IMICIC, Orlando, USA, 2011, pp. 223-228


PROFESSIONAL AND COMMUNITY SERVICES

- Serving Student Academic Support Center, College of Business
- Participation in breast cancer support at PMU
- Mentoring students during their Assessment III research project
- Volunteering on the Nineteenth International conference on Pattern Recognition, Tampa, FL (2008).
- Aiding to new arrived international students at the USF.
Tina M. Kouri: Curriculum Vitae
Email: tkouri@cse.usf.edu
Phone: (303) 330-4897
September 4, 2013

1 Education

- Ph.D., Computer Science, Colorado School of Mines, 2012
  Advisor: Dinesh Mehta

  GPA 3.86
  - Related Coursework: Applied Algorithms and Data Structures, Parallel Computing, Linear Programming, Data Mining,
    Mathematical Statistics, Computational Geometry

- B.S., Computer Science, California State University San Bernardino, 2006
  Minor: Mathematics
  University GPA 3.86 / Overall GPA 3.65

- Naval Leadership Training Course (2002), Navy Nuclear Prototype (1999),

2 Teaching History

- Courses Taught, University of South Florida
  - COT 4400: Analysis of Algorithms, Fall 2012, Spring 2013, Summer 2013, Fall 2013
  - COT 6405: Introduction to Theory of Algorithms, Fall 2012
  - CDA 3103: Computer Organization, Spring 2013
  - COT 3100: Introduction to Discrete Structures, Summer 2013, Fall 2013

- Courses Taught, Colorado School of Mines
  - MATH/CSCI 406: Algorithms, Fall 2010
  - MATH/CSCI 358: Discrete Mathematics, Spring 2011

- Teaching Assistant, Colorado School of Mines
  - CSCI 261: Programming Concepts
  - CSCI 306: Software Engineering
  - MATH/CSCI 358: Discrete Mathematics
  - CSCI 400: Principles of Programming Languages
  - CSCI 406: Algorithms
  - MATH 440: Parallel Scientific Computing
  - CSCI 498/598: Theory of Computation
3 Employment History

- University of South Florida  
  Instructor and Undergraduate Advisor  
  Aug 2012 - Present
  - Taught core courses in the computer science and engineering curriculum
  - Advised undergraduate students pursuing computer science and computer engineering degrees
  - Member of the undergraduate committee

- Colorado School of Mines  
  Research Assistant (May 2011 - May 2012)  
  Graduate Teaching Fellow (May 2010 - May 2011)  
  Teaching Assistant (Aug 2007 - Dec 2010)  
  Aug 2007 - May 2012

- CGI  
  Consultant  
  Mar 2007-Aug 2007
  - Developed software used by banks to process loans

- Caltech Spitzer Science Center  
  Software Developer  
  Jul 2006 - Dec 2006
  - Member of the Spitzer Science Center Uplink Group.
  - Programmed in Java, using Mac OS X operating system, on three programs used by scientists for the Spitzer Space Telescope.
  - Translated code from PERL to Java for the Mopex program used to process basic calibrated data received from the Spitzer Space Telescope.

- United States Navy  
  Nuclear Electrician’s Mate, U.S.S. Enterprise  
  Nov 1997-Nov 2003
  - Supervised 16 watchstanders in safe and reliable nuclear propulsion plant operation as the U.S.S. Enterprise’s first female Propulsion Plant Watch Supervisor.
  - Assisted in the coordination of reactor and engineering department’s continuous training program.
  - Handled classified material within prescribed guidelines.
4 Publications


5 Presentations


6 Awards and Honors

- Full tuition assistantship, Colorado School of Mines.
- California State University San Bernardino Honors.
- California State University Department of Computer Science Honors.
- California State University Dean’s List.
- United States Navy, Meritorious Unit Commendation.
- United States Navy, Navy Unit Commendation Medal.
- United States Navy, Naval Achievement Medal.
- United States Navy, Admiral’s Letter of Commendation.
7 Membership in Professional Societies

- ACM Member
Miguel A. Labrador, Ph.D.
University of South Florida
Department of Computer Science and Engineering, ENB 118
4202 East Fowler Avenue, Tampa, Florida 33620
(813) 974-3260 (office), (813) 974-5456 (fax)
labrador@cse.usf.edu
Personal Website: http://www.csee.usf.edu/~labrador
Location-Aware Information Systems Lab Website: http://www.locationaware.usf.edu/

I. GENERAL DATA

Education

  Dissertation title: Buffer Management and Quality of Service (QoS) Predictability for Best Effort Traffic. 
  Advisor: Dr. Sujata Banerjee.

  Major courses taken: Communications Protocols, High-speed Networks, Network Performance, Queueing Theory, U.S. Policy.

- December 1983. Bachelor of Science in Electronics Engineering. Instituto Universitario Politécnico de las Fuerzas Armadas Nacionales (IUPFAN), Venezuela.

Academic Experience

- Aug. 2013–Present. University of South Florida, Tampa, FL 
  Professor and Graduate Program Director, Department of Computer Science and Engineering.

- Aug. 2013–Present. University of South Florida, Tampa, FL 
  Professor, Department of Computer Science and Engineering.

  Associate Professor and Graduate Program Director, Department of Computer Science and Engineering.

  Associate Professor, Department of Computer Science and Engineering.

  Courtesy Faculty Associate, Center for Urban Transportation Research (CUTR).

  Assistant Professor, Department of Computer Science and Engineering.
Industry Experience

  *Consultant.* Design of communication networks based on broadband technologies for telecommunications carriers and large enterprises around the world. Telecordia was formerly Bellcore, the research and development branch of all the Bell operating companies after AT&T’s divestiture in 1984.

  *Telecommunications Consultant.* Assisted high-level management in the reorganization of personnel, activities, budget, and services of Telecommunications just after the joint venture process done with Petróleos de Venezuela, S.A. (PDVSA).


- **Telecommunication Engineer,** Jan. 1985 – Nov. 1989. During almost five years as a Telecommunication Engineer, assumed a variety of responsibilities, including the operation and maintenance of a GTD-4600 and a GTD-1000 telephone systems (3500 lines and 450 trunks total) and their related wiring infrastructure, as well as an international (satellite) transmission system used for voice and data.

Professional Licensure

Colegio de Ingenieros de Venezuela

Awards, Honors

- Member of the **Computing Research Association Committee on Education (CRA-E)** for 2013.

- **2012 College of Engineering Outstanding Research Achievement Award.**

- Member of the **Computing Research Association Committee on Education (CRA-E).** Invited to participate in this prestigious committee to study how undergraduate education can better support computationally-oriented research. The committee consists of only 11 member of national reputation on computer science education. The term of service is one year beginning October 2011.

- **2010 Hispanic Pathways Award** in the tenured faculty category. The Hispanic Pathways awards were created in 2004 by the USF Latin Community Advisory Committee to recognize USF tenured
and non-tenured faculty for outstanding research and/or outreach that creates pathways to the betterment of the lives of Latinos in our community, state or nation.

- **2010 Diversity Honor Roll Award** given by the Office of Diversity and Equal Opportunity, USF, April 8, 2010.

- Inducted as a charter member in the **USF Academy of Inventors**, October 5, 2009.

- **2008 USF Excellence in Innovation Award**, for the highly innovative work done in the area of Location-Aware Information Systems.

- **2008 USF graduate student poster competition, 2nd place in Engineering**, as faculty advisor of Cesar Guerrero for his work on Available Bandwidth Estimation Techniques.

- Certificate of Appreciation as the advisor of Cesar Guerrero, recipient of the 2008 USF Outstanding Graduate Teaching Assistant Provost Award.

- College of Engineering’s nominee for the 2008 U.S. Professor of the Year Award.

- **2006-2007 USF Outstanding Undergraduate Teaching Award.**

- Received $80,000 grant from the Transportation Research Board of the National Academies - Transit-IDEA (Innovations Deserving Exploratory Analysis) Program. This is the first time this prestigious award is granted to CUTR. One year grant, August 2006.

- Awarded the 2nd. Annual Computer Science and Engineering Department’s Outstanding Graduate Research Award. I was awarded the 1st place in the Master of Science category as advisor of George Lukachan for his research, “SELR: Scalable Energy-Efficient Location Aided Routing Protocol for Wireless Sensor Networks”, November 2005.

- Awarded the 2nd. Annual Computer Science and Engineering Department’s Outstanding Graduate Research Award. I was awarded 2nd place in the Master of Science category as advisor of Laura Voicu for his research, “An Analytical Model for the SF-SACK Protocol”, November 2005.

- Awarded 2nd place in the **2005 American Society for Engineering Education (ASEE), Southeastern Section New Faculty Research Award** competition, April 2005.

- Awarded 1st place in the Third Annual USF Undergraduate Research Symposium paper competition in the Physical Sciences and Engineering category as mentoor of Dmitry Kalyadan.

- Awarded the 1st. Annual Computer Science and Engineering Department’s Outstanding Graduate Research Award. I was awarded 1st, place in the Master of Science category as advisor of Srinivas Bandi Ramesh Babu for his research, “Service Differentiation Schemes for 802.11 Wireless Local Area Networks”, November 2004.

- Elevated to the position of **Senior Member of the IEEE**, August 2004.

- Awarded the “Poster for Engineering” during the USF, Honors College, 2nd Annual Undergraduate Research Symposium. I presented the REU work on, “Traveling Smart: Increasing Transit Ridership by Automatic Collection (TRAC) of Individual Travel Behavior Data and Personalized Feedback”, by S. Barbeau, E. Banguero, A. Mageed, M. A. Labrador, R. Perez, and P. Winters.

- Elected **Secretary of the IEEE Technical Committee on Computer Communications (TCCC)** (http://www.comsoc.org/~tccc/). Two-year term (December 2001 to 2003).

- Chosen as an Honoree at the University of Pittsburgh, 2000 Honors Convocation, February 2000.

- Member of Beta Phi Mu since October 2000.


- Received the School of Information Sciences Robert R. Korfhage Award, University of Pittsburgh, 1999.
• Chosen as an Honoree at the University of Pittsburgh, 1995 Honors Convocation, February 1995.
• Chosen as the Outstanding Student of the Year by the International Communication Association (ICA), 1994. I received the award as co-winner of the 1994 Student paper Competition for graduate students in Telecommunications with the paper, “SNA-LAN Integration,” in Dallas, Texas, 1994.

Professional and Honorary Societies

• Faculty advisor, USF’s Venezuelan Student Association (VESTA) (http://www ctr.usf.edu/vesta/) since its foundation in June 2005.
• Faculty advisor of the Communication Networks Group at USF (CommNet) (http://commnet.cse.usf.edu) since its foundation in September 2006.
• Member of IEEE Technical Committees on Computer Communications (TCCC), Optical Networking Technical Committee (ONTC), Communications System Integration and Modeling (CSIM), Ad Hoc and Sensor Networks (AHSN).
• Senior Member of IEEE, Communications Society.
• Member of the Association for Computing Machinery (ACM) special interest group on Data Communications (SIGCOMM).
• Member of the Association for Computing Machinery (ACM) special interest group on Computer Science Education (SIGCSE).
• Member of the American Society for Engineering Education (ASEE).
• Beta Phi Mu.
• Member of Colegio de Ingenieros de Venezuela.
II. TEACHING

Courses Developed

- *Software Development for Mobile Devices* (COP 4656), an undergraduate course on software development under the Android platform (taught spring 2012 for the first time).
- *Programming Concepts* (COP 2510), first course on Java programming for undergraduates.
- *Advanced Networks* (CIS 6930), a graduate course on Ubiquitous Sensing (taught for the first time fall 2010).
- *Location-Based Information Services* (taught spring 2010 for the first time).
- *Graduate Networks* (CIS 6930), a course on Performance Evaluation of Computer Networks.
- *Networks II* (EEL 4930), a hands-on lab-based class in Computer Networks for undergraduates.
- *Computer Networks* (EEL 4781), introductory course in Computer Networks for undergraduates.
- *Software Engineering* (CEN 4020), an introductory course for undergraduates.
- *Computer Networks* (CIS 6930), introductory course for graduate students.
- *Advanced Networks* (CIS 6930), advanced course on optical networking and bandwidth estimation techniques.
- *Advanced Networks* (CIS 6930), advanced course on wireless ad hoc and sensor networks.

Innovative Methods and Efforts to Improve Teaching

- Introduced Lego robots programming and pair programming in the COP 2510 Programming Concepts course in fall 2010.
- Attended workshops “An Audacious iPhone Workshop” and “Creating Mobile Phone Applications with App Inventor for Android”, ACM SIGCSE 2010.
- Attended course on Wireless Sensor Networks given by Xbow Technologies to obtain practical and theoretical knowledge about this technology.
- Attended the tutorial “Zigbee and the new IEEE 802.15.4 Standard”, which is closely related to ad hoc and wireless sensor networks.
- Attended the tutorials “IP Control of Optical Networks and GMPLS” and “IP over Wavelength Division Multiplexing”.
- Established a test bed for education and research in transport layer protocols and bandwidth estimation techniques utilizing the Web100 and Dummynet tools.
- Introduced simulation tools and techniques for computer networks in my undergraduate and graduate classes. Students use state-of-the-art tools to investigate solutions to real world and research problems. Additionally, I utilize the visualization capabilities of these tools to teach important concepts in networking.
Dissertation Director of the Following PAST Ph.D. Students:

Sean Barbeau  
Graduation date: Summer 2012. 
Major Professor: Dr. Rafael Perez and Dr. Miguel A. Labrador.  
Employer: Center for Urban Transportation Research (CUTR) at USF.

Diego Mendez  
Graduation date: Summer 2012.  
Major Professor: Dr. Miguel A. Labrador.  
Employer: Universidad Javeriana, Bogotá, Colombia.

Oscar Lara  
Graduation date: Summer 2012.  
Major Professor: Dr. Miguel A. Labrador  
Employer: IBM, San Jose, California.

Albeiro Cortés  
Graduation Date: Spring 2012.  
Major Professor: Dr. Nestor Peña and Dr. Miguel A. Labrador.  
Employer: Universidad de Cundinamarca, Colombia.

Albeiro is a Ph.D. student from the Universidad de los Andes in Bogota, Colombia. I am his Co-major Professor and the international committee member of his dissertation. Albeiro started in August 2006 and spent one year in USF working on his dissertation.

Alfredo Perez  
Graduation date: Spring 2011.  
Major Professor: Dr. Miguel A. Labrador.  
Employer: Northern New Mexico College, NM. Tenure Track Position.

Pedro Wightman  
Graduation date: Spring 2010.  
Major Professor: Dr. Miguel A. Labrador.  
Employer: Universidad del Norte, Barranquilla, Colombia.

Daladier Jabba  
Graduation date: Fall 2009.  
Major Professor: Dr. Miguel A. Labrador.  
Employer: Universidad del Norte, Barranquilla, Colombia.

Cesar Guerrero  
Graduation date: Spring 2009.  
Major Professor: Dr. Miguel A. Labrador.  
Dissertation title: End-to-End Available Bandwidth Estimation and Monitoring.  
Employer: Universidad Autónoma de Bucaramanga, Bucaramanga, Colombia.
Marco A. Alzate
Graduation Date: Fall 2008.
Major Professor: Dr. Nestor Peña and Dr. Miguel A. Labrador.
Dissertation title: End-to-end Available Bandwidth Estimation in IEEE 802.11b Ad Hoc Networks.
Employer: Universidad Distrital, Bogotá, Colombia.

Marco was a Ph.D. student from the Universidad de los Andes in Bogota, Colombia. I was his Co-major Professor and the international committee member of his dissertation. Marco came to USF in spring 2007 for one semester to work on his dissertation. He defended his dissertation in December 2008.

Rui Zhang
Graduation date: Summer 2007.
Major Professor: Dr. Miguel A. Labrador.
Dissertation title: Sink Localization and Topology Control in Large Scale Heterogeneous Wireless Sensor Networks.

Dissertation Director of the Following CURRENT Ph.D. Students:

Yueng de la Hoz
Graduation date: Began fall 2012.
Dissertation area: N/A.

Idalides Vergara
Graduation date: Began fall 2010. Passed his qualifier exams in fall 2011.
Dissertation area: Privacy in Participatory Sensing.

Dissertation Committee Member of the Following CURRENT Ph.D. Students:

Jay C. Dlutowski
Graduation Date: N/A.
Dissertation title: N/A.
Major Professor: Dr. Wilfrido Moreno, EE Department.

Dissertation Committee Member of the Following PAST Ph.D. Students:

Sadia Ahmed
Graduation Date: Summer 2013.
Major Professor: Dr. Huseyin Arslan, EE Department.
Employer: N/A.

Mehrgan Mostowfi
Graduation Date: Summer 2013.
Major Professor: Dr. Ken Christensen, CSE Department.
Employer: University of Northern Colorado.
Ozgur Yurur
Graduation Date: Spring 2013.
Dissertation title: Towards Energy efficient Middleware Design in Mobile Sensing
Major Professor: Dr. Wilfrido Moreno, EE Department.

Gabriel Arrobo
Graduation Date: Fall 2012.
Dissertation title: Body Area Networks.
Major Professor: Dr. Richard Gitlin, EE Department.

Nicolas Kourtellis
Graduation Date: Summer 2012.
Major Professor: Dr. Adrian Iamnitchi, CSE Department.

Khairan Rajab
Graduation Date: Spring 2011.
Dissertation title: N/A.
Major Professor: Dr. Les Piegl, CSE Department.

Jamal Haque
Graduation Date: Fall 2011.
Dissertation title: Global Aero-Nautical Internet Communication (GAIC).
Major Professor: Dr. Wilfrido Moreno, Electrical Engineering Department.

Sabih Guzelgoz
Graduation Date: Spring 2010.
Dissertation title: Channel characterization for Smart Grids.
Major Professor: Dr. Huseyin Arslan, Electrical Engineering Department.

Miguel Jimeno
Graduation Date: Spring 2010.
Dissertation title: N/A.
Major Professor: Dr. Ken Christensen, CSE Department.

Luis Daniel Otero
Graduation Date: Spring 2009.
Dissertation title: N/A.
Major Professor: Dr. Grisselle Centeno, Industrial and Systems Management Engineering Department.

Sergio Melais
Graduation Date: Fall 2008.
Dissertation title: A Quasi Yagi Antenna Backed by a Metal Reflector
Major Professor: Dr. Thomas Weller, EE Department.

Richard Garcia
Graduation Date: Spring 2008.
Major Professor: Dr. Kimon Valavanis, CSE Department.

David Aguilar
Graduation Date: Spring 2008.
Major Professor: Dr. Rafael Perez, CSE Department.

Hasari Celebi
Graduation Date: Spring 2008.
Dissertation title: Location Awareness in Cognitive Radios and Networks.
Major Professor: Dr. Huseyin Arslan, Electrical Engineering Department.

Mauricio Castillo
Graduation Date: Fall 2007.
Major Professors: Dr. Wilfrido Moreno and Dr. Kimon Valavanis Electrical Engineering Department and CSE Department.

Tevfik Yucek
Graduation Date: Summer 2007.
Major Professor: Dr. Huseyin Arslan, Electrical Engineering Department.

Graciela Perera
Graduation Date: Spring 2007.
Major Professor: Dr. Kenneth Christensen, CSE Department.

Priyanga Chamara Gunaratne
Graduation Date: Fall 2006.
Major Professor: Dr. Ken Christensen, CSE Department.

Eduardo Zurek
Graduation Date: Spring 2006.
Dissertation title: System Optimization for Micron and Sub-Micron Particle Identification Using Spectroscopy-Based Techniques.
Major Professor: Dr. Luis Garcia-Rubio and Dr. Wilfrido Moreno, Electrical Engineering Department.

Rana Mikhail
Graduation Date: Spring 2006.
Major Professor: Dr. Abe Kandel, CSE Department.

Ismail Guvenc
Graduation Date: Spring 2006.
Major Professor: Dr. Huseyin Arslan, Electrical Engineering Department.

Jiang Liu
Graduation Date: Fall 2005.
Major Professor: Dr. Larry Dunleavy and Dr. Huseyin Arslan, Electrical Engineering Department.
Hao Li  
Graduation Date: Fall 2004.  
Dissertation title: Low Power Technology Mapping and Performance Driven Placement for Field Programmable Gate-Arrays.  
Major Professor: Dr. Srinivas Katkoori, CSE Department.  

Kenji Yoshigoe  
Graduation Date: Summer 2004.  
Major Professor: Dr. Kenneth Christensen, CSE Department.  

Gwyn Chatranon  
Graduation Date: Summer 2004.  
Major Professor: Dr. Sujata Banerjee and Dr. David Tipper.  

Zurnitza Genova  
Graduation Date: Summer 2003.  
Major Professor: Dr. Kenneth Christensen, CSE Department.  

Thesis Director of the Following CURRENT Master of Science Students:  

Juan Marron  
Graduation Date: Fall 2013.  
Thesis title: Indoor location system.  

Thesis Director of the Following PAST Master of Science Students:  

Khoa Tran  
Graduation Date: Spring 2013.  

Luis Jaimes  
Graduation Date: Summer 2012.  
Thesis title: Incentives for Participatory Sensing.  

Isaac Taylor  
Graduation Date: Spring 2011.  
Thesis title: Reducing the Energy Consumption in Mobile Devices by Removing Noisy GPS Fixes with Modified Kalman Filters.  
Employer: AT&T.  

Laura Voicu  
Graduation Date: Spring 2006.  
Employer: N/A.
<table>
<thead>
<tr>
<th>Name</th>
<th>Graduation Date</th>
<th>Thesis title</th>
<th>Employer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Srinivas Bandi</td>
<td>Fall 2005</td>
<td>A Measurement-based Admission Control Algorithm for Wireless Local Area Networks.</td>
<td>VMware, Palo Alto, CA.</td>
</tr>
<tr>
<td>Bay Pavlick</td>
<td>Summer 2005</td>
<td>A Fuzzy Logic Based Controller to Provide End-to-End Congestion Control for Streaming Media Applications.</td>
<td>IBM, Tampa.</td>
</tr>
<tr>
<td>Yeggy Easwaran</td>
<td>Spring 2005</td>
<td>Evaluation of Available Bandwidth Estimation Tools (ABETs) and their Application in Improving to TCP Performance.</td>
<td>TechHealth, Tampa.</td>
</tr>
<tr>
<td>Xu Jianxuan</td>
<td>Spring 2004</td>
<td>Performance of TCP over Optical Channels and Heterogeneous Networks.</td>
<td>N/A.</td>
</tr>
<tr>
<td>Praveen Ikkurthy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Graduation Date: Summer 2003.
Employer: EPIC Systems, Madison, Wisconsin.

Sarma Vangala
Graduation Date: Spring 2003.
Employer: Qualcomm, California.

Anand Krishna Parameswaran
Co-major Professor with Dr. Wilfrido Moreno, Electrical Engineering Department.
Graduation Date: Fall 2002.
Employer: Returned to his home country where he found a job.

Master of Science Committee Member of the Following CURRENT Students:
None.

Master of Science Committee Member of the following PAST Students:

Nikolai Samteladze
Graduation Date: Spring 2013.
Thesis area: Delta Encoding Based Methods to Reduce the Size of Smartphone Application Updates.

Justin Bailey
Graduation Date: Fall 2011.
Thesis area: Distributed Systems.

Mehrgan Mostowfi
Graduation Date: Summer 2010.
Employer: N/A.

Tifanny Burrel
Graduation Date: Spring 2010.
Thesis area: Databases.
Major Professor: Dr. Yicheng Tu, CSE Department.

Dmitry Kalyadin
Graduation Date: Fall 2006.
Thesis area: Robotics.
Major Professor: Dr. Robin Murphy, CSE Department.

Daniel Ernest
Graduation Date: Fall 2006.
Thesis area: Robotics.
Major Professor: Dr. Kimon Valavanis, CSE Department.

Karim Souccar
Graduation Date: Summer 2006.
Major Professor: Dr. Wilfrido Moreno, Electrical Engineering Department.

Kiran Rupanagudi
Graduation Date: Spring 2006.
Major Professor: Dr. Wilfrido Moreno, Electrical Engineering Department.

Richard Garcia
Graduation Date: Spring 2006.
Major Professor: Dr. Kimon Valavanis, CSE Department.

Daniel Quintela
Graduation Date: Spring 2005.
Thesis area: Pervasive Sensing and Computing for Natural Disaster Mitigation.
Major Professor: Dr. Wilfrido Moreno, Electrical Engineering Department.

Oscar Gonzalez
Graduation Date: Spring 2005.
Major Professor: Dr. Wilfrido Moreno, Electrical Engineering Department.

Sasha Dos Santos
Graduation Date: Spring 2005.
Major Professor: Dr. Rafael Perez, CSE Department.

Himanshu Gilani
Graduation Date: Spring 2005.
Thesis area: Automatically Determining Route and Mode of Transport Using a GPS-enabled Phone.
Major Professor: Dr. Rafael Perez, CSE Department.

Sai B. Sakamuri
Graduation Date: Spring 2005.
Thesis area: Design and Evaluation of a New Authentication Mechanism for Validating the Sender of an Email.
Major Professor: Dr. Kenneth Christensen, CSE Department.

Preetha Prabhakaran
Graduation Date: Spring 2005.
Thesis area: Energy Performance and Scalability of Mobile Ad Hoc Networks in Realistic Mobility and Fading Environments.
Major Professor: Dr. Ravi Sankar, Electrical Engineering Department.

Kripakarprasad Krishnamurthy
Graduation Date: Fall 2004.
Major Professor: Dr. Dewey Rundus, CSE Department.

**Saar Carmel**
Graduation Date: Fall 2004.
Thesis title: Creating Minimal Test Sets with Maximal Coverage.
Major Professor: Dr. Abraham Kandel, CSE Department.

**Ning Yang**
Graduation Date: Summer 2004.
Major Professor: Dr. Ravi Sankar, Electrical Engineering Department.

**Zane Reynolds**
Graduation Date: Spring 2004.
Thesis title: Representative Selection Strategies for Dissimilarity Representations.
Major Professor: Dr. Abraham Kandel, CSE Department.

**Deepam Agarwal**
Graduation Date: Spring 2004.
Thesis title: A Comparative Study of Artificial Neural Networks and Info Fuzzy Logic Networks on their use in Software Engineering.
Major Professor: Dr. Abraham Kandel, CSE Department.

**Callen Mascarehas**
Graduation Date: Spring 2004.
Major Professor: Dr. Abraham Kandel, CSE Department.

**Rakesh Nathwani**
Graduation Date: Fall 2003.
Major Professor: Dr. Ravi Sankar, Electrical Engineering Department.

**John Shahbazian**
Graduation Date: Fall 2003.
Major Professor: Dr. Kenneth Christensen, CSE Department.

**Vijay Chandramohan**
Graduation Date: Fall 2003.
Major Professor: Dr. Kenneth Christensen, CSE Department.

**Rudolph Mician**
Graduation Date: Spring 2003.
Major Professor: Dr. Abraham Kandel, CSE Department.

**Olga Aizenchtadt**
Graduation Date: Fall 2002.
Major Professor: Dr. Nagarajan Ranganathan, CSE Department.
Joe Rogers
Graduation Date: Summer 2002.
Major Professor: Dr. Kenneth Christensen, CSE Department.

Thesis Director of the Following PAST Undergraduate Honors Students:

Brandon Pav
Graduation Date: Spring 2005.
Thesis area: Software Engineering.

Dmitry Kalyadin
Graduation Date: Fall 2004.
Employer: Pursuing Ph.D. degree in USF.

Thesis Committee Member of the Following PAST Undergraduate Students:

Adam McFarlan
Graduation Date: Fall 2002.
Major Professor: Dr. Kenneth Christensen, CSE Department.

Christine Bexley
Graduation Date: Fall 2002.
Thesis title: An Evaluation and Demonstrations of COTS Components to Implement Wearable Video Cameras on Spaceport Technicians.
Major Professor: Dr. Kenneth Christensen, CSE Department.

Daniel Svanstedt
Graduation Date: Summer 2002.
Major Professor: Dr. Kenneth Christensen, CSE Department.

Liam Irish
Graduation Date: Spring 2002.
Thesis title: N/A.
Major Professor: Dr. Kenneth Christensen, CSE Department.

Faculty Mentor of the Following Research Experiences for Undergraduates Students:

- Chris Eggert, fall 2012, spring 2013.
- Marcus McGee, Ken Mendoza, Leon Augustine, spring 2011.
• Juan Jose Marrón, exchange student from the Universidad de Oviedo, Spain, independent study part of his Bachelor’s thesis work, spring 2010.
• Christine Bringes, fall 2009 and spring 2010.
• Richard Meana, fall 2009, spring 2010.
• Theodore Larkins, fall 2009, spring 2010.
• Andrey Shipalov, summer and fall 2008.
• Clayton Gandy, summer and fall 2008.
• Josh Kuhn, spring 2008 and summer 2008.
• Narin Persad, fall 2006.
• Narin Persad, summer 2006.
• Shannon Osmon, Kevin Neon, spring 2006.
• Shannon Osmon, Diana Arteaga, fall 2005.
• Hung Tran, spring 2005.
• Dmitry Kalyadin, summer and fall 2004.
• Todd Winchell, spring and fall 2004.
• Pedro Villavicencio, spring 2004.
• Ahmad Mageed, fall 2003, spring 2004.
• Sean Barbeau, fall 2003.
• Edgar Banguero, fall 2003.
• Paul Tittle, summer and fall 2002.
III. RESEARCH AND CREATIVE ACTIVITIES

Main Research Areas

- Ubiquitous Sensing and Location-Based Services.
- Wireless Ad Hoc and Sensor Networks.
- Design and evaluation of computer networks and communication protocols.

Secondary Research Areas:

- Available Bandwidth Estimation Techniques.

Publications in chronological order

Books:


Book Chapter:


Publications in refereed journals


Publications in refereed conferences


**Publications ordered by area of research**

**Ubiquitous Sensing and Location-Based Services:**


**Wireless Ad Hoc and Sensor Networks:**

28


**Design and Evaluation of Computer Networks and Communication Protocols:**


Available Bandwidth Estimation Techniques:


Active Queue Management and Packet Dropping Policies for IP and ATM Networks:


Others:


**Educational publications:**


**Journal papers under review:**

1. None.

**Conference papers under review:**


**Publications in non-refereed Conferences**

1. Sean Barbeau, Edgar Banguero, Ahmad Mageed, Miguel A. Labrador, Rafael Perez, and Phil Winters, “Traveling Smart: Increasing Transit Ridership by Automatic Collection (TRAC) of Individual Travel Behavior Data and Personalized Feedback”. Winner poster for Engineering in the Second Annual Undergraduate Research Symposium, Honors College, USF.

**Technical reports**


**Other publications**

Trademarks

1. The Travel Assistant Device name “TAD” was granted as a Trademark by the USPTO Office on May 8, 2012. Serial number: 85072608, Docket/Reference Number: 1372.802.

Licenses

1. Through the USF Division of Patents and Licensing, the Travel Assistant Device mobile application and the backend supporting system has been successfully licensed to Dajuta, Inc. (http://dajuta.com/). Dajuta plans to roll out the commercial service nationwide in the third quarter of 2012.

Patents

Granted


In Process


5. Copyright on Location-Aware Java ME Software Library.

6. System and Method for Adaptive Location Data Buffering for Location-Aware Applications


**Grant Proposals Funded**

1. Title: Joint Physiological and Behavioral Biometrics-based Authentication from Mobile Device Dynamics
   Participation: PIs: SRI, Inc. Co-PIs: Dr. Sudeep Sarkar and Dr. M. A. Labrador.
   Agency: DARPA
   Date: Two-year grant 2013-2015.
   Amount: $240,979.
   Purpose: Develop continuous authentication system using sensor data from mobile phones.

2. Title: Extending Smart Home Technology: Tracking VA Patients in Outdoor Environments.
   Participation: PI: Dr. M. A. Labrador.
   Agency: VA Hospital
   Date: One-year grant 2013-2014.
   Amount: $35,000.
   Purpose: Develop tracking outdoor system for VA patients and its integration with the indoor localization system in the VA smart home.

3. Title: REU Site in Ubiquitous Sensing
   Participation: PI: Dr. M. A. Labrador; Co-PI: Dr. Rafael Perez.
| Agency | NSF |
| Date | Three-year grant 2010-2013. |
| Amount | $293,471. |
| Purpose | REU Summer program. |

2. **Title**: Dynamic Travel Information – Personalized and Delivered to Your Cell Phone  
**Participation**: PI: N. Georggi; Co-PI: S. Barbeau, P. Winters, Dr. M. A. Labrador.  
**Date**: 2009.  
**Amount**: $150,000.  
**Purpose**: Feedback essential information for traffic and navigation purposes.

3. **Title**: Travel Assistance Device – Deployment to Transit Agencies  
**Participation**: PI: S. Barbeau; Co-PI: N. Georggi, P. Winters, Dr. M. A. Labrador.  
**Date**: 2009.  
**Amount**: $150,000.  
**Purpose**: Deploy TAD device in transit agencies around the country.

4. **Title**: Location-based Services for Real-time Tracking of Tactical Equipment and Users.  
**Participation**: PI: Dr. M. A. Labrador.  
**Agency**: Team TACLAN.  
**Date**: 2008.  
**Amount**: $134,071.  
**Purpose**: Real-time tracking of TACLAN deployable equipment and bidirectional communications with TACLAN users.

5. **Title**: Available Bandwidth Estimation Techniques for Wireless Ad Hoc Networks.  
**Participation**: PI: Dr. M. A. Labrador.  
**Agency**: Team TACLAN.  
**Date**: 2008.  
**Amount**: $132,181.  
**Purpose**: Research on available bandwidth estimation techniques and development of tools to measure it on wireless ad hoc networks.

6. **Title**: REU supplement  
**Participation**: PI: Dr. M. A. Labrador  
**Agency**: NSF.  
**Date**: 2010.  
**Amount**: $15,875.  
**Purpose**: Involve two undergraduate students in research activities.

7. **Title**: REU supplement  
**Participation**: PI: Dr. M. A. Labrador  
**Agency**: NSF.  
**Date**: 2009.  
**Amount**: $15,875.  
**Purpose**: Involve two undergraduate students in research activities.

8. **Title**: REU supplement  
**Participation**: PI: Dr. M. A. Labrador  
**Agency**: NSF.  
**Date**: 2008.  
**Amount**: $11,700.  
**Purpose**: Involve two undergraduate students in research activities.
9. Title: REU supplement
   Participation: PI: Dr. M. A. Labrador
   Agency: NSF.
   Date: 2008.
   Amount: $11,625.
   Purpose: Involve two undergraduate students in research activities.

10. Title: An REU Site in Computer Science and Engineering.
    Participation: PI: Dr. M. A. Labrador; Co-PI: Dr. Rafael Perez.
    Agency: NSF.
    Date: Three-year grant 2008-2010.
    Amount: $308,056.
    Purpose: Renewal of REU Site in Computer Science and Engineering.

11. Title: BPC-DP: CSTEP: Computer Science TransfEr Programs.
     Participation: PI: Dr. M. A. Labrador; Co-PIs: Dr. R. Perez, Dr. D. Goldgof, Dr. C. Soto (Hillsborough Community College).
     Date: Three-year grant 2007-2010.
     Amount: $592,715.
     Purpose: New programs to increase the enrollment, retention and graduation rate of students in Computer Science.

12. Title: Location-based Services for Real-time Tracking of Tactical Equipment and Users.
     Participation: PI: Dr. M. A. Labrador.
     Agency: Team TACLAN.
     Date: 2007.
     Amount: $148,506.
     Purpose: Real-time tracking of TACLAN deployable equipment and bidirectional communications with TACLAN users.

     Participation: PI: Dr. M. A. Labrador.
     Agency: Team TACLAN.
     Date: 2007.
     Amount: $131,039.
     Purpose: Research on available bandwidth estimation techniques and development of tools to measure it on wireless ad hoc networks.

     Participation: PI: Dr. K. Valavanis; Co-PIs: Dr. M. A. Labrador, Dr. H. Arslan.
     Agency: SPAWAR.
     Date: 2007.
     Amount: $365,000.
     Purpose: Communication system for underwater swarming.

     Participation: PI: Dr. K. Valavanis; Co-PIs: Dr. M. A. Labrador, Dr. A. Weitzenfeld.
     Agency: SPAWAR.
     Date: 2007.
     Amount: $138,737.
Purpose: Investigate the use of swarming of ground and aerial vehicles.

Participation: PI: Dr. K. Valavanis; Co-PIs: Dr. A. Kandel, Dr. M. A. Labrador, Dr. A. Weitzenfeld.
Agency: SPAWAR.
Date: 2007.
Amount: $243,754.
Purpose: Investigate the use of swarming of ground and aerial vehicles and landing platform for military and civilian applications.

17. Title: Addendum for Equipment Purchase for last two SPAWAR projects.
Participation: PI: Dr. K. Valavanis; Co-PIs: Dr. A. Kandel, Dr. M. A. Labrador.
Agency: SPAWAR.
Date: 2007.
Amount: $130,000.
Purpose: Purchase of additional and necessary equipment for the implementation of the SPAWAR projects.

18. Title: Travel Assistant Device (TAD) to Help Transit Riders.
Participation: PI: Mr. P. Winters (CUTR); Co-PIs: Dr. R. Perez and Dr. M. A. Labrador.
Agency: Transportation Research Board of the National Academies - Transit-IDEA (Innovations Deserving Exploratory Analysis) Program.
Date: 2007.
Amount: $82,097.
Purpose: Extend capabilities of cellular system to help people with cognitive disabilities ride public transportation.
Comment: This is the first time this prestigious award is granted to CUTR.

Participation: PI: Mr. P. Winters (CUTR); Co-PIs: Dr. R. Perez and Dr. M. A. Labrador.
Agency: Florida Department of Transportation.
Date: 2006.
Amount: $118,000.
Purpose: Integrate the location-aware platform that we have in CUTR with wireless sensor networks to develop an intrusion detection mechanism that reports events to appropriate personnel through the wireless cellular network.

20. Title: Smart Phone Application to Influence Travel Behavior (TRACT-IT Phase 3).
Participation: PI: Mr. P. Winters (CUTR); Co-PIs: Dr. R. Perez and Dr. M. A. Labrador.
Agency: Florida Department of Transportation (FDOT).
Date: 2006.
Amount: $125,000.
Purpose: The objective of this project is to influence travel behavior by mode, route, or time of day through the integration of traveler information. Traveler information is available through GPS, location-aware services and TRAC-IT’s PDA-based travel behavior advisory system. These are being integrated into a cell phone-based system.

21. Title: Collaborative Autonomous Unmanned Aerial-Ground Vehicle Systems for
Field Operations.

Participation: PI: Dr. K. Valavanis, Co-PIs: Dr. M. A. Labrador, Dr. W. Moreno.
Agency: Army Research Lab.
Date: 2006.
Amount: $385,212.
Purpose: Implementation of collaborative unmanned aerial-ground vehicles for field operations, which incorporate the use of wireless ad hoc networking technology to allow for multi-hoping capabilities and expand the area of operations.

22. Title: Travel Assistant Device (TAD) to Aid Transit Riders with Special Needs.
Participation: PI: Mr. P. Winters (CUTR); Co-PIs: Dr. R. Perez and Dr. M. A. Labrador.
Agency: Florida Department of Transportation (FDOT).
Date: 2005.
Amount: $87,000.
Purpose: The objective of this project is to design a location-aware application to help people with cognitive disabilities ride on public transportation. Users equipped with GPS-enabled cellular phones will be automatically tracked and informed in real-time.

23. Title: Testing the Impact of Personalized Feedback on Household Travel Behavior (TRAC-IT Phase 2).
Participation: PI: Mr. P. Winters (CUTR); Co-PIs: Dr. R. Perez and Dr. M. A. Labrador.
Agency: Florida Department of Transportation (FDOT).
Amount: $125,000.
Date: 2005-2006.
Purpose: Using the system developed in TRAC-IT I, this project includes improvements to the expert system, extensive testing and surveys and the development of the application in cellular phones.

24. Title: Development of Multidisciplinary Networked Distributed Control Instructional Materials to Support Inter Departmental Process Control Curriculum.
Participation: PIs: Dr. W. Moreno, Dr. C. Smith and Dr. M. A. Labrador.
Agency: USF Innovative Teaching Grants (ITG) Program.
Amount: $10,000.
Date: 2005.
Purpose: Develop new material to enhance the process control curriculum.

Participation: PI: Dr. M. A. Labrador; Co-PI: Dr. R. Perez.
Agency: NSF.
Amount: $299,368.
Date: Three-year grant 2005-2008.
Purpose: Bring 10 minority Hispanic students from Puerto Rico, USF and universities in Florida and Latin American countries to perform research in Computer Science and Engineering during a 10-week summer session.

Participation: PI: Mr. P. Winters (CUTR); Co-PIs: Dr. R. Perez and Dr. M. A. Labrador.
Agency: University Consortium for Intermodal Transportation Safety and Security (UCITSS).
Amount: $125,000.
Date: 2004.
Purpose: Investigate and implement a system to increase safety and security in transportation, which utilizes the location capabilities of cellular networks.
27. Title: Faculty International Travel Grant.
   Participation: PI: Dr. M. A. Labrador.
   Agency: USF Division of Research Grants.
   Amount: $2,375.
   Date: 2004.
   Purpose: Attend the IEEE ICC 2004 conference in Paris, France from June 20 to June 24, 2004 and present two research papers accepted for presentation and publication. Additionally, attend scheduled meetings of the IEEE Technical Committee on Computer Communications and Optical Networking.

28. Title: Internship on Rapid System Prototyping Technologies with Focus on Digital Signal Processing, Artificial Neural Networks, Communications, Instrumentation and Control.
   Participation: PI: Dr. W. Moreno (EE Department). Co-PIs: Dr. J. Leffew and Dr. M. A. Labrador.
   Agency: NSF, Pan-American Studies Institute (PASI) program.
   Amount: $92,205.
   Date: 2003.
   Purpose: 12-day Workshop organized in Cochabamba, Bolivia from June 7th to June 19th, 2004. Seven speakers and 79 participants participated. Participants came from 37 universities, which represented 13 countries and 41 cities from the U.S. and Latin American countries. The main goal of the Institute was to promote state-of-the-art knowledge to faculty, researchers and industrial leaders of Latin American countries and the United States. An additional goal was to create a network to allow information to be disseminated from the participants to their institutions and countries. More information about this wonderful experience, participants, presentations, pictures can be found at [http://rdlabs.istec.org/modules/Conferences/2004/PASI_072004/index.htm](http://rdlabs.istec.org/modules/Conferences/2004/PASI_072004/index.htm).

29. Title: Enhancing the Rider Experience: The Impact of Real-Time Information on Transit Ridership (Wi-Ride).
   Participation: PI: Mr. P. Winters (CUTR); Co-PIs: Dr. R. Perez and Dr. M. A. Labrador.
   Agency: Florida Department of Transportation (FDOT).
   Amount: $75,000.
   Purpose: Incorporate Internet access and real-time video monitoring and security to USF Shuttle buses using wireless technology. The project will study the impact on ridership of these two new services.

30. Title: Traveling Smart: Increasing Transit Ridership by Automatic Collection of Individual Travel (TRAC-IT) Behavior Data and Personalized Feedback.
   Participation: PI: Mr. P. Winters (CUTR); Co-PIs: Dr. R. Perez and Dr. M. A. Labrador.
   Agency: Florida Department of Transportation (FDOT).
   Amount: $100,000.00.
   Purpose: Develop an entire system to collect user travel behavior data and provide individualized feedback for making better travel choices. A PDA-based application, a wireless system, a database and one expert system were included in this project. In addition, other issues were investigated such as mapping GIS data and determining automatically the mode of transportation.

31. Title: Performance of Transport layer Protocols over Optical Networks.
   Participation: PI: Dr. M. A. Labrador.
   Agency: USF Research and Creative Scholarship Grant Program.
Amount: $9,250.
Date: 2003.
Purpose: Seed grant to study the limitations of current transport layer protocols in expected next generation networks.

32. Title: Travel grant to participate in the ACM SIGCOMM Workshop “Computer Networking: Curriculum Designs and Educational Challenges.”
Participation: PI: Dr. M. A. Labrador.
Agency: ACM SIGCOMM.
Amount: $835.
Date: 2002.
Purpose: The goal of the workshop was to bring together faculty, from a broad spectrum of four-year colleges and universities, industry engineers and scientists, and others with an interest in education, to discuss curriculum design and teaching practices in the field of computer networks.

33. Title: The Internet Software Performance Testing (ISPT) Framework Part II: Large-Scale Wired Networks with a Wireless Last Hop.
Participation: PI: Dr. M. A. Labrador.
Agency: SPAWAR (U.S. Navy) through the National Institute for Systems Test and Productivity.
Amount: $116,867.
Date: Two-year grant 2001-2002.
Purpose: Investigate ways to test software applications running over wireless local area networks.

In addition to these grants, I also received two donations from Cisco Systems to set up the lab equipment needed to teach the undergraduate lab-based course in Computer Networks. As of September 2004, I have received the following:

- Received 7 routers MWR1900. Total value: $39,844.00, December 4, 2002.
- Received 7 routers 2513, one Ethernet hub and one Ethernet switch. Estimated value: $25,000, September 2004.

Invited Presentations

1. Graduate Program in Computer Science and Engineering, Pontificia Universidad Javeriana, Bogotá, Colombia, April 2013.
2. Doctoral Degree in Systems Engineering: Challenges and Opportunities, Universidad del Norte, Barranquilla, Colombia, April 2013.
4. Lectures on Ubiquitous Sensing, doctoral program, Universidad Carlos III de Madrid, Madrid, Spain, March 2012.
6. Graduate and undergraduate recruiting presentation, Universidad del Norte, Barranquilla, Colombia, September 2011.
7. Graduate recruiting presentation, Universidad Autónoma de Bucaramanga, Colombia, February 2011.
10. NSF BPC PI Meeting Panel on Community College Program and Outreach, February 1st, 2010.


22. Invited by the Universidad de los Andes in Colombia (best private university in Colombia) to speak about the College of Engineering, the Department of Computer Science and Engineering at USF, and my research activities in Computer Networks, August 8-12, 2006.


28. Invited tutorial (4 hrs) “Next Generation Optical Networks”. Ibero-American Science and Technology Education Consortium (ISTEC) and the Universidad del Norte in Barranquilla, Colombia. Workshop on “Information Technologies: Applications in Digital Signal Processing and Communications”, Barranquilla, Colombia, May 21-23, 2003. Workshop to promote a scheme of collaboration to promote the development of science and education in the area of signal processing and wireless communication emphasizing the creation of a team of researchers that will promote the development of this sector in the region.


IV. SERVICE

Professional Service Activities
Offices and memberships:

- Computing Research Association (CRA), Undergraduate Research Award Committee member, 2014.
- Computing Research Association (CRA), Undergraduate Research Award Committee member, 2013.
- International Advisory Board Member, Erasmus Mundus Master in Cloud Application Development (EM CLOUDev) Partnership, University of Oviedo, Cork Institute of Technology, Plymouth University, Portucalense University Infante D. Henrique, and University of Patras.
- Member of the Computing Research Association Committee on Education (CRA-E). Invited to participate in this prestigious committee to study how undergraduate education can better support computationally-oriented research. The committee consists of only 11 member of national reputation on computer science education. The term of service is one year beginning October 2011.
- Member of the IEEE Technical Committee on Computer Communications (TCCC), Ad Hoc and Sensor Networks (AHSN), Optical Networking Technical Committee (ONTC), and Communications System Integration and Modeling (CSIM) Technical Committee.
- Elected Secretary of the IEEE Technical Committee on Computer Communications (TCCC) (http://www.comsoc.org/~tccc/). Two-year term (December 2001 to 2003). The Committee sponsors papers, discussions, and standards on all aspects of computer-communication systems in the USA and throughout the world. This committee also cooperates with other IEEE societies and sponsors conferences and workshops in many areas of interest to all its members.

Editorial boards:


Editorship:

- Guest editor, IEEE Latin America Transactions, Special Issue on IEEE Latincom 2010.

Conference chair:

- Workshop Co-Chair, 2014 1st First International Workshop on Crowdsensing Methods, Techniques, and Applications (CROWDSENSING), part of IEEE PerCom Conference, Budapest, 2014.
- Workshop Co-Chair, 2013 IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks (WoWMoM), Madrid, Spain.
- Technical Program Co-Chair, IEEE Latincom 2010, Bogotá, Colombia, September 2010.
- Workshop Chair, 8th International Conference on Ad-Hoc Networks and Wireless, Ad Hoc Now 2009.
• Exhibit and Sponsorship Co-Chair, 2007 *IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMOB)*, New York, June 2007.


• Local arrangements Chair, *IEEE LCN 2006*, Tampa, FL, November 2006.

• Local arrangements Chair, 8th *IEEE International Symposium on High Assurance Systems and Engineering*, Tampa, FL, March 2004.


**Conference session chair:**


• *IEEE Globecom 2001*, Quality of Service in Computer Networks Track. Chair in “QoS in Packet Switching and Packet Scheduling” and “QoS in ATM Networks” sessions.


• *IEEE ICC 2002*, Chair in “High Speed Networks Symposium”. Chair in “Traffic Engineering 1” and “Traffic Engineering 2” sessions.

• *IEEE Globecom 2001*, Quality of Service in Computer Networks Track. Chair in “QoS in Packet Switching and Packet Scheduling” and “QoS in ATM Networks” sessions.

**Book reviewer:**


**Conference program committees:**

• *IEEE Latincom 2013*, Technical Program Committee member.

• IEEE Latincom 2012, Technical Program Committee member.
• IEEE Globecom 2012, Ad Hoc and Sensor Networking Symposium, Technical Program Committee member.
• International Conference on Computing, Networking and Communications (ICNC) 2012, Technical Program Committee member.
• IEEE Latincom 2011, Technical Program Committee member.
• IEEE Globecom 2011, Ad Hoc and Sensor Networking Symposium, Technical Program Committee member.
• IEEE ICC 2011, Wireless Networking Symposium, Technical Program Committee member.
• IEEE ICC 2010, Wireless and Mobile Networking Symposium, Technical Program Committee member.
• IEEE Globecom 2010, Ad Hoc and Sensor Networking Symposium, Technical Program Committee member.
• IEEE Latin-American Conference on Communications 2009 (LATINCOM), member of the Technical Program Committee.
• International Conference on Wireless Information Networks and Systems (WINSYS) 2009, member of the international program committee.
• IEEE ICC 2009, Wireless Networking Symposium, Technical Program Committee member.
• IEEE Globecom 2008, Ad Hoc, Sensor and Mesh Networking Symposium, Technical Program Committee member.
• First ACM International Workshop on Integrated Heterogeneous Sensor Networks (HeterSenet) 2008, Technical Program Committee member.
• Fourth IEEE International Workshop on Localized Communication and Topology Protocols for Ad Hoc Networks 2008 (LOCAN), Technical Program Committee member.
• IEEE Globecom 2007, Ad Hoc and Sensor Networking Symposium, Technical Program Committee member.
• IEEE LCN 2007. Technical Program Committee member.
• International Conference on Computer Communications and Networks (ICCCN)’s 1st Workshop on Networking Technology for Robotics and Applications (NeTRA), Hawaii, August 2007. Member of the Technical Program Committee.
- **IFIP Networking 2007**, Atlanta, Georgia, May 14-17, 2007. Member of the Technical Program Committee.


- **IEEE LCN 2006**. Technical Program Committee member.

- **2nd International Workshop on Localized Communications and Topology Protocols for Ad hoc Networks (LOCAN) 2006**, Vancouver, Canada, October 2006. Member of the Technical Program Committee.

- **2nd International Conference on Mobile Ad-hoc and Sensor Networks (MSN) 2006**, Hong Kong, China, December 2006. Member of the Technical Program Committee.


- **InterSense 2006**, First International Conference on Integrated Internet Ad Hoc and Sensor Networks, Nice, France, May 2006. Member of the Technical Program Committee.


- **IEEE LCN 2005**. Technical Program Committee member.

- **IEEE ICC 2005**. Member of the Technical Program Committee of the Optical Networking Symposium.

- **IEEE ICC 2005**. Member of the Technical Program Committee of the Communications QoS, Reliability and Performance Modeling Symposium.

- **17th International Conference on Parallel and Distributed Computing Systems (PDCS 2004)**. Member of the International Program Committee (IPC).

- **IEEE ICC2004**. Member of the Technical Program Committee of the High-Speed Networks and Wireless Networking Symposia.


- **56th IEEE Vehicular Technology Society (VTC 2003) Conference**. Member of the Technical Program Committee.

- **IEEE Globecom 2003**. Member of the Optical Networking Symposium’s Technical Program Committee.

- **IEEE ICC 2003**. Member of the Optical Networking Symposium’s Technical Program Committee.

- **IEEE ICC 2002**. Member of High Speed Networks Symposium’s Technical Program Committee.

- **IEEE Globecom 2002**. Member of the Optical Networking Symposium’s Technical Program Committee.

Proposal reviewer:

• Universidad del Norte, Barranquilla, Colombia, Division of Research, proposal reviewer, October 2007.
• USF Undergraduate Research Symposium, Honors College, 2006.
• USF Undergraduate Research grants, Honors College, 2006.
• Faculty International Travel Grants, USF Division of Research Grants, March 2005.
• City University of New York Research Award Program 2005.

Journal paper reviewer:

• IEEE Wireless Communications Magazine
• IEEE Transactions on Wireless Communications
• IEEE Sensors Journal
• Journal of Intelligent and Robotic Systems
• Journal of Combinatorial Optimization
• Computer Communications
• IEEE Transactions on Communications
• Wireless Communications and Mobile Computing Journal, Wiley (http://www.interscience.wiley.com)
• IEEE Journal of Selected Areas in Communications
• International Journal of Network Management.

Conference paper reviewer:

• IEEE Globecon every year from 1999 to 2012.
• IEEE ICC every year from 2002 to 2012.
• IEEE LCN 2006
• InterSense 2006
• Networking 2006
• ISCC 2005
• International Conference on Parallel and Distributed Computing Systems (PDCS) 2002, 2003 and 2004
• Workshop on High Performance Switching and Routing (HPSR 2003).
• Many others
University Service Activities

- Department of Computer Science and Engineering, Graduate Program Director since summer 2010.
- College of Engineering Scholarship Committee – spring 2013.
- College of Engineering Scholarship Committee – spring 2012.
- USF Office of Undergraduate Research, founding member, Advisory Committee Member, Sept. 21, 2011.
- College of Engineering Scholarship Committee – Summer 2011.
- Department of Computer Science and Engineering, Faculty Evaluation Committee – spring 2011.
- Department of Computer Science and Engineering, Department Governance Committee, – spring 2011.
- Department of Computer Science and Engineering, Chair, Graduate Program Committee – fall 2010.
- Department of Computer Science and Engineering, Graduate Program Committee – spring 2010.
- Department of Computer Science and Engineering, Tenure and Promotion Committee – spring 2010.
- Department of Computer Science and Engineering, Awards Committee – spring 2010.
- Department of Computer Science and Engineering, Faculty Evaluation Committee – spring 2010.
- Department of Computer Science and Engineering, Faculty Evaluation Committee – spring 2009.
- Department of Computer Science and Engineering, Faculty Search Committee – Bioinformatics, 2008-2009.
- Department of Computer Science and Engineering, Graduate Committee, 2007/2008.
- Department of Computer Science and Engineering, Faculty Search Committee, 2007/2008.
- USF Graduate School, Office of Diverse Student Success, Graduate Diversity Advisory Council member since April 2006.
- **USF Undergraduate Research Advisory Board member** since August 2005.
- Review Panelist Faculty International Travel Grants, USF Division of Research Grants, March 2005.
- **Director of the Research Experience for Undergraduates Program** ([http://www2.eng.usf.edu/reu/](http://www2.eng.usf.edu/reu/)) for the Department of the Computer Science and Engineering since the program’s creation in spring 2002. This initiative is meant to involve undergraduate students in research activities and provide them with a better and more integral education. The program includes state of the art topics and technology along with research tools and experience to pursue higher level studies.
- Department of Computer Science and Engineering, Graduate Research Award Committee, 2005/2006.
- Department of Computer Science and Engineering, Chair of the Scholarship Committee, 2002/2003.
• Department of Computer Science and Engineering, Chair of the Scholarship Committee, 2001/2002.
• Department of Computer Science and Engineering, graduation representative, 2001/2002.

Community Service Activities

• Joined Advisory Board to found New Springs School, a new charter school with focus on Mathematics, Science and Reading in Hillsborough County, August 2006.
• Judge in the Third Annual USF Research Experience for Undergraduate Symposium, April 2005.
• Second College of Engineering Research Experience for Undergraduate Symposium, April 2004.
• Judge and part of the organizing committee of the First College of Engineering Research Experience for Undergraduate Symposium, April 2003.
• Judge in the Florida Georgia Louis Stokes Alliance for Minority Participation’s (FGLSAMP) 10th Annual Expo, February 2003.
Jay Ligatti

Contact Information
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Tampa, FL 33620, USA http://www.cse.usf.edu/~ligatti

Research Interests
Software security and programming languages, including runtime monitoring, enforcement models, policy-specification languages, code-injection attacks, firewalls and packet-classification algorithms, type systems, and tools for building and managing complex security policies.

Appointments
University of South Florida
Associate Professor, Department of Computer Science and Engineering (2012-present)
Assistant Professor, Department of Computer Science and Engineering (2006-2012)

Education
Princeton University (2001-2006)
Dissertation: Policy Enforcement via Program Monitoring
Adviser: David Walker

University of South Carolina (1997-2001)
Degrees: B.S., Computer Science (2001); B.M., Music Composition (2001)
Honors project: Sci st id plurimum amare: A thoroughly recursive piece
Adviser: Reginald Bain

Awards and Honors
- USF Outstanding Research Achievement Award, 2009.
- NSF Faculty Early Career Development (CAREER) Award, 2008.
- Best-paper award at the 2007 ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI), for [15]. In September 2008, SIGPLAN nominated this as one of five papers from 2006-2008 to include as “research highlights” in Communications of the ACM.
- Papers from the following conferences/workshops were invited to appear in journals:
  - ACM SIGSAC Conference on Computer and Communications Security (CCS), November 2005 ([17] invited and appeared as [3]).
  - Foundations of Computer Security Workshop (FCS), July 2002 ([24] invited and appeared as [7]).
Refereed Journal Publications


Selective Conference Publications


Workshop Publications


Ph.D. Thesis


Patents


Expert Witness Experience

- IED et al v. Static Control Components (November 2012-present)

- John Sheppard et al v. Hillsborough County Sheriff’s Office (November-December 2012)

Industrial Experience

- CACI (March-July, 2012)
  Consultant on software security.

- Microsoft Research (Summer 2003)
  Research intern; co-created and proved soundness of control-flow mechanisms.

  Software-security consultant; software engineer.

Teaching Experience

University of South Florida [Number of students in each course appears in brackets]

- Compilers (CIS 4930): Fall 2011 [23], Fall 2009 [13], Fall 2007 [21]
- Compiler Design (CIS 6930): Fall 2011 [11], Fall 2009 [14], Fall 2007 [12]
- Programming Languages (COP 4020): Fall 2012 [23], Fall 2010 [13], Fall 2008 [16]
- Programming Language Design (CIS 6930): Fall 2012 [8], Fall 2010 [14]
- Advanced Programming Languages (CIS 4930): Spring 2011 [2]
Operating Systems (COP 4600): Fall 2006 [44]

Princeton University (2001-2006)
- Teaching assistant for Compiling Techniques (COS 320): Spring 2003 and 2006
- Preceptor (section lecturer) for General Computer Science (COS 126): Fall 2002

Students advised

Ph.D. Students:
- Danielle Ferguson (2012-present)
- Donald Ray (2011-present)
- Daniel Lomsak (2008-present)

Master’s Students:
- Zachary Carter (2010-2012) After graduation: Intern at Mozilla Labs
- Matt Spaulding (2010-2011) After graduation: Software Engineer at Enporion
- Josh Kuhn (2009-2011) After graduation: Continuing USF research

REU Students:
- William Seed (Fall 2012-present)
- Bader AlBassam (Fall 2012-present)
- Jesse Squires (Summer 2011)
- Matt LaDuca (Summer 2011)
- DaShawn Matias (Fall 2010)
- Edwin Martinez Avila (Summer 2010)
- Robert Donatto (Fall 2009)
- Christine Cortes Hernandez (Summer 2008)
- Billy Rickey (Summer 2007)
- Humberto Gonzalez (Summer 2007)

USF Honors College Thesis Students:
- Jonathan Palmer (Fall 2010)
- Donald Ray (Fall 2010)
- Bryan Hill (Spring 2009)
- Vincent Newman (Spring 2008)
- Amin Astaneh (Spring 2007)
Thesis Committees (besides those of my own students)

- Egor Dolzhenko, Ph.D., USF (Mathematics), 2013
- Matthew Lewandowski, M.S., USF, 2013
- Christopher Bell, M.S., USF, 2013
- Nikolai Samteladze, M.S., USF, 2013
- Ismail Butun, Ph.D., USF (Electrical Engineering), 2013
- Jill Dizona, Ph.D., USF (Mathematics), 2012
- Nicolas Kourtellis, Ph.D., USF 2012
- Mehrgan Mostowfi, M.S., USF, 2010
- Paul Anderson, M.S., USF, 2010
- Konstantinos Dalamagkidis, Ph.D., USF, 2009
- Tine Verhanneman, Ph.D., Katholieke Universiteit Leuven, 2007

Invited Talks and Lectures

- Coping with Runtime-Policy Complexity. International Workshop on Run Time Enforcement for Mobile and Distributed Systems, Dresden Germany (09/2007)
- Polymer: A Language and System for Specifying Complex, Modular Run-time Policies. Katholieke Universiteit Leuven, Belgium (03/2007)
- An Underappreciated Software-verification Technique. IEEE-CS’s USF-student-chapter meeting (02/2007)
- Language-based Security. ACM’s USF-student-chapter meeting (02/2007)
- Enforcing Security Policies with Run-time Program Monitors. Reservoir Labs-NYC (03/2006), University of Texas-Arlington (03/2006), Florida International University (03/2006), University of South Florida (02/2006), Kansas State University (02/2006)

Conference/Workshop Talks

- A Technique for Proving Subtyping Completeness, with an Application to Iso-recursive Types. ACM SIGPLAN Workshop on Types in Language Design and Implementation (Philadelphia, 2012)
- A Theory of Runtime Enforcement, with Results. European Symposium on Research in Computer Security (Athens, 2010)

Service

Program committees:
- International Symposium on Cyberspace Safety and Security (CSS), 2012-2013
- Conference on Privacy, Security and Trust (PST), 2012
- ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD), 2012
- International Conference on Network and System Security (NSS), 2011
- IFIP International Conference on Formal Methods for Open Object-based Distributed Systems and International Conference on FORmal TEchniques for Networked and Distributed Systems (FMOODS & FORTE), 2010-2011
- Annual ACM Symposium on Applied Computing: Software Verification and Testing Track (SAC-SVT), 2009-2011
- ACIS International Conference on Software Engineering Research, Management and Applications (SERA), 2009-2011

Conference organization:
- Co-organizer of the “Grand Challenges in Programming Languages” panel at the ACM Symposium on Principles of Programming Languages (POPL), 2009

Reviewer for many conferences and journals, including:

NSF Service:
National Science Foundation panelist (2008-2009)

USF CSE Department Service:
- Graduate-program Committee (2006-present)
- Hiring Committee (2011-2012)

USF College of Engineering Service:
- Engineering Research Advisory Council (2012-present)

Community Service:
- Judge, Hillsborough County Regional Science Fair (2007-2013)
- Judge, Florida State Science and Engineering Fair (2009-2012)

Funding

Citizenship: US
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URL: http://www.cse.usf.edu/~yliu/

Education

<table>
<thead>
<tr>
<th>Degree</th>
<th>Institution</th>
<th>Date</th>
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<tbody>
<tr>
<td>Ph.D., Computer Science</td>
<td>North Carolina State University</td>
<td>May 2012</td>
</tr>
<tr>
<td>M.S., Communication and Information System</td>
<td>Xidian University</td>
<td>March 2007</td>
</tr>
<tr>
<td>B.S., Computer Science</td>
<td>Xidian University</td>
<td>July 2004</td>
</tr>
</tbody>
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Appointment

University of South Florida, Assistant Professor, Department of Computer Science and Engineering, August 2012 – present

Publications

Conference Papers:


**Journal Papers:**


**Technical Reports:**


**Honors**

- Travel award from ACM Conference on Computer and Communications Security (ACM CCS), 2009.
- Travel award from cyber security summer school program organized by the Information Trust Institute UIUC in 2008.

**Presentations**
• BitTrickle: Defending against Broadband and High-power Reactive Jamming Attacks (INFOCOM’12, Orlando, FL)

• Enhanced Wireless Channel Authentication Using Time-Synched Link Signature (INFOCOM’12, Orlando, FL)

• Mimicry Attacks against Wireless Link Signature. 18th ACM Conference on Computer and Communications Security (CCS ’11, Chicago, IL, Poster Session).

• USD-FH: Jamming-resistant Wireless Communication using Frequency Hopping with Uncoordinated Seed Disclosure (MASS’10, San Francisco, CA)

• Authenticating Primary Users’ Signals in Cognitive Radio Networks via Integrated Cryptographic and Wireless Link Signatures (Oakland’10, Oakland, CA)

• Randomized Differential DSSS: Jamming-Resistant Wireless Broadcast Communication (INFOCOM’10, San Diego, CA)

• False Data Injection Attacks against State Estimation in Electric Power Grids (CCS’09, Chicago, IL)

Academic Activities


Luther Palmer III

Contact Information

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http://www.cse.usf.edu/~palmer

Research Interests

Biomorphic robotics – specifically, seeking to unlock the secrets of legged locomotion that allow animals to walk, run, climb and jump seemingly effortlessly. This research has applications in the deployment of legged robots for time-critical search and rescue, military reconnaissance and planetary exploration, and intersects with human prosthetics technology.

Current Appointment

University of South Florida
Assistant Professor, Department of Computer Science & Engineering (2009-present)

Postdoctoral Training

Case Western Reserve University
US Intelligence Community Fellow, Dept. of Mechanical & Aerospace Engineering (2007-2009)
Advisor: Roger Quinn

Education

- The Ohio State University
  Degrees: M.S. and Ph.D., Electrical and Computer Engineering (2002, 2007)
  Advisor: David Orin

- University of Alabama in Huntsville
  Degree: B.S., Electrical Engineering (1999)

- Oakwood University
  Degree: B.S., Applied Mathematics (1999)

Refereed Journal Publications


**Refereed Conference Publications**


Grants


Invited Talks

- Intelligence Community Academic Summit (2008), “Increasing Robotic Mobility Through Insect Strategies”
University Service

- National Society of Black Engineers faculty advisor (2012- Present)
- University of South Florida Upward Bound Career Day presenter (2011)
- Undergraduate Research Symposium judge (2011)
- Supervision of Research for Undergraduate Experience students (2010 - Present)

Community Service

- Coalition Warrior 2013 demo – Tampa Convention Center (2013)
- Sunshine State Scholars Conference demo, Orlando, FL (2013)
- 6-Week Robotics Summer Program for University of South Florida Upward Bound Program (2012)
- Strawberry Crest High School robotics demo and presentation (2012)
- Tampa Bay Rays community interaction day (2011)
- Southeastern Conference Science Competition judge (2011)
- University of South Florida Honors Program speaker (2010)
- Middleton High School Career Day presenter (2010)
- Independence High School, Columbus, OH, Science Club mentor (2006-2007)
- National Society of Black Engineers, Mentor for collegiate chapter and involvement in initiatives for pre-college involvement (2007-2009)

Professional Service

- Journals and Conference Reviews – IEEE Transactions on Automation, Transactions and Mechanics, American Society of Mechanical Engineers Journal of Mechanical Design
- Proposal Reviews – National Science Foundation panels and external reviews
- Conference Session Chair – ICRA 2010

Affiliations

- American Society of Engineering Education
- National Society of Black Engineers
- Institute of Electronics and Electrical Engineers
Research Interests

My research interests are in computer security and privacy with a broader emphasis on issues related to secure systems. My current work addresses security with specific applications in medical device system security, malicious software detection, and hardware-enabled trustworthy computing.

Research Experience

**Assistant Professor**, 2012-
University of South Florida, Tampa, FL

**Research Scientist** for Center for Trustworthy Embedded Systems, 2010-
Oak Ridge National Laboratory, Oak Ridge, TN

**Visiting Research Scientist**, May 2011
Security and Privacy Research Lab, University of Washington, Seattle, WA

Computer Systems and Security Group, Vrije Universiteit, Amsterdam, The Netherlands

**Research Assistant**, 2003-2008
Computer Security Research Group, University of Virginia, Charlottesville, VA

**Research Assistant**, 2001-2002
Clemson University TECNET group, Clemson, SC

Education

Postdoc, Computer Science, Vrije Universiteit, 2007-2009
Focus area: Trustworthy Electronic Voting Systems
Advisor: Andrew S. Tanenbaum

Ph.D., Computer Science, University of Virginia, 2002-2008
Thesis: *Disk-level Behavioral Malware Detection*
Advisor: David Evans

M.S., Computer Science, Clemson University, 2000-2002
Advisor: Mike Westall

B.S., Computer Science, Bob Jones University, 1997-2000

Refereed Publications


Refereed Abstracts


Other Publications

Patents


Grants/Gifts

Co-PI, Vehicle Privacy, Department of Transportation (DOT).
Amount: $500K (09/2013-08/2014)

Co-PI, VBSS Feasibility, Department of Transportation (DOT).
Amount: $450K (09/2013-08/2014)

PI, Secure Wide-area Secure Power Distribution, Department of Energy (DOE).
Amount: $75K (12/2012-09/2013)

PI, DexCom Gift.
Amount: $25K (06/2013)

With Co-PIs: Mark Pleszkoch, Stacy Prowell, and Greg Peterson
Amount: $900K (10/2012-09/2014)

PI, Various Projects, Unnamed federal agency for transportation security work
Amount: $2.7M (10/2013-09/2014)
Amount: $700K (10/2012-09/2013)

PI. Event Enumeration for Security Analysis of Embedded Systems, Oak Ridge National Laboratory (ORNL).
Amount: $190K over 2 years (10/2011-09/2013)

Co-PI. Secure Electronic Diabetes Therapy, University of Washington and Office of the National Coordinator for Health Information Technology (UW and ONC SHARPS program).
With Co-PI: Yoshi Kohno, University of Washington
Amount: $135K over 3 years (09/2011-04/2014)

Co-PI. Host-based Malware Detection, Unnamed Federal Agency.
With Co-PIs: Stacy Prowell, Oak Ridge National Laboratory
Amount: $120K over 1 year (12/2011-12/2012)

PI. Smart Power Infrastructure Demonstration for Energy Reliability and Security (SPIDERS), Department of Energy (DOE).
Amount: $450K over 3 years (3/2011-09/2013)
Senior Personnel. Disk-level Malware Detection and Response, National Science Foundation (NSF). With Co-PIs: David Evans and Sudhanva Gurumurthi, University of Virginia
Amount: $412K over 3 years (08/2006-07/2010)

Invited Talks
National Health Information Sharing and Analysis Center (NH-ISAC), February 5, 2013
NH-ISAC Leadership Board Meeting, Kennedy Space Center, Florida
Medical Device System Security, June 12, 2012
Knoxville FBI Meeting, Knoxville, TN
Current and Future Challenges in Medical Device System Security, March 22, 2012
FDA/AAMI Meeting, Herndon, VA
Security and Privacy for Wireless (and Wired) Healthcare, October 20, 2011
UT-Memphis Health Science Center, Memphis, TN
Trustworthy Embedded Systems, September 27, 2011
Oak Ridge National Laboratory (AMD Corporate Fellows meeting), Oak Ridge, TN
Mitigating Solutions for Insulin Pump System Attacks, November 11, 2010
Diabetes and Technology Workshop, Bethesda, MD
Impacting Patient Safety through Medical Device System Security, September 15, 2010
UT Medical Center Dean’s Grand Rounds, Knoxville, TN
Security and Privacy for Wireless Medical Devices, May 26, 2010
13th Software Design for Medical Devices Conference, San Diego, CA
Medical Device System Security and Reliability, June 17, 2010
Biomedical Engineering Symposium Meeting, Oak Ridge, TN
Insulin Pumps: Past, Present, and Future, April 6, 2010
Juvenile Diabetes Research Foundation Meeting, Oak Ridge, TN

Invited Panelist
Indians vs. Smallpox: Vulnerable Devices on Virulent Networks, Nov. 3, 2011
The Amphion Forum, Minneapolis, MN
Medical Device System Forensics, Aug. 8, 2011
2nd USENIX Security Workshop on Health and Security, San Francisco, CA
Insulin Pump Safety and Security, Nov. 11, 2011
Diabetes and Technology Workshop, Bethesda, MD
Ten Years of Insulin Pump System Therapy: From User to Researcher
1st USENIX Security Workshop on Health and Security, Washington, DC

Teaching Experience
Instructor, Embedded Systems Security, Fall 2013
Department of Computer Science, University of South Florida
Instructor, Scientific Communication in Computer Science, Spring 2008 and Spring 2009
Department of Computer Science, Vrije Universiteit, Amsterdam, The Netherlands
**Student Advising/Mentorship**

* Khandaker Abdullah Al Mamun, currently an electrical engineer PhD student at the University of Tennessee. His research is in biomedical sensors. Co-advised with Nicole McFarlane.

Ben Taylor, a computer science M.S. student at the University of Tennessee. His research is in surveillance system security.

* Nathan Henry, currently a computer engineer M.S. student at the University of Tennessee who will begin pursuing a MD in Fall 2014. His research is in context-aware insulin pump systems.

Bryan Hunter, a computer science M.S. student at the University of Tennessee. Bryan placed 11th out of 40 competitors in the National Security Innovation Competition in April 2012. His research was in two-factor authentication security.

Mentored Pravin Shinde, a computer science M.S. student at Vrije Universiteit in Amsterdam. His research was in Hardware-assisted Integrity of Personal Computing Devices. Pravin is now pursuing a computer science PhD at ETH-Zurich.

Mentored Victor van der Veen, a computer science B.S. student at Vrije Universiteit in Amsterdam. His research was in Hardware-assisted Integrity Measurement of Voting Systems. Victor is now in the systems security graduate program at Vrije Universiteit.

Mentored Sean Talt, a computer science B.S. student at the University of Virginia. Talts worked in Prototyping and Performance Evaluation of Disk-level Malware Detection.

Mentored Meghan Knoll, a computer science B.S. student at the University of Virginia. Her primary work was in Spyware Analysis and Detection.

Mentored Adrienne Felt, a computer science B.S. student at the University of Virginia. Her primary work was in Efficient Disk-level Signatures. Adrienne went on to earn a NSF Graduate Research Fellowship in 2009.

* Current students

**Awards/Scholarships/Fellowships**

University of Virginia Research Symposium (UVERS) Graduate Finalist (2007)

Over 80 projects were submitted for consideration across the engineering graduate school. I was the only Computer Scientist selected as a top-10 finalist.

Dean’s Fellow, University of Virginia (2002-2004)

In Aug. 2002, I was the only one to receive the Dean’s fellowship out of the 34 new computer science graduate students (718 total applicants).

Life Scholarship, Bob Jones University (1998-2000)

SC residents maintaining a 3.0 GPA were awarded this scholarship.
Program/Review Committees

2013 Smart Energy Grid Security Workshop (SEGS 2013)
5th International Workshop on Software Engineering in Health Care (SEHC 2013)
3rd USENIX Workshop on Health Security and Privacy (HealthSec 2012)
Oak Ridge National Laboratory (ORNL) Internal Funding Reviewer (2011)
Security and Privacy in Medical and Home-Care Systems (SPIMACS 2010)
ORNL Cybersecurity Workshop (CSIIRW 2010)
Annual Computer Security Applications Conference (ACSAC) External Review Committee Member
(ACSAC 2005, ACSAC 2006)
RAFAEL A. PEREZ
Department of Computer Science and Engineering
University of South Florida, Tampa, Florida 33620
phone (813) 974-3437 e-mail: perez@eng.usf.edu

EDUCATION:
Ph.D., Electrical Engineering, University of Pittsburgh, 1973
M.S., Electrical Engineering, University of Pittsburgh, 1967
B.S., Electrical Engineering, New Mexico State University, 1965

EXPERIENCE:
August 2013 to present – Interim Dean
College of Engineering, University of South Florida, Tampa, Florida
December 2005 to present – Associate Dean for Academics and Student Affairs
College of Engineering, University of South Florida, Tampa, Florida

August 2004 to December 2005 – Associate Chair
Department of Computer Science and Engineering, University of South Florida, Tampa, Florida

June 2002 to December 2004 – Graduate Program Director
Department of Computer Science and Engineering, University of South Florida, Tampa, Florida

August 1994 to Present - Professor
Department of Computer Science and Engineering, University of South Florida, Tampa, Florida

August 1987 to August 1994 - Associate Professor
Department of Computer Science and Engineering, University of South Florida, Tampa, Florida

May 1984 to August 1986 - Assistant Chairman
Department of Computer Science and Engineering, University of South Florida, Tampa, Florida

February 1983 to August 1987 - Assistant Professor
Department of Computer Science and Engineering, University of South Florida, Tampa, Florida

June 1974 to February 1983 - Project Manager
Westinghouse International Company, New York City
I was responsible for the installation and start-up of complex computer control systems in the metal making and paper industries in the United States and overseas in Spain, Brazil, Mexico, Venezuela, and Yugoslavia. My responsibilities included system integration of all the different
control equipment to meet final reliability and production acceptance tests.

August 1972 to June 1974 - **Manager**
Westinghouse Health Systems, New York City
I was responsible for the day-to-day administration of a computerized Medical Testing Center and the supervision of its seven member staff. Hospital patients as well as private patients would come to the Center for a complete battery of tests. An on-line computer would collect and interpret the test data from the patients. Prior to the Center’s opening, my responsibilities included working on the overall design of the Center and with the hospital physicians in the selection of the medical tests to be offered, the equipment to do these tests, and their integration with the Center’s computer.

June 1970 to August 1972 - **Research Engineer**
Westinghouse Research Laboratories, Pittsburgh, PA
I designed computer programs used to predict the manpower and equipment required by Ambulatory Health Care facilities to serve a given population. These programs were used in consulting contracts with the U.S. Government and private business in the area of health care.

**RESEARCH GRANTS AND CONTRACTS:**

1. Co-Principal Investigator, “"An REU Site on Ubiquitous Sending”, $293,470, funded by the National Science Foundation, April 2011 - March 2014.

2. Co-Principal Investigator, “"A REU Site in Computer Science and Engineering”, $308,056, funded by the National Science Foundation, Jan 2008 - December 2010.


7. Co-Principal Investigator, “Travel Assistance Device (TAD) to Aid Transit Riders with Special Needs”, $87,000, funded by Florida Department of Transportation, December 2005 - December 2006.


10. Co-Principal Investigator, “Traveling Smart: Tracking personal modes of transportation with GPS enabled PDAs – Phase II”, $115,000, funded by the National Center for Transit Research and Florida Department of Transportation, October 2004 - January 2006.

11. Co-Principal Investigator, "Resources In support of Excellence (RISE): A USF/NSF Computer Science, Engineering, & Mathematics Scholarship Program", $400,000, funded by the National Science Foundation, Sept 2003 – August 2007.

12. Co-Principal Investigator, “Traveling Smart: Tracking personal modes of transportation with GPS enabled PDAs”, $100,000, funded by the National Center for Transit Research and Florida Department of Transportation, July 2003 - October 2004.

13. Co-Principal Investigator, “Enhancing the Rider Experience using real-time transit information”, $75,000, funded by the National Center for Transit Research and Florida Department of Transportation, July 2003 - October 2004.


19. Principal Investigator, “Automatic Knowledge Acquisition for Expert Systems” $52000, Florida High Technology and Industry Council, January 1993 to June 1994. This project is also supported by Harris Semiconductor with an additional estimated $25000 “in-kind”
support which includes data, software, software engineer’s time, and two summer internships for students working on this project.

20. Principal Investigator, “Automatic Knowledge Acquisition for Expert Systems” $58756, Florida High Technology and Industry Council, January 1992 to December 1992. This project is also supported by Harris Semiconductor with an additional estimated $30000 “in-kind” support which includes data, software, software engineer’s time, and a summer internship for students working on this project.

21. Principal Investigator, “Automatic Knowledge Acquisition for Expert Systems” $60000, Florida High Technology and Industry Council, January 1991 to December 1991. This project is also supported by Harris Semiconductor with an additional estimated $35000 “in-kind” support which includes data, software, manufacturing expert’s time, software engineer’s time, and two summer internships for students working on this project.


23. Co-Principal Investigator, “Teaching Artificial Intelligence and Expert Systems Courses: Content and Strategies for Undergraduate Faculty” $129,509, National Science Foundation Grant # 8954352 January 1990 to December 1990.


32. Principal Investigator, “University-Industrial Linkage Grant,” $8,047, Division of Sponsored Research, University of South Florida, April 1986 to March 1987.


PATENTS


PUBLICATIONS


Perez, R.A., and Li, C.C. “Automated Collection and Reporting of Medical Data,” IEEE


Technical Reports:

“A Primer on Neural Networks Applications in Transportation” CUTR Technical Report, Fall 1995.


**CONSULTING:**

Venezuelan Oil Co. – Instructor for “Neural Networks for Process Control”

IBM Corp. -- Instructor for University Level Programs in Artificial Intelligence, Expert Systems and Neural Networks.

GTE Data Services -- Assessment and development of training curriculum in the Computer Science area.
RESUME

Leslie Andrew Piegl
Department of Computer Science and Engineering
University of South Florida
Tampa, FL 33620
Tel: (813) 974-5234
E-mail: les@piegl.com
URL: http://www.piegl.com

DEGREES

- PhD (Summa Cum Laude), in Applied Computing (Computational Geometry), Eötvös University, Budapest, Hungary, 1982
- MSc, in Mathematics, Eötvös University, Budapest, Hungary, 1979

POSITIONS

- Professor of Computer Science & Engineering, 1995 –
- Associate Professor of Computer Science & Engineering, 1992 – 1995
- Director, CAD and Graphics Lab, 1992 -
- Assistant Professor of Computer Science & Engineering, 1989 – 1992
- Senior Software Engineer, SDRC, Milford, OH, 1987-1989
- Research Fellow and Professor of Mathematics and of Computer Science, Technical University Braunschweig, Germany, 1985-1987
- Assistant Professor of Engineering, Technical University Budapest, 1979-1984

FELLOWSHIPS/VISITING POSITIONS RECEIVED

- Alexander von Humboldt Research Fellowship, Alexander von Humboldt Foundation, Bonn Bad Godesberg, Germany, 1985-1987
- Visiting Professor, The City University of Hong Kong, June-November, 2002
- William Mong Visiting Research Fellowship, The University of Hong Kong, December-February, 2003

RESEARCH INTERESTS

- Intelligent Computing Systems
- Engineering and Applied Computing, Numerical Methods
• Software Engineering and Algorithms
• E-learning and virtual enterprise modeling
• Computer Graphics, Geometric Modeling and CAD

PATENT

• Triangulation of random and scattered data, US Patent No: 5,428,726

SUPPORTED RESEARCH AND AWARDS

2. Geometry processing of rational B-splines, PI, Structural Dynamics Research Corporation, $12,000
3. Shape modification and design of sculptured surfaces using non-uniform rational B-splines, PI, Florida High Technology and Industry Council, $20,000
4. Surface interrogation for Boolean operations on trimmed surfaces, Structural Dynamics Research Corporation, PI, $27,500
5. Developer's RenderMan, Software grant, PIXAR, $2,500
6. CAiCE: DTM and CAiCE: SDC, Digital Terrain Modeling and Survey Data Collection Software Grant, AGA, Inc., $9,600
7. Computerized Descriptive Geometric Approach to Surface-Surface Intersection, PI, Structural Dynamics Research Corporation, $12,000
9. Solid Modeling System and Ray-Tracing Benchmark, Software Grant, US Army Ballistic Research Laboratory, $15,000
10. Low Level Shape Operators for Direct Manipulation of NURBS, PI, Structural Dynamics Research Corporation, $16,800
12. Algorithms for Triangulation as Used in Terrain Modeling, third year funding, PI, Florida High Technology and Industry Council, $39,000
13. Surface-surface intersection for solid modeling via computerized descriptive geometry, PI, National Science Foundation, $60,644
14. Algorithms for Triangulation as used in Terrain Modeling, fourth year funding, PI, Enterprise Florida Innovation Partnership, $13,000
15. Algorithmic approach to processing geometry represented in NURBS form, PI, National Science Foundation, $241,015
16. Acquisition of a Cyberware 3-D scanner to facilitate state-of-the-art research in computer vision and graphics, CO-PI, National Science Foundation, $115,000
17. ACIS Modeling Kernel, Spatial Technology, Inc., $58,000
18. Nlib NURBS modeling Kernel, GeomWare, Inc., $12,500
19. Data fitting for reverse engineering, PI, National Science Foundation, $332,904
20. Reverse engineering based on subdivision surface fitting, CO-PI, Hong Kong Research Grants Council, HK$423,000
21. High Order Tessellation of a NURBS-based CAD Model for Subdivision-based Modeling, CO-PI, Hong Kong Research Grants Council, HK$819,000
22. Solid modeling kernel, SMS, Inc., $19,310
23. Knowledge-guided NURBS for robust engineering design, PI, National Science Foundation, $259,885
TEACHING AWARDS

- Audio visual improvements for Geometric Modeling course, Academic Quality Enhancement Grant, College of Engineering, University of South Florida, $700
- Outstanding Undergraduate Teaching Award, University of South Florida, $5,000
- Teaching Incentive Program Award, University of South Florida, $5,000.

PROFESSIONAL ACTIVITIES

- Founding Editor-in-Chief, Computer-Aided Design and Applications, 2004 –
- Advisory Editor, The Visual Computer, 2000 –
- Member, Nomination Committee, The Japan Prize, 1997 -
- General Chair, CAD’04-CAD’10
- Publications Chair, CAD’11-
- Federation Chair, CAD+UAV 2008-2010

CONSULTING EXPERIENCE

- Various aspects of NURBS based surface and solid modeling, Structural Dynamics Research Corporation (SDRC), Milford, OH
- Free-form modeling using NURBS, Manufacturing Consulting Services, Irvine, CA
- Modeling with rational B-splines, Prime Computer, Bedford, MA
- Designing with NURBS, Swanson Analysis Systems, Houston, PA
- Digital terrain modeling, CaICE Software Corporation, Tampa, FL
- NURBS basic and advanced software development, GeomWare, Inc., Tyler, TX
- A new generation of CAD system for Asia, The Ministry of ICT, Thailand
- The Core CAD project, GE Shanghai, China

SOFTWARE DEVELOPMENT

- GEOMOD – A comprehensive CAD/CAM system: senior software engineer; Structural Dynamics Research Corporation, Milford, OH
- Nlib – A NURBS geometric modeling kernel: principal architect, researcher and developer; GeomWare, Inc., Tyler, TX

LECTURER/INVITED SPEAKER

1. Modeling of curves and surfaces for Computer-Aided Design, Invited Speaker, Surfaces in CAGD, Oberwolfach Research Institute, Oberwolfach, Germany, 1984
2. On the use of infinite control points, Topics in CAGD, Invited Speaker, Wolfenbüttel Symposium, Wolfenbüttel, Germany, 1986
3. Parametric curve fitting with conic splines, SDRC, Milford, OH, 1986
4. Coons-type surface patches, Invited Speaker, Surfaces in CAGD, Oberwolfach Research Institute, Oberwolfach, Germany, 1987
5. Recent advances in surface-surface intersection as used in the CADCAM industry, SIAM Conference on Geometric Design, Tempe, AZ, 1989
10. Geometric modeling course at the University of South Florida, COMPUGRAPHICS'91, Lisbon, Portugal, 1991
13. Surface and constrained Delaunay triangulation, Invited Speaker, Free-form curves and surfaces, Oberwolfach Research Institute, Germany, 1992
16. Software tools for B-splines, Invited Speaker, CAD Tools for Products, Dagstuhl Research Center, Germany, 1995
17. Algorithm for computing the product of B-splines, Curves and Surfaces, June 27-July 2, 1996, Chamonix, France
18. Curve-curve intersection via genetic algorithms, Shape Manipulation and Fairing, June 16-20, 1997, Crete
20. Reducing the number of control points in surface interpolation, 4th International Conference on Curves and Surfaces, Saint-Malo, France, July 1-7, 1999
24. Engineering design: from points to splines, International Conference on Manufacturing Automation, Keynote Speaker, 2002, Hong Kong
25. World-class university: a cliche or reality, William Mong Lecture, The University of Hong Kong, 2002
27. Ten challenges in Computer-Aided Design, CAD’04, May 24-28, Pattaya, Thailand
29. Invited industry visits and presentations on the state of world CAD, Infosys, Bangalore, India; Tata Consulting, Bangalore, India; Samsung, Suwon, Korea; Sony Engineering, Tokyo, Japan; Honda R&D, Tochigi, Japan; Microsoft Research Asia, Beijing, China
30. Knowledge-guided computations for robust CAD, CAD’05, June 20-24, Bangkok, Thailand
31. Knowledge-Guided NURBS: Principles and Architecture, CAD’06, June 19-23, Phuket, Thailand
32. High-fidelity Conversion of NURBS Curves for Data Exchange, CAD’07, June 25-29, Honolulu, Hawaii
33. Point distance computations: a knowledge-guided approach, CAD’08, June 23-27, Orlando, Florida
34. From CT to NURBS: Bio-modeling using B-spline, CAD’08, June 23-27, Orlando, Florida
35. Histologically Acquired Image Data for Bio-CAD Design of Capillary Bed, CAD’08, June 23-27, Orlando, Florida
36. Micro-CT of corrosion cast for use in CAD micro vasculature, Society of Physical Regulation in Biology and Medicine, January, 2009, Honolulu, Hawaii
37. Modeling Tissue Density Variations in Medical Images using B-Spline Surfaces, CAD’09, June 8-12, Reno, Nevada.
38. Fault-tolerant computing in a knowledge-guided NURBS environment, CAD’09, June 8-12, Reno, Nevada.
39. GPU support for NURBS-based modeling, CAD’09, June 8-12, Reno, Nevada.
40. CAD of microvasculature systems for use in vascular scaffold production, CAD’09, June 8-12, Reno, Nevada.
41. Autonomous autorotation of unmanned rotorcraft using nonlinear model predictive control, UAV’09, June 8-10, Reno, Nevada.
42. Modeling tissue density variations from MRI/CT slices using B-spline surfaces, CAD’10, June 21-25, Dubai, UAE.
43. CAD model repair using knowledge-guided NURBS, CAD’12, June 11-14, Niagara Falls, Canada
44. A knowledge guided approach to robust line-curve intersection, CAD’13, June 17-20, Bergamo, Italy
45. It is time to eliminate the “R” from NURBS, CAD’13, June 17-20, Bergamo, Italy

PUBLICATIONS

Books

5. The KI Book, CAD Solutions, 2005.

Book Chapters


Journal Publications

84. It is time to drop the “R” from NURBS, *Engineering with Computers*, in print.

**Proceedings Publications**

DOCTORAL STUDENTS

- **Maria C. Herrera**, Engineering and Knowledge Management System for Rational Medical Diagnosis, 2012. Topic: engineering knowledge management systems, alternative medicine
Curriculum Vita of Nagarajan Ranganathan

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University of South Florida, Tampa, Fl 33620  
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Tampa, Fl 33647  
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Phone: (813) 972 3826 (h)  
Fax: (813) 974 5456  
E-Mail: ranganat@csee.usf.edu

EDUCATION

**Doctor of Philosophy** - Computer Science, August 1988, University of Central Florida, Orlando  
Dissertation: Hardware Algorithms for Data Compression

**Bachelor of Engineering (Honors)** - Electrical & Electronics, May 1983  
Regional Engineering College, Tiruchy, University of Madras, India

EMPLOYMENT

**Assistant Professor**: July 1988 to July 1993;  
**Tenured Associate Professor**: August 1993 to July 1998;  
**Professor**: August 1998 to July 2007;  
**Distinguished University Professor** since August 2007,  
Dept. of Computer Science and Engineering, University of South Florida, Tampa.


**Graduate Research / Teaching Assistant**, Dept. of Computer Science, University of Central Florida, Orlando, January 1984 to April 1988.


RESEARCH AREAS

Primary research areas are VLSI circuits and systems design, VLSI design automation, computer architecture, reversible logic, nano-architectures and biomedical information processing. Other interests include hardware algorithms, parallel processing, data compression, and VLSI for vision, video, image processing, pattern recognition and biometrics.

COURSES

**Undergraduate**: Computer Organization and Architecture, Introduction to CMOS VLSI Design


AFFILIATIONS

**Fellow of the IEEE**, (S-’81, M-’88, SM-’93, F-’02)  
Member of the IEEE Computer and Circuits & Systems Societies  
Member of the VLSI Society of India
HONORS AND AWARDS

• **Fellow of AAAS**, *for contributions to algorithms and architectures for VLSI systems design*, 2012.


• **Honorary Mention for USF Graduate Outstanding Mentor Award**, 2011.

• **USF Outstanding Undergraduate Teaching Award**, 2009.


• **Distinguished Alumnus Award**, National Institute of Technology (Regional Engineering College), Trichy, India, 2009.

• **Distinguished University Professor** Honorific Title and University Gold Medallion Honor, 2007.


• **Best Paper Award**, ranked 1 out of 330 submissions, Intl. Conf. on VLSI Design, Jan 2004, ”Gate Sizing and Buffer Insertion Using Economic Models for Power Optimization,” co-authored with A. Murugavel.


• **Best Paper Award Nominations**, ranked within top 6-8 papers based on independent/blind reviews, forwarded to the Best Paper Award Panel, Intl. Conf. on VLSI Design, 1995, 98, 00, 02, 04, 06.

• **Best Paper Award Nomination**, ranked within top 6 out of 220 papers, Great Lakes Symposium on VLSI, 2008.

• **USF Theodore and Venette Askounes-Ashford Distinguished Scholar Award**, 2003.

• **SIGMA XI Scientific Honor Society Tampa Chapter Outstanding Faculty Researcher Award**, 2004.

• **USF President’s Award for Faculty Excellence**, 2002-03.

• **USF Division of Sponsored Research Outstanding Research Achievement Award**, 2002.

• **Fellow of IEEE, for contributions to algorithms and architectures for VLSI systems design**, Jan 2002.

• **Editor-In-Chief**, IEEE Transactions on VLSI Systems, two terms, Jan 2003 to Jan 2007.


• **Certificate of Appreciation** (for service as associate editor of IEEE Transactions on VLSI Systems), from IEEE Circuits and Systems Society, 1997.

• **Certificate of Appreciation** (for distinguished service in student activities), from IEEE Computer Society, February 1996.

• **Outstanding Researcher Award** ($1000), 1995, USF College of Engineering.

• **IEEE Computer Society Distinguished Visitor Program Speaker**, 1995-03.

• **Outstanding Young Investigator Award** ($1000), 1991-1992, in recognition of research, University of South Florida College of Engineering.

• **IEEE Computer Society R. E. Merwin Fellowship Award** ($3000), 1987-88, for academic achievement, leadership and service to IEEE Computer Society student chapter at UCF-Orlando.

• **Rotary Foundation Graduate Fellowship** ($20K), 1984-85, awarded by the Rotary Foundation of the Rotary International, Washington D.C., District 320 - includes four states in S. India and Sri Lanka.

• **IEEE Region X Outstanding Student Branch Chairman Award** ($500), 1982. Region X includes India, China, Japan, Australia, New Zealand and other Southeast Asian countries.

• **IEEE Outstanding Student Award**, 1981-82, from IEEE Past-President Dr. James B. Owens for contributions towards IEEE activities as a student.

• **Rotary Foundation Youth Merit Award**, 1982, as outstanding student of Rotary District 320.


• **Isaac Daniel Gold Medal**, 1977, outstanding student in Tanjore City, based on academics, sports, quiz and debate teams, 1977.

• **Marsh Gold Medal**, 1977, awarded by the Union Club of Tanjore for First rank in the Higher Secondary School State-wide Examinations.


• **Bible Study Gold Medal**, St. Peter’s High School, 1977.

**HONORS AND AWARDS OF MY STUDENTS**

• **USF Graduate Council Outstanding Dissertation Award**- Major Professor for K. Bhattacharya, Architectures and Algorithms for Mitigation of Soft Errors in Nanoscale VLSI Circuits, Dec 2009.

• **USF Graduate Council Outstanding Dissertation Award**- Major Professor for U. Gupta, Utilitarian Approaches for Multi-Metric Optimization in VLSI Circuit Design and Spatial Clustering, 2008.

• **USF Graduate Council Outstanding Dissertation Award** - Major Professor, for A. Murugavel, Power Estimation and Optimization in VLSI Circuits, 2003.

• **SIGMA XI Tampa Bay Chapter Outstanding Dissertation Award** - Major Professor for A. Murugavel, Power Estimation and Optimization in VLSI Circuits, 2003.

• **USF Graduate Council Outstanding Dissertation Award** - Major Professor, for R. Chandramouli, Theory and Application of Sequential Detection under Dependence, Jan 1999.

• **USF Graduate Council Outstanding Dissertation Award** - Major Professor, V. Krishna, High Level Techniques for Power Estimation, Analysis and Optimization, Jan 1999.

• **USF Graduate Council Outstanding Dissertation Award** - Major Professor, R. Sastry, VLSI Architectures for Pattern Matching and Recognition, Aug 1994.

• **SIGMA XI Tampa Bay Chapter Outstanding Dissertation Award** - Major Professor, R. Sastry, VLSI Architectures for Pattern Matching and Recognition, Aug 1994.

**PROFESSIONAL ACTIVITIES**

• Associate Editor, IEEE Transactions on CAD, 2008-11.

• Associate Editor, IEEE Transactions on Computers, 2008-12.

• Associate Editor, ACM Transactions on Design Automation of Electronic Systems, 2007-2011.

• Steering Committee Member, IEEE Transactions on VLSI Systems, 2007-2012.

• Steering Committee Member, IEEE Transactions on NanoBioScience, 2007-08.

• Editor-in-Chief, IEEE Transactions on VLSI Systems, two terms, 2003-08.

• EIC Search Committee, IEEE Transactions on VLSI Systems, Dec 06.

• Best Paper Awards Panel for IEEE Circuits and Systems Society, 2002-05.

• Outstanding Young Author Award Panel for IEEE CAS Society, 2002-05.

• Steering Committee Chair, IEEE Trans. VLSI Systems, 2001-02.

• Steering Committee Chair, IEEECS Annual Symposium on VLSI (ISVLSI), 2012-2014.

• Steering Committee Member, IEEE Trans. VLSI Systems, 1999-00, 2007-08.


• Associate Editor, IEEE Trans. on Circuits & Systems, 1997-99.

• Associate Editor, IEEE Trans. on CAS for Video Technology, 1997-00.


• Associate Editor, Pattern Recognition Journal, 1993-02.

• Editor, Special Issue on VLSI, Intl. Jour. of Pattern Recognition & Artificial Intelligence, (9)2, 1995.

• IEEE Computer Society Activities:
  – Executive Committee Member of IEEECS SAC, 1993-95.
  – Executive Member, IEEECS Membership Activities Board MAB, 1996-97.
  – Executive Member, IEEECS Educational Activities Board EAB, 1996-97.

• Conferences Organization:
  – General Co-chair, IEEE CS Annual Symposium on VLSI, August 2011.
  – Mentor, IEEE CS Annual Symposium on VLSI, July 2011.
  – General Co-Chair, IEEECS Annual Symposium on VLSI, May 2009.
  – Program Co-Chair, Intl. Conf. on VLSI Design, Jan 2008.
  – Best Paper Award Panel, ISLPED 2006.
  – Steering Com. Member, IEEECS Annual Symposium on VLSI, 1992-present.
  – General Chair, IEEECS Annual Symposium on VLSI, Tampa, Feb 2005.
  – Program Co-Chair, IEEECS Annual Symposium on VLSI, Tampa, Feb 2003.
  – General Chair, IEEECS Annual Workshop on VLSI, Orlando, April 1999.
  – General Co-Chair, IEEECS Workshop on VLSI, Orlando, April 1998.
  – General Co-Chair, Intl. Conf. on VLSI Design, Madras, Jan 4-7, 1998.
  – Workshop Chair, IEEECS Workshop on VLSI, Orlando, April 1998.
  – Program Chair, IEEECS Workshop on VLSI, Clearwater, Nov 3-6, 1996.
  – General Co-Chair, Intl. Conf. on VLSI Design, New Delhi, Jan 1995.
  – Local Arrangements Chair, IEEECS VLSI Workshop, Tampa, Feb 2-5, 1992.

**Conferences Program Committee Member:**

– Intl. Conference on Parallel Processing, ICPP, August 15-17, 1995;

**Conferences Session Chair:**

– Layout, Fifth Intl. Conf. on VLSI Design, Bangalore, Jan 4-8, 1992.
– Special Purpose Architectures, 9th IPPS, Santa Barbara, April 1995.
– Arithmetic Circuits, ICCD, Austin, Oct. 7-9, 1996.
• Review Work:
  National Science Foundation SBIR Panel, 2007.

• Reviewer for journals:

• Reviewer for Conferences:
  IEEE Robotics and Automation, IROS, Phoenix Conf. on Computers and Comm., ICPP, ICCD, ISCAS, ICCAD, MSE, ISVLSI, ISQED, ISLPED, IPPS, SPDP, MPPS, VLSI Design, CAMP, and DAC (for many years).

• Service at USF:
  IEEE Computer Society Fellows Selection Committee, 2012; University Recommending Committee for Distinguished University Professor, (2012-15); Faculty Liaison to USF Board of Trustees ACE Group, (2011-14); Provost’s Tenure and Promotion Guidelines Committee, 2010-11; Faculty search committee chair (2003-2005, CSE Dept hired 6 tenure track and 5 non-tenure track faculty); Faculty search committee member (2000-05,07); CSE chair search committee (2003-04); EE chair search committee (2003-04); CSE graduate program committee (1989-98,99-03); Graduate/Ph.D. Qualifiers Examination Committee (1988-98,99-07); Faculty Governance Committee for College of Engineering (1999-2005); NNRC advisory committee (2004-06;2010); CMR executive committee (1994-98); CSE library representative (1993-1997); CSE awards committee chair (1994-95); CSE infrastructure committee chair (2006-07); CSE strategic planning committee (2004-05); USF graduate council awards committee (2003-04); CSE undergraduate curriculum committee (1999-03).

SPONSOR FUNDING

1. “VLSI Clock Control Mechanism: Phase II”, $42,696, Florida High Tech Corridor ($21,348) and EWI Corporation ($21,348 and $21,348 in-kind), 2010-11.


13. "Task Assignment and Scheduling for Heterogenous Computing Systems", $93,244 ($65K from Honeywell and $28,244 from I-4 High Tech Corridor Initiative), 2000-01.


BOOKS


BOOK CHAPTERS


PATENTS


**JOURNAL EDITORIAL ARTICLES**


**JOURNAL PUBLICATIONS**


REFEREED CONFERENCE PAPERS


28. H. Thapliyal and N. Ranganathan, ” A Conservative QCA Gate (CQCA) for Designing Concurrently Testable Molecular QCA Circuits”, Proc. of the 22nd Intl. Conf. on VLSI Design, Delhi, India, Pp. 511-516, Jan 2009 (Acceptance rate 18


38. K. Bhattacharya and N. Ranganathan, "A Linear Programming Formulation for Security-Aware Gate Sizing", Proc. of GLSVLSI, pages 273-278, 2008 (ranked within top 6 papers, nominated for Best Paper Award based on blind review).


88. V. Krishna, N. Ranganathan and S. Srinivasan, ”CREAM: Combined Register and Module Assignment with Floorplanning for Low Power Datapath Synthesis”, Proc. of Intl. Conf. on VLSI Design, pp. 228-233, Jan 2000 (nominated for Best Paper Award since ranked within top 5 papers out of 210 submissions).


93. N. Vijaykrishnan and N. Ranganathan, ”Tuning branch predictors to support Java method invocation”, Proc. of 5th USENIX Conference on Object-Oriented Technologies and Systems (COOTS), San Diego, California, pp. 217-228, May 3-7 1999.


MANUSCRIPTS IN PREPARATION/SUBMITTED


VLSI CHIPS DESIGNED/SUPERVISED


INVITED TALKS

12. VLSI For Pattern Matching, UCF, Orlando, April 1997.
14. Lossless Data Compression, ITEM University, Cuernavaca, October 1997.


29. USF CSE Graduate Program Highlights, Pontificia Catholic University, Lima, Peru, April 2009.

PH.D. DISSERTATION GUIDANCE AS MAJOR PROFESSOR

1. K. V. Namuduri, Gabor Filter Based Models for Low-level Vision, Sept 1992; Associate Professor, Wichita State University, Kansas; Tenured Associate Professor, University of North Texas, Dallas.

2. K. Hughes, Multi-sensor Based Confidence Measurement Model for Robot Path Planning, May 1994; Associate Professor, Dept. of ECE, Uni. of Pacific, Stockton, CA.

3. R. Sastry, VLSI Architectures for Pattern Matching and Recognition, Aug 94; Senior Member of Technical Staff, PMC-Sierra, Fujitsu HaL, Agilent Labs and Redswitch Inc., Campbell, CA; USF Graduate Council Outstanding Dissertation Award & SIGMA CHI Outstanding Dissertation Award.


5. G. Chiruvolu, Efficient Transportation of VBR Video Traffic in ATM Networks, April 1998; Research Scientist, Alcatel, Richardson, TX; Now President/CEO at Truesigna Systems Inc., Dallas, TX.

6. V. Ramaswamy, Lossless Image Compression Using Wavelet Decomposition, April 1998; Member of Technical Staff, Bell Laboratories, Holmdel, NJ; later Director of Services, Comcast and now is CTO, Vianix, New York.

7. N. Vijaykrishnan, ”Issues in the Design of a Java Processor”, July 1998; Professor, CSE, Penn State University, Univeristy Park, PA.

8. V. Krishna, High Level Techniques for Power Estimation, Analysis and Optimization, Jan 1999; Senior Member of Technical Staff, Agilent Research Labs, Palo Alto; USF Graduate Council Outstanding Dissertation Award.

9. R. Chandramouli, Theory and Application of Sequential Detection under Dependence, Jan 1999; Assistant Professor, Dept. of ECE, Iowa State University; Thomas E. Hattrick Chair Professor of Information Systems, Stevens Inst. of Technology, NJ; USF Graduate Council Outstanding Dissertation Award.

10. H. Oi, Bidirectional Ring Based Multiprocessor, Nov 1999, Senior Architect, HaL Computer Systems; Assistant Professor, FAU, 2001; Assistant Professor, University of Aizu, Japan.

11. A. Ejnioui, Routing and Partitioning in FPGA-based Emulation Systems, August 1999; Assistant Professor, School of EECS, Uni. of Central Florida, 2001-05; Member of Technical Staff, Avant! Corporation, CA., 1999-2001; Assistant Professor, University of South Florida, Lakeland, 2005.

13. S. Bhanja, Power Estimation in CMOS Circuits Using Bayesian Networks, July 2002, Tenured Associate Professor, Univ. of South Florida, Dept of EE.

14. A. Murugavel, Power Estimation and Optimization in CMOS VLSI Circuits, August 2003; Senior CAD Engineer, Intel Corporation, Hillsborough, Oregon. SIGMA XI Tampa Bay Chapter Outstanding Dissertation Award and the USF Graduate Council Outstanding Dissertation Award.


16. N. Hanchate, Leakage Power Analysis and Optimization, graduated May 2006, Senior CAD Engineer, Synopsys, San Jose, CA.

17. U. Gupta, Utilitarian Approaches to Multimetric Optimization VLSI Circuit Design and Spatial Clustering, May 2008: USF Graduate Council Best Dissertation Award, Research Associate, USF Provost Office.


22. Ransford Hyman Jr., VLSI Design Automation, Graduated 2011, Bridges to the Doctorate Program, Senior Engineer, Intel, Folsom, CA.

23. Himanshu Thaplial, Design Methodologies for Reversible Arithmetic Circuits, Graduated, 2011, Senior Research Staff, Qualcomm, Raleigh, NC.

24. Elizabeth Horton, VLSI Hardware for Bioinformatics, IGERT Phd Candidate.

25. Z. Abhouheimer, Multi-core processor Architectures, Ph.D. Candidate.

26. M. Nachtigal, Computer architecture and compilers, Ph.D. Candidate.

27. Yue Wang, Hardware Systems Simulation and Verification, Ph.D. Candidate.

28. S. Kotiylal, Reversible Logic Based Arithmetic Units, Ph.D. candidate.


30. Hector M. Machin, Computer architecture, Ph.D. student.

31. Santosh Aditham, Computer security and hardware, Ph.D. student.
M.S. THESIS GUIDANCE AS MAJOR PROFESSOR

18. V. Natarajan - ”VLSI Architectures for Data Compression.”.
23. V. Krishna - ”VLSI Chip for Tree Pattern Matching”, April 1996.
29. V. Sundaram - “3-D Volumetric Medical Data Compression”, September 1996.
50. P. Shenoy, Physical Design of FPGAs, Dec 1999.
67. Shankar Arumugavelu, SIMD Algorithms For Single Link and complete Link Pattern Clustering, March 2007.

EXTERNAL EXAMINER FOR PHD DISSERTATION

1. Mario Kovac, VLSI for JPEG Based Compression, Ph.D. dissertation at Uni. of Zagreb (main supervisor for Ph.D. dissertation).


OTHER THESIS COMMITTEES IN EE AT USF

7. Srihari Varada, Ph.D., Communications, Dec 1996.
12. Thara Rejimon, PhD, 2006, Reliability-Centric Probabilistic Analysis of VLSI Circuits
Curriculum Vitae

Sudeep Sarkar,
Professor, Department of Computer Science and Engineering
Associate Vice-President for Research and Innovation,
University of South Florida
4202 East Fowler Ave., ENB 118,
Tampa, Florida 33620
E-mail: sarkar@usf.edu
Phone (813)-240 3594
http://www.cse.usf.edu/~sarkar/
August 29, 2013

To teach, to seek, to help, & to learn.

1. Educational Background
   • **Doctor of Philosophy (Electrical Engineering)**
     o The Ohio State University, Columbus, Ohio, March 1993.
     o Dissertation title: *On Computing Perceptual Organization in Computer Vision*.
     o Advisor: Prof. Kim L. Boyer.
   • **Master of Science (Electrical Engineering)**
     o The Ohio State University, Columbus, Ohio, March 1990.
     o Thesis: *Optimal, Efficient Detection and Low Level Perceptual Organization of Edge Features*.
     o Advisor: Prof. Kim L. Boyer.
   • **Bachelor of Technology (Electrical Engineering)**
     o Project: *Modeling of flicker noise using autoregressive moving average (ARMA) models: Simulation and Hardware Validation*.
     o Project Advisor: Prof R. Sharan.

2. Honors
   1. Fellow of IEEE, 2013
   5. Ashford Distinguished Scholar Award, University of South Florida, 2004.
   6. Outstanding Undergraduate Teaching Award, University of South Florida, 1998.
   7. Teaching Incentive Program Award, University of South Florida, 1996.
   8. CAREER Award, National Science Foundation, 1995.
3. Work Experience

1. Professor in Computer Science and Engineering, University of South Florida, Tampa from 2004–current. (50%)
   a. Conduct externally and internally funded research.
   b. Advise PhD/MS/BS students.

2. Associate Vice-President for Research and Innovation, Office of Research and Innovation, University of South Florida, Tampa, from 2012-current. (50%)
   a. Manage the Faculty External Honors, Prizes, and Awards process. It involves cataloging (http://awards.research.usf.edu), tracking, and assisting faculty in seeking external awards and honors that bring prestige both to the faculty member and to the institution.
   b. Write and/or coordinate campus-wide inter-disciplinary proposals.
   c. Assist Senior Vice-President for Research & Innovation, who reports to the University System President.

3. Research Administration Faculty Fellow, Office of Research and Innovation, University of South Florida, Tampa, 2009-2012.

4. Associate Professor in Computer Science and Engineering, University of South Florida, Tampa from 1999 to 2004.

5. Assistant Professor in Computer Science and Engineering, University of South Florida, Tampa from 1993 to 1999

4. Professional Affiliations

1. IEEE Member,
2. IAPR Member,
3. AAAS Member
4. Member of IEEE Systems, Man, and Cybernetics Society,
5. Member of IEEE Computer Society.

5. Students Advised

- **Current students:**
  1. Kester Duncan, PhD candidate
  2. Ravi Panchumarthy, PhD candidate
  3. Ravi Kiran Krishnan, PhD candidate
  4. Ravi Subramanium, PhD candidate
  5. Fillipe Souza, PhD candidate
  6. Kristina Contino, PhD student

- **Doctoral Students:**


13. Isidro Robledo-Vega, Ph.D., Dissertation: “Motion models based on statistics of feature relations: Human Identification from Gait,” Sept 2002 (Faculty at the Instituto Tecnologico de Chihuahua, Mexico).


• Masters Students:


15. Yong Zhang, MS, (co-major with Dr. Goldgof), Thesis: “A physical model based motion recovery algorithm and its applications in computer vision and imaging,” Nov 2000. (Completed PhD at USF)
22. Nina Saxena, MS, Thesis: “Mapping and parallel implementation of Bayesian Belief networks,” Dec. 1995. (Completed her PhD from University of Texas at Austin)

• Undergraduate Students (REUs, Senior Projects etc.)
  1. Andrew Messier, 2009
  4. Oluwabukola Akinbo, 2006 (graduate studies at USF)
  5. Melinda Black, 2006
6. **Departmental, College, and University Services**

1. Member, University Budget Re-engineering Committee, 2013-14.
2. Interim Graduate Program Director, 2009.
3. Chair, College of Engineering Faculty Governance Committee, 2010—2011
4. Member, College of Engineering Faculty Governance Committee, 2008—2010,
5. Chair, Departmental Awards and Honors Committee, 2007-current
7. Chair, Departmental Tenure and Promotion Committee, 2006
10. Departmental Faculty Mentoring Committee, 2008-2011.
18. Member of the University Sabbatical Committee, 2002-2004
19. Member of the University Standing Committee on Research Misconduct, 1999-2004.

7. **Professional and External Services**

   • **Leadership Capacities**

4. Member of Southeastern Universities Research Association (SURA) Board of Trustees, 2013 - current
5. Associate Director, NASA Florida Space Grant Consortium, 2013-2014.
7. Member of Governing Board of the International Association of Pattern Recognition, 2010-2012.
8. IEEE Computer Society Technical and Conference Activities Board (T&CB Board) Executive Committee (ExCom) At-Large member (2011-2012)
17. Local Arrangements Chair for IEEE Workshop on Applications of Computer Vision, 1996.

• Editorial

1. Co-Editor in Chief for Pattern Recognition Letters, 2011--
2. Associate Editor of
3. Track Chair for Pattern Recognition and Machine Learning, International Conference on Pattern Recognition (ICPR), 2014
4. Area Chair for
5. Guest co-editor of the Special Issue of Computer Vision and Image Understanding on Perceptual Organization in Computer Vision, Oct 1999.

• Program Committees

1. ICCV'13 Workshop on Computer Vision for Converging Perspectives, 2013
2. 4th International Workshop on Image Mining: Theory and Applications (IMTA), 2013
3. IAPR Int'l Workshop on Depth Image Analysis, 2012
4. IAPR Intl Workshops on Structural and Syntactic Pattern Recognition (S+SSPR) 2010, 2012.

8. Innovations in Teaching:
We have been experimenting with schemes to incorporate computer vision and image processing tasks into undergraduate computer science courses such as data structures and algorithms to enrich the experience and to enhance the learning process. We have found that introductory computer vision can be easily integrated without detracting from the original goal of teaching data structures or algorithms. Some of the image-related tasks, such as connected component labeling and binary image manipulation, offer a natural way to introduce basic data structures such as arrays, queues, stacks, trees, and hash tables. The particular advantage of this integrated strategy is that it facilitates the understanding of data structure concepts by providing a visual context; furthermore, it exposes the students to image related manipulations at an early stage of the curriculum. We have experimented with such an integration strategy using a set of programming assignments that integrates undergraduate data structures education with image processing tasks. These assignments can be incorporated in existing data structures courses with low time and software overheads. We have also collected quantitative analyses of the effectiveness of these assignments using pre- and post-assignment tests. We considered student performance and their evaluations of the assignments. Our analyses suggest that the assignments significantly improved the understanding of standard data structures and basic software design principles. The electronic resources are available from my website.

![Image Operations Diagram]

A schema for the generation of image-related assignment sequences exploring different basic data structures concepts, usually covered in introductory data structures courses.

Recently, I have been experimenting with using Web 2.0 technologies to enhance learning. As is commonly known, note-taking abilities vary among the students. One of the tempting solution to
address this is to hand out instructor notes/slides to the class or to assign students to scribe each lecture, which is then shared with the class, typically through a website. This only offers a partial solution to the problem as the quality of the scribing vary from student to student and the students are essentially given expression of others’ understanding rather than their own. We are exploring and evaluating the use of Wiki to engage the students in a participatory, socially networked, scribing of lectures, to result in a set of comprehensive notes that the whole class helped create. The process is expected to enable peer-to-peer learning beyond the classroom.

9. Education Grants


- Enhancing Undergraduate Computer Science Curriculum through Image Computations, National Science Foundation, 1/1/00 to 12/31/02, amount $75,205. (Principal Investigator)(Co-PIs: D. Goldgof, K. W. Bowyer).

10. Education Related Publications


11. Courses Taught


12. Current Research Themes

Sign languages are complex, abstract linguistic systems, with their own grammars. We are concerned with building automated algorithms that can take sign language video of and recognize the signs performed. This would be useful in facilitating the communication between Deaf and hearing persons.

The goal is to go beyond the recognition of isolated signs or continuous signs in short sentences based on video, without the use of special equipment such as data gloves or magnetic markers. The focus is on the design of scalable formalisms for representation, model learning, and matching methods that are robust to image segmentation errors.

We are exploring the representation of sign video sequences as traces in configuration spaces. This representation captures the global structure of the moving parts in the image and does not require part tracking.

We have developed representations and approaches that

1. Capture the global (Gestalt) configuration of hand and face relationship using relational distributions. It is somewhat robust to segmentation errors and does not require part tracking. See figure above.

2. Learn, without supervision, sign models from examples using automated common motif extraction using Markov Chain Monte Carlo methods. We formulated an unsupervised
approach to both extract and learn models for continuous basic units of signs, which we term as signemes, from continuous sentences. Given a set of sentences with a common sign, we can automatically learn the model for part of the sign, or signeme, that is least affected by movement epenthesis effects.

3. Distinguish true signs from the transitional movements made by the signer as s/he moves from one sign to the next called Movement Epenthesis. Movement Epenthesis (ME) is a serious hurdle in the design of Continuous Sign Language recognition systems. This problem is further compounded by the ambiguity of feature detection and occlusions, resulting in propagation of errors to higher levels. We have formulated a novel framework that can address both these problems in an overall dynamic programming (DP) approach.


5. Match signs and gestures in the presence of segmentation noise using fragment-Hidden Markov Models (frag-HMM)

6. Combine non-manual information with manual information to improve automated ASL recognition accuracy by decreasing the deletion and insertion errors and detecting negation and assertions.

The labeling results for the sequence “FINISH BUY TICKET NOW FINISH” using our approach that handles movement epenthesis between signs and multiple low-level hand hypotheses using a unified framework. We show some frames from the sequence. Each image has the detected hands shown overlaid on the original image on the left side, and has all the candidate hands shown on the right side. Note the complex background, with persons moving in the background.

Collaborators: Prof. Loeding.

Funding Sources: National Science Foundation-ITR grant, USF.
12.2. Perceptual Organization for Image Feature and Audio-Video Event Grouping (1990-present)

Among the various uses for the perceptual organization ability is the facilitation of figure ground segmentation. Given a set of low level features (e.g., the edges shown in (b)) detected in (a), the goal is to select the salient groups of features such as those shown in (c).

Establishing object identity by matching object models, be they in the form of templates or graphs, to images is a computationally expensive process. One way to reduce the complexity is to identify groups (subsets) of image features or image regions that most likely belong to one object. This grouping process should be a generic one and should not depend on the object identity in a strong manner. One way of structuring this grouping process is around the concept of perceptual organization, which can be defined as the ability to impose structural organization on sensory data, so as to group sensory primitives arising from a common underlying cause. This sort of organization lets us form object hypotheses with minimal domain knowledge and, therefore, minimal restrictions, beyond the fact that our world is not visually chaotic; it has structure and organization.

The integral role of perceptual organization in the human vision system was realized in the early 1920’s by Gestalt psychologists. The perceptual organization process imparts robustness, efficiency, and a qualitative and holistic nature to vision. The importance of perceptual organization based grouping in the design of artificial vision systems was also realized in the early days of computer vision. However, it was soon realized that (i) the grouping process involved too many free parameters, (ii) the grouping process is computationally expensive, and (iii) the nature of the grouping process should be dependent on the domain type. This resulted in the area of perceptual organization being labeled as “too difficult”, which reflected in a declining interest in the vision community. However, in the past decade or so, coupled with tremendous progress in the computing, there have been many exciting advances in sophisticated computational strategies that can be brought to tackle the complexities of perceptual organization. Thus, we have seen a renewed interest in the problem of perceptual organization, as is evidenced in the continuing series workshops on this topic and increased number of papers in this area.

Our contributions over the last 15 years to this expanding area of perceptual organization are:

1. We have offered a nomenclature to describe the variety of work in perceptual organization in terms of the types of features grouped and the domain over which they are grouped. This classificatory process helped identify and bring into fore many open areas of work.
2. We have developed a computational formalism based on voting methods and probabilistic Bayesian networks to organize features into highly plausible sets of higher-level geometric features, which are present in images of objects belonging to a large number of domains. The formalism allows for the efficient integration of bottom-up and top-down information of geometric shapes.

3. We have developed, analytically modeled, and empirically evaluated a graph spectra based framework, which has polynomial complexity, to form large perceptual groups from relations defined over small number of image primitives.

4. We have developed an empirical framework that can be used to evaluate the output of any perceptual organization algorithm in the context of object recognition.

5. We have developed a learning framework, based on game theory and learning automata, to adapt the perceptual grouping process to an image domain.

6. We have also extended the use of perceptual organizational principles to the domain of dynamic scene analysis, to track geometric groups and to segment moving object in a manner that is robust with respect to noise, background noise clutter, and illumination changes.

7. We are currently exploring the use of perceptual organization principles to group audio and video events to construct coherent explanations of events. From an ecological point of view, a Gibsonian perspective, it is reasonable to expect that multi-sensory stimulation that co-varies in place and time most likely originates from a single event or object. Elementary sound events that are grouped together in the auditory modality are likely to be associated with a corresponding group in the visual modality.

Association of audio objects and video objects based on periodicity of audio repetition, shape, and trajectory. From the spectrogram representation of the audio we extract linear features that then grouped into potential audio objects. From the video we extract and track foreground objects based on motion and color. We have three temporally interlaced and overlapping events that we have associated in this video. We use similar ideas to associate speech with persons in videos.

Funding Source: Multiple National Science Foundation grants, Neilsen Media Research, USF.

Modalities that can be used to recognize or identify a person from a distance include (a) ear shape, (b) gait or walking style, (c) body shape, (e) face, and voice. We are investigating all these modalities at USF. We are also looking at privacy and security issues related to these modalities. For instance, we have designed algorithms that can reconstruct face template just from similarity score, exposing a serious vulnerability of face recognition algorithms (See (d) above).

The ability of being to identify humans from a distance in a passive manner has obvious applications in surveillance and threat assessment. However, there are other possible innovative uses, such as in smart rooms, designing environmentally aware electronic devices, and next generation computer games. In this general context, we are (i) researching modalities to recognize persons from a distance using image and video data, and (ii) looking into privacy and security related issues. In particular,

1. We have developed the HumanID Gait Challenge Problem that has become the defacto standing in evaluating gait recognition algorithms. The problem has three essential components: (i) a large dataset capturing variations in parameters that can affect a person’s gait, (ii) a set of well-defined recognition experiments ranging from easy to hard ones to benchmark progress, and (iii) a baseline recognition algorithm to provide the initial performance point.

Impact of the HumanID Gait Challenge Problem on the development of gait recognition research over time. (a) We have tracked results presented on the first release of the gait dataset with 71 subjects in the gallery. We show the snapshot of the baseline performance and the best results reported on the dataset in 2002 for the first 8 challenge experiments and then follow it through in subsequent years. The increase in performance was not just due to the tuning of parameters of existing algorithms, but rather due to the development of fundamentally different algorithmic approaches to gait recognition.
2. We have been conducting extensive research in the **combination of multiple biometric modalities** such as combination of ear and face, face and gait, and face and voice. Our experiments all use real multiple biometric data from the same subject pool and are focused toward outdoor situations.

![Diagram](image)

We have found that a surprising large number of face recognition algorithms, including feature based ones, is well approximated by a linear subspace. Such a linear subspace approximation can be constructed using the strategy depicted above. We have shown that this linear approximation can be used to reconstruct templates from just scores, exposing a security and privacy vulnerability, and also be used to construct efficient indexing mechanisms for face recognition algorithms.

3. We have formulated a novel scheme to reconstruct face images from match scores, exposing a potential source for **security breach in the face recognition systems**. We used an affine transformation to approximate the behavior of the face recognition system using an independent set of face templates termed as break-in set. Selected subsets of templates in the break-in set were then matched only once with the enrolled templates of the targeted subject. Given the distances of the targeted subject's template, we embedded that template in the learned affine space and inverted the modeling affine transformation to arrive at the original template. A cursory look at match scores from a biometric system may not appear to be a weak link in terms of security and privacy issues; however, with our proposed we revealed that even match scores carry sufficient information for reverse engineering of the original templates and should be protected.

![Graph](image)

Comparison of probability of break-in at 1% FAR for commercial algorithm with first 100 subjects on the FERET gallery set. The commercial algorithm is set at TAR = 99% at 1% FAR.

Collaborators: Prof K. W. Bowyer, Prof. R. Kasturi, Dr. P. Jonathon Phillips
Funding Sources: DARPA HumanID at a Distance program, US Army and STS Intl., SOCOM (via USF-NSF I/UCRC Center), Unisys Corporation, CIA, Raytheon Inc.
13. Past Research Activities


(a) Raw color of a scar in the face and neck region, acquired by a digital camera. (b) Corrected color image accounting for illumination, surface curvature, and camera response.

The goal of this work was to develop a non-invasive imaging device based on regular 2-dimensional color images and 3-dimensional (3D) range images that can be used to collect data about the physical characteristics of human skin in terms of its color, texture, and elasticity. The applications for such measures are in domains where objective evaluation of skin condition is critical, such as in evaluating burn scars and in diagnosing skin melanoma.

We used physics based computer vision methods to correct for image distortions due to incident illumination, location of light source, shading due to shape changes, and camera response non-linearities. In this regards we have developed a novel scheme to calibrate light sources with respect to the camera. Statistical image-based measures, defined on the color and the range image, capture the severity of the skin abnormality in terms of its color and tactile texture.

We used Finite Element Model, which captures non-rigid behavior of the skin, to estimate scar elasticity. These models are driven from the captured image data and estimate changes in skin elasticity, such as that in a burn scar, using an iterative gradient descent minimization procedure. In future, these objective image-based measures against the histological state of the skin, captured using measures defined on the underlying collagen fiber density & organization, blood vessel density, melanin & melanocyte density, elastin density, and dermis & epidermis thickness.

Collaborators: Dr. Goldgof from Computer Science and Engineering, Drs. Cruse and Reintgen from Surgery, and Dr. Powers from Psychiatry.

This project was funded by The Whitaker Foundation, NSF, and by the US Army through its Advanced Cancer Detection Center at USF.

(a) An image from a set of 100 images used to evaluate grouping algorithms. Ground truth groupings of the edge segments found are shown in (b), (c), and (d). Grouping algorithms are evaluated based on these groups.

Performance evaluation of computer vision algorithms is necessary not only to determine their limitations but also to facilitate the understanding of their underlying structure, eventually suggesting ways for their improvement. Empirical performance evaluation techniques allow us to tackle the problem of analysis of complex algorithms on real images. Among the major issues in empirical performance evaluation are (i) choice of the image set and ground truth, (ii) choice of the evaluation measures, (iii) strategy for selecting the parameters of the vision algorithm, and (iv) thorough statistical analysis of the performance. Our contributions with respect to the other three aspects are:

1. We have used methods from experimental human perception research to evaluate vision algorithm outputs using human judgment, which is the most common de-facto method used by researchers. Most papers just present results on image for visual assessment by the reader. We have shown how this can be done in a more statistically rigorous way to evaluate outputs of edge detectors.

2. We have developed a framework, based on five measures, to evaluate perceptual grouping modules in the context of object recognition. Performance of any grouping module can be bench marked without building a full vision system, which at this present time is impractical. The proposed measures capture different aspects of overall performance of object recognition based on the detected groups.

3. As for statistical analysis, we have highlighted the use of Analysis of Variance (ANOVA) to offer crucial insights into the workings of an algorithm. ANOVA can be used to unravel the interaction between various factors that effect performance such as images and parameter choices.

4. Beyond four or five parameters, selection of optimal parameter values by exhaustive enumeration or variations thereof (the usual practice), is not practical. We have found that a team of stochastic learning automata offers an excellent mechanism to select parameters in an efficient manner. We have also developed a probabilistic Bayesian network framework to capture the interdependence among the parameters in a concise manner and offer crucial insights into the nature of the parameter space of the vision algorithm.

Parts of this research were funded by the National Science Foundation.
14. Grants

Current


2. MRI: Acquisition of a CAREN Virtual Reality System for Collaborative Research in Assistive and Rehabilitation Technologies, National Science Foundation, 2012-2015, (PI: Dubey), $450,000.

3. i6 Challenge Grant Tampa Bay FirstWave Venture Center, Office of Innovation and Entrepreneurship, Economic Development Administration, U.S. Department of Commerce, 2012-2014, (PI: Linda Olson, Tampa Bay WaVE, Co-PI: Tracey Swartz, USF; ), $1,000,000.

4. Support for 2nd Conference of the National Academy of Inventors, Oak Ridge Associated Universities, ORAU, 2012-2013, $2,000.

5. AWS in Education Research Grant, Gait Challenge on the Cloud, Amazon.com, 2011-2013, $7,500 (usage credits).

Past

6. Inaugural Conference of the National Academy of Inventors, USF Conference Support, 2012-2012, $10,000


12. Avatar DNA using Biometrics and User Access Controls, Raytheon, 2008-2010, $90,000. (Co-PI: Jarred Ligatti)

13. Recognition of Sign Language Patterns, Center for Pattern Recognition, University of South Florida, 2007-2009, $140,000 (Co-PI: Barbara Loeding)


15. Face Recognition Algorithm Modeling in FRGC, Unisys Corporation and Intelligence Technology Innovation Center (ITIC) within the CIA, 2006, $66,950, (PI)


amount $800,000 (Co-PI with Kasturi)
20. Outdoor Biometrics for Video Surveillance, National Science Foundation I/UCRC, 2005, $70,000 (PI)(Co-PIs: Kasturi and Goldgof)
21. Collision Avoidance for UAVs, National Science Foundation I/UCRC, 2005, $70,000 (Co-PI) (PI: Kasturi, Co-PI Goldgof)
24. Data Sets, Performance Metrics, and Baseline Algorithms for Human Identification at a Distance, DARPA, 2002-2004, amount $363,372. (Principal Investigator)
26. Automated Quantification of Melanoma, US Army Advanced Detection Center, Moffit Cancer Center, USF, 8/1/01 to 7/30/03, amount: $77,000. (Principal Investigator) (Co-PI: D Goldgof)
27. The Role of Learning in Perceptual Organization of Complex Images, National Science Foundation, 08/15/99 to 7/31/03, amount $225,663. (Principal Investigator)
28. Enhancing Undergraduate Computer Science Curriculum through Image Computations, National Science Foundation, 1/1/00 to 12/31/01, amount $75,205. (Principal Investigator)(Co-PIs: D Goldgof, K Bowyer).
29. Workshop on Perceptual Organization in Computer Vision: Assessing the State of Art and Charting New Directions, National Science Foundation, Sept 1999, amount: $30,000. (Co-chair with Kim Boyer.)
30. Transitional Year Biomedical Research Grant, The Whitaker Foundation, 05/01/99 to 04/30/00, amount: $69,952. (Principal Investigator)
31. Segmentation and Combination of Range Data using Color-Texture Information, Sandia National Laboratories, 8/1/98 to 8/30/99, amount: $30,000. (Principal Investigator) (Co-PI: D Goldgof)
32. Research Instrumentation Award: Computer Server, National Science Foundation, 1/1/98 to 12/31/98, amount: $87,848. (Co-PI: K. Bowyer, Co-PI: D Goldgof)
33. Major Research Instrumentation Grant, National Science Foundation, 8/15/97 to 7/31/98, amount: $164,282. (Principal Investigator) (Co-PIs: D Goldgof, K Bowyer, L. Piegl)
34. Biomedical Research Grant, The Whitaker Foundation, 04/01/96 to 03/30/99, amount: $198,289. (Principal Investigator)
35. Research Experience for Undergraduates, National Science Foundation, 07/01/96 to 06/30/98, amount: $10,000. (Principal Investigator)
36. Faculty Early CAREER Development Award, National Science Foundation, 07/01/95 to 06/30/98, amount: $144,933. (Principal Investigator)
37. RADIUS Phase II Seed Contract, Martin Marietta Corporation, 1/31/95 to 7/15/95, amount: $20,000. (Principal Investigator) (Co-PI: Dr. Kim Boyer, The Ohio State University).
38. Start up Equipment Grant, College of Engineering, USF, 08/30/93 to 08/29/94, amount: $14,000. (Principal Investigator).
39. Research and Creative Scholarship Grant Program, College of Engineering, USF, 01/94 to 12/94, amount: $7,390. (Principal Investigator)
15. Publications (>5600 citations, h-index: 34 (Google) as of 7/1/2013)

Books


Book Chapters


2. A. Khemlani, K. Duncan, and S. Sarkar, “People Counter: Counting of Mostly Static People in Indoor Conditions,” in Video Analytics for Business Intelligence, Caifeng Shan, Fatih Porikli, Tao Xiang, and Shaogang Gong (Eds.), Springer-Verlag, 2012


**Refereed Journal Papers**


38. M. W. Powell, S. Sarkar, and D. B. Goldgof, “A simple strategy for calibrating the geometry of


63. S. V. Raman, S. Sarkar, and K. L. Boyer, “Tissue boundary refinement in magnetic resonance


Full Paper Refereed Conference Papers


75. S. Srivastava, A. Asthana, S. Bhanja, S. Sarkar, “QCAPro - An Error-Power Estimation Tool for


103. Y. Qiu, D. Goldgof, L. Lihua, S. Sarkar, Y. Zhang, and S. Anton “Correspondence Recovering in


116. K. Korimilli and S. Sarkar, “Motion Segmentation based on Perceptual Organization of


**Refereed Workshop Papers**


Abstract Refereed Papers and Presentations


16. Other Invited Presentations and Talks
1. Invited Speaker at the Centre for Interdisciplinary Mathematics in Uppsala University, Sweden, May 2013.
3. Invited Speaker at IEEE Workshop on Gesture Recognition, Denver, CO, June 2011.
5. Invited Talk, Electrical Engineering, Old Dominion University, November 2010.
7. IEEE-CS Distinguished Speaker Talk, University of Louisville, Kentucky, March 2010.
9. IEEE-CS Distinguished Speaker Talk, Rochester Institute of Technology, March 2010
10. Invited Speaker Talk, Kodak Research Labs, Rochester, March 2010
16. Talk on Human at a Distance at the Advanced Concept Technology Demonstration (ACTD) Candidate: Biometric Identification Targeting Exploitation (BITE), 2005.
18. Florida State University, 2005.
24. Tata Institute of Fundamental Research, Mumbai, India, Jan., and April 2000.
29. Center for Artificial Intelligence and Robotics, Bangalore, India, June 1995.

17. Patents


Current Appointment

Assistant Professor (2009-present, Computer Science & Eng., University of South Florida)

Training

Post-doc (2008-2009, School of Computing, University of Utah)
Post-doc (2007-2008, Mitsubishi Electric Research Labs)

Work Experience

Software Engineer (2000-2001, Atwell Cop., Tokyo, Japan)

Education

Ph.D. Computer Science, 2007, University of Utah, Salt Lake City, UT, USA.
M.S. Control Theory and Engineering, 2000, Dalian Univ. of Tech., China
B.S. Electrical Engineering, Minor in Mathematics, 1997, Dalian Univ. of Tech., China

Peer-Reviewed Publications

Journal Papers:


Conference Papers


Peer-Reviewed Abstracts


Patents/Patent Applications


Students Advised

Ph.D. Students:

Yun Lin (2009 – present)
Bingxiong Lin (2010 – present)
Adrian Johnson (2011 – present)
Yongqiang Huang (2013 – present)

Master Students:

William Pence (Graduated 2011)
Carlos Neninger (Graduated 2011)
Christine Bringes (Graduated 2013)
Ivan Shindev (2011 – present)
Wei Dai (2012 – present)
Khalid Brown-Walker (2013 – present)

REU Students:

Sergio Beltran (From Autonomous University of Bucaramanga, Summer 2010)
Emmanuel Stinson (REU 2010 – 2011)
Matthew Clevenger (REU, 2010 – 2012)
Stephen Coder (REU, Graduated 2011)
Ivan Shindev (REU, Summer 2011)
Anthony Cope (REU, Summer 2012-present)
Khalid Brown-Walker (REU, Summer 2012-Spring 2013)
David Richardson (REU, Summer 2012-Summer 2013)
Louis Melgar (REU, Summer 2012-Summer 2013)
James Rope (REU, Summer 2013-present)
Sufyan Dawoodjee (REU, Summer 2013-present)
Lex France (REU, Spring 2013-present)

Summer Intern:
Gaomin Deng (Cornell University, Summer 2010)

Undergraduate Students:

Mohamed Sallem  (2010 – 2011)

Ph.D. Committees:

Mustafa Mashali
Mayur Palankar
Thomas Rodger Grieve

Master Committees:

Yingying Zhang (Graduated 2013)
Daniel Standish (Graduated 2013)
Carlos Ezequiel (Graduated 2013)
Khoa Tran (Graduated 2013)

Teaching

Medical Robotics Colloquium, USF Medical School, Fall 2012
CIS6930/4930 Algorithms for Robotics, Fall 2010, Fall 2011, Fall 2013
CIS6930 Seminar in AI-Robotics, Fall 2010, Spring 2011
CAP4660: AI Robotics, Fall 2009

Service

• Associate Editor, IEEE Robotics and Automation Magazine
• Program Chair, Workshop on Robot Vision 2013.
• Local Arrangements Chair, World Haptics Conference 2009.
• Technical Program Committee, ICNC 2013 Workshop on Cyber-Physical System.
• Program Committee, IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems, Salt Lake City, UT, 2010.
• Judge, Hillsborough County Regional Science Fair 2010

In the Media

Grasping Learning by Demonstration is reported by Innovation Nation Program, produced by Partners in Motion, aired in Nov 2010, on Discover Science Channel Canada
http://www.partnersinmotion.com/innovation_nation.php

Local news Bay News 9 reported our SAGE system (Spatial Augmented Game for Education) with two-minutes TV interview that was aired on 5/21/2012. The report is also online
Spanish TV station Univision has interviewed us and broadcasted the interview on TV and online titled as “Desarrollan nuevas técnicas para cirujanos en Tampa.” The link is at http://www.wventv.com/noticia/2012/05/22/372404-desarrollan-nuevas-tecnicas-cirujanos-tampa.html

Grants
- PI: "Robotics Modeling of Skilled Hand Tasks," USF Neuroscience Collaborative Grant, $100,000, 2010-2012.

Memberships
- Senior member of IEEE
Ralph Tindell

**Education**

Ph.D., Mathematics  
Florida State University, 1967

M.S., Mathematics  
Florida State University, 1965

B.A., Mathematics  
University of South Florida, 1963

**Academic experience**

- University of South Florida, Instructor  
  2001 to Present
- University of South Florida, Undergraduate Program Advisor  
  2007 to 2012
- Stevens Institute of Technology, Professor Emeritus of Computer Science  
  2000 to Present
- Stevens Institute of Technology, Professor of Computer Science  
  1977 to 1999
- L’Université de Paris-Sud, Visiting Research Professor of Computer Science  
  Fall 1989
- University of South Florida, Visiting Professor of Computer Science  
  1984 to 1985
- Stevens Institute of Technology, Associate Professor of Mathematics  
  1970 to 1977
- Université des Saarlandes, Visiting Research Professor of Computer Science  
  Fall 1976
- Institute for Advanced Study, Princeton, Research Assistant, Mathematics  
  1969 to 1970
- University of Georgia, Assistant Professor of Mathematics  
  1967 to 1969
- Institute for Advanced Study, Princeton, Visiting Member, Mathematics  
  1969 to 1970

**Non-academic experience**

- U.S. Army Research Division, Visiting Researcher  
  Summer, 1978

**Certifications and professional registrations**

None

**Current memberships in professional organizations**

- ACM

**Honors and awards**

- Honorary Masters of Engineering, Stevens Institute of Technology, 1991

**Service activities within and outside of institution**

Institutional service activities include:

- Department committees:
  - Undergraduate Committee (2007 to present)
  - ABET committee (2007 to present)
Important publications from past five years

None

Recent professional development activities

- Co-PI and Principal Software Developer, CLUE integrated development environment for teaching of the C language, 2009-present; supported by a 3-year NSF Educational grant.
- Developed Programming Evaluation Assistant (Preva) software, supported by an internal USF grant
- Development of a new undergraduate elective: Advanced Python (undergoing revision and further development, Summer 2013)
EDUCATION

Ph.D., Computer Science, Purdue University, West Lafayette, IN
Emphasis: Multimedia/Streaming data management systems
Date: August 2007

Certificate of Applied Management Principles (mini-MBA), Purdue University, West Lafayette, IN
Date: May 2004

M.S., Computer Science, Purdue University, West Lafayette, IN
Date: May 2003

M.S., Horticulture, Purdue University, West Lafayette, IN
Date: December 2000

B.S., Horticulture, Beijing Agricultural University, Beijing, China
Date: July 1993

EMPLOYMENT

Associate Professor, Department of Computer Science and Engineering, University of South Florida, 08/2013 - date
Assistant Professor 08/2007 – 07/2013
- Published and presented research results in multiple top international journals and conferences
- Supervised undergraduate/Master/PhD level students for their theses/dissertations
- Taught undergraduate/graduate level courses in database systems
- Projects involved:
  1. Database-Centric Molecular Simulation.
  2. Power-aware database management systems
  3. Self-tuning databases based on feedback control theory
  4. Building a CUDA Teaching Center at USF College of Engineering

Research Assistant, CS Department, Purdue University, 5/2001- 7/2007
- Published and presented research results in multiple top international journals and conferences
- Supervised undergraduate/Master level students for their independent research/study projects
- Projects involved:
  1. Quality of Service Control in Emerging Data Management Systems.
  3. VDBMS: A Video DBMS with Content-based Retrieval Capabilities.

- Key member of the team for developing Fiji – a large-object supportive framework in DBMS
- Intensive DBMS kernel development and performance evaluation.


GRANTS

- PI, Building a CUDA Teaching Center at University of South Florida, $11,196 ($6,696 cash + $4,500 equipment donation) plus $6,696 USF matching funds, July 2012 – December 2013.
Yicheng Tu

- PI, Database-Centric Data Analysis of Molecular Simulations (R01), National Institutes of Health, $875,262 (PI’s budget: $547,993, Co-PI: Sagar Pandit), April 2010 – March 2015.

STUDENTS SUPERVISED

PhD students
- Anand Kumar (passed qualifiers in Fall 2009, dissertation defense scheduled on December 7, 2012)
- Vladimir Grupcev (passed qualifiers in Spring 2010)
- Purushottam Panta (passed qualifiers in Spring 2012)
- Peyman Behzadnia (started in Fall 2010)
- D. Yu (started in Fall 2012)
- R. Rui (started in Fall 2012)
- Z. Xu (started in Fall 2009, dismissed from program in Spring 2011)
- J. Huang (visiting student from UT Arlington, Fall 2011)

MS students
- Current: Ryan Wheeler, Nadim Bou Zeidan
- Graduated: Tiffany Burrell (Spring 2010), Sadhana Sharma (Fall 2009), Zichen Xu (Summer 2009)

Undergraduate students
- REU students: Steve Shifke, Evan Kroske, Andrew Jones, Miguel Rodriguez, Exequiel Bravo, Micca Osmar, Amarilys Mendez, Andrey Shipalov, Bhargava Kondevaeti, Laura Reider
- Honor’s thesis: Ivan Dyedov
- Senior design project: Gian Framingheddu

REFEREED PUBLICATIONS (ordered by date)

Referred Journal Publications
1. J. Huang, F. Nie, H. Huang, Y. Tu, and Y. Lei. Social Trust Prediction Using Heterogeneous Networks. Accepted to ACM Transactions on Knowledge Discovery from Data (TKDD).
3. C. H. Nadungodage, Y. Xia, J. Lee, and Y. Tu. Hyper-Structure Mining of Frequent Patterns in Uncertain Data Streams. Accepted to Knowledge and Information Systems (KAIS).


**Book Chapters**


**Refereed Conference Publications**


AWARDS AND HONORS

• NSF CAREER Award, 2013
• New Researcher Grant, USF
• Key member of the team that wins the 2004 MIRA award, a prestigious education/research award in Indiana, for the technical contribution in the Knowledge Projection project.

PROFESSIONAL MEMBERSHIP

• Full member of Sigma-Xi, the scientific research society
• Member of Upsilon Pi Epsilon, the computer science honorary society
• Member of ACM
• Member of IEEE
• Member of ASEE
• Member of Biophysical Society (BPS)

SERVICES

Journal Editorship

• Journal of Computational Information Systems
• Journal on Knowledge and Data Engineering
Member of Technical Program Committee

- IEEE Conference on Networking, Architecture, and Storage (NAS) 2012
- IEEE International Conference on Tools with Artificial Intelligence (ICTAI), 2011
- ACM International Conference on Management of Data (SIGMOD), demo track, 2010
- International Conference on Machine Learning and Applications (ICMLA), 2010
- Transaction Processing Performance Council Technical Conference (TPC-TC), 2009, 2010
- International Conference on Web Information Systems and Mining (WISM), 2008, 2009
- Software Engineering Research, Management and Applications, 2009
- Joint conference of Asia-Pacific Web Conference and Web-Age Information Management, 2009
- International Conference on Computational Science and Engineering, 2008

Journal Reviewer

- ACM Transactions on Database Systems
- IEEE Transactions on Knowledge and Data Engineering
- ACM Transactions on Multimedia Computing, Communications, and Applications
- IEEE Multimedia
- IEEE Transactions on Circuits and Systems for Video Technology
- ACM/Springer Multimedia Systems Journal
- IEEE Transactions on Systems, Man, and Cybernetics, Part A
- Distributed and Parallel Databases
- Multimedia Tools and Applications
- Data and Knowledge Engineering
- Knowledge and Information Systems
- Neurocomputing
- Journal of Intelligent and Fuzzy Systems
- Journal of Information Processing

Funding Program Reviewer/Panelist

- Panelist, Panel for small projects, Core Techniques and Technologies for Advancing Big Data Science & Engineering (BIGDATA) program, National Science Foundation, November 2012 (tentative)
- Panelist, Mid-Scale projects, BIGDATA program, National Science Foundation, August 2012
- Reviewer, University of Southern California METRANS research program, 2009, 2010
Jing Wang

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University of South Florida, FL 33620
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Fax: 813-974-5456
Email: jingwang@cse.usf.edu
Web: http://cse.usf.edu/~jingwang

Education

Vanderbilt University, Nashville, TN
Ph.D. in Computer Science, August 2005
Dissertation: Motion Transitions in Computer Animation: Calculation of Optimal Transition Points and Durations
Advisor: Prof. Bobby Bodenheimer

Vanderbilt University, Nashville, TN
Master of Science in Computer Science, January 2002

University of Southern California, Los Angeles, CA
Graduate level coursework in Physics, 1999

Jilin University, Changchun, Jilin, China
Bachelor of Science in Physics, July 1997

Experience

Instructor II, Department of Computer Science and Engineering, University of South Florida, 2012-present

Instructor, Department of Computer Science and Engineering, University of South Florida, 2005-2012

Courses taught:

- **Programming Concepts**, 2005- present
  An introductory programming class in java. Topics include problem solving, program design, implementation, and testing, object-oriented concepts including classes, objects, and encapsulation.

- **Computer Animation**, 2005 – present
  Covered storyboarding, camera control, hierarchical character modeling, inverse kinematics, keyframing, motion capture, dynamic simulation, and facial animation. Software: Autodesk Maya, Adobe Premiere

- **Ethical Issues/Professional Conduct**, 2013 – present
  Discusses ethical issues in the computing fields such as privacy, intellectual properties, freedom of expression, safety, and workplace ethics.

- **Intro to Discrete Structures**, 2006 – 2012
  An introductory course in Discrete Mathematics oriented toward Computer Science and Engineering. Topics include Logic and Logical proofs, Sets,
Functions, Algorithms, Relations, Induction, Recursion, Counting principles, Probability theory, Boolean algebra, Graph and Trees

- **Computers and Impact on Society**, 2011 - present
  Discusses the components of a computer system, software categories, the impact on methods of conducting business, the impact of unethical conduct, internet, the components and the global impact of the World Wide Web, the impact of technology on society, computer privacy, piracy, and security measures.

- **Program Design**, 2009
  Teaches how to design a program of moderate complexity in C. Topics include functions, pointers, recursive, dynamic memory allocation, header files, debugging, program design, and compile, test, and debug C programs on a networked Unix system.

  A comprehensive and balanced introduction to Java, as a whole software package for solving real world problems. Topics include fundamentals of the object-oriented programming concepts in the context of Java environment, graphic user interface, JSP, Servlet, databases and networks.

**Instructor**, STEM Research for Scholars pre-college program at University of South Florida, 2012, 2013
- Designed and taught the computer science course. Students applied their creativity in problem solving in the context of computer animation, bioinformatics, working on projects in a team.

**Research Assistant**, Electrical Engineering and Computer Science, Vanderbilt University, 2001-2005
- Developed methods for creating realistic and convincing animations of human figures.
- Developed program to access, edit and convert motion capture data.
- Implemented quaternion orientation interpolation in Bezier spline and B-spline to generate smooth rotational movement.
- Optimized weights of a transition cost function for picking better transition points.
- Developed methods for determining optimal blend lengths for motion transitions.
- Designed and implemented graphic user interface for adaptive user studies.
- Conducted studies on perceptual differences of different motion transitions.

**Teaching Assistant**, Electrical Engineering and Computer Science, Vanderbilt University
- **Computer Animation**, spring 2003, 2004
  Led computer lab, helped students on devising, modeling, keyframe animating, lighting, rendering and video editing using Maya and Adobe Premiere
- **Database Management System**, spring 2002
  Assisted on database construction and SQL programming
- **Intro Computing and Programming**, spring 2001
  Led computer lab, assisted on web page construction using Html and JavaScript
Teaching Assistant, Department of Physics, Vanderbilt University
Grader for introductory physics classes, 1999-2000

Teaching Assistant, Department of Physics, Jilin University, China
Lectured introductory physics lab, 1998

Professional Activities

Speaking Engagements
- Reader for Order of Engineer History, Graduation Ceremony, College of Engineering, University of South Florida, May 2012
- “Computer Science and Engineering at University of South Florida”, May 9, 2012, WISE Bayshore High School field trip, lab tour
- “Computer Animation”, ACM USF Student Chapter, University of South Florida, October 2005
- “Synthesizing and Evaluating Data-Driven Motion Transitions”, University of South Florida, April 2005
- “Synthesizing and Evaluating Data-Driven Motion Transitions”, North Carolina Central University, April 2005
- “Just Noticeable Difference for Motion Transitions”, The Midgraph Workshop, November 2004, Chicago, IL
- “Computing the Duration of Motion Transitions: An Empirical Approach”, ACM Symposium on Computer Animation, August 2004, Grenoble, France
- “An Empirical Approach to Using Interpolation as a Transition Method”, Invited seminar presentation, CS With-it seminar, EECS, Vanderbilt University, October 2003

Professional Services
- Faculty representative of USF in NCWIT (National Center for Women & Information Technology), 2011- present
- Served as a judge for Engineering EXPO, 2008, University of South Florida
- Member of departmental Undergraduate Program Committee, 2007 – 2010, University of South Florida
- Member of departmental Outreach Committee, 2006 – 2007, University of South Florida
- Member of departmental Infrastructure Committee, 2005 – 2007, University of South Florida
Thesis Advisor
- Honor thesis: Creating and Design a Game, Alex Vega, 2011
- Senior project: Creating a Short Animation in Alice, Anjaly Kuruvilla, Zephyrhills High School, 2009

Awards and Honors
Outstanding Undergraduate Teaching Award, University of South Florida, 2010-2011
Innovative Teaching Grant, University of South Florida, 2008
Teaching/Research Assistantship, Vanderbilt University, Nashville, TN 1999-2004
McMinn Fellowship, Vanderbilt University, Nashville, TN, 1999-2000

Professional Organization Membership
Association for Computing Machinery (ACM)

Publications


Hao Zheng

Contact Information
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zheng@cse.usf.edu
www.cse.usf.edu/~zheng

Education
University of Utah, Salt Lake City, UT

University of Utah, Salt Lake City, UT

B.S. in Electrical Engineering 1989 – 1993
Northwestern Polytechnic University, Xi’an, China

Professional Experience
Associate Professor, the Department of Computer Science and Engineering 2010 – present
University of South Florida, Tampa, FL

Assistant Professor, the Department of Computer Science and Engineering 2004 – 2010
University of South Florida, Tampa, FL

Research Scientist, ASIC Design Group 2001 – 2004
IBM Microelectronics Division, Burlington, VT

Research Assistant, the Department of Electrical and Computer Engineering 1996 – 2001
University of Utah, Salt Lake City, UT

Electronics Engineer, Air China 1993 – 1996
Beijing, China

Research Interests
• Design and analysis of dependable and secure computing systems
• Formal methods for system design and analysis
• Modeling, methods, and algorithms for automatic formal analysis of complex systems
• System biology
• Methods and algorithms for parallel computing

Awards and Honors
• USF Graduate School Recognition for Excellence in Mentorship at Master’s level for Ryan Mabry, 2007 Outstanding Thesis Award recipient.
• USF Outstanding Research Achievement Award, 2007.
• NSF Faculty Early Career Development (CAREER) Award, 2006.
Research Funding

• H. Zheng (PI), REU supplement grant, National Science Foundation, 8/2010 – 7/2011, $12,000.


Publications

Refereed Journal Articles


Refereed Conference/Workshop Papers


**Ph.D. Dissertation**

Teaching

University of South Florida (2004 - present)

- CDA 5416, Computer Logic Design, Fall 2010
- CIS 4930, Design Automation, Spring, 2009
- CIS 6930, Asynchronous Circuit Design, Spring, 2005

Students Advised

Current Students:

- Hernan Palombo (Ph.D.) 2013 - present
- Andrew Price (M.S.) 2012 - present

Former Graduate Students:

- Haiqiong Yao (Ph.D.) 2006 – 2012
- Nicholas Donataccio (Ph.D.) 2008 – 2011
- Yangwei Cai (Ph.D) 2010 – 2011
- Yingying Zhang (M.S.) 2010 – 2013
- Emmanuel Rodriguez (M.S.) 2010 – 2012
- Larry Moore (M.S.) 2010 – 2012
- Ryan Mabry (M.S., co-advised with Dr. Nagarajan Ranganathan) 2007
  Recipient of 2007 USF Outstanding Thesis Award
- Jared Ahrens (M.S.) 2007

Former undergraduate Research Students

- REU Students
  - Michael Kubacki 2011
  - Emmanuel Rodriguez and Larry Moore 2010
  - Francesco DiNatale and Giuseppe DiNatale 2009
  - Christopher Earl 2007
  - Halam Le 2007
  - Paul Ireif 2006

- Honors Theses
  - Christopher Cohoon, 2010
  - Ryan Marby, 2005
Invited Talks

- Intel Corporation, 8/2010
- University of Southern California, Los Angeles, 8/2009
- University of British Columbia, Vancouver, Canada, 6/2009
- Brown University, Providence, RI, 3/2009
- NEC Labs America, Princeton, NJ, 2/2009
- IBM Austin Research Lab, Austin, TX, 2/2009
- University of Florida, Gainsville, FL, 11/2008
- Portland State University, Portland, OR, 11/2008
- University of Utah, Salt Lake City, UT, 8/2007
- Xidian University, Xi’an, PRC, 5/2006
Services
IEEE senior member

Program Committees:
- HLDVT 2010, IEEE International High Level Design Validation and Test Workshop (Finance Chair).
- HLDVT 2009, IEEE International High Level Design Validation and Test Workshop.
- ISVLSI 2009, IEEE Computer Society Annual Symposium on VLSI (session chair).

Reviewer for:
- National Science Foundation, panelist, 2006.
- A proposal from Netherlands Organization for Scientific Research, division Physical Sciences

Journals:
- ACM Transactions on Embedded Computing Systems
- Formal Methods in System Design
- IEEE Transactions on Computers
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems
- IEEE Transactions on Very Large Scale Integration Systems
- IEEE Transactions on Circuits and Systems
- ACM Transactions on Design Automation of Electronic Systems
- Journal of Microprocessors and Microsystems
- IEE Proceedings of Design Automation of Electronic Systems
- Transitions on Information Processing Society of Japan
- Journal of Zhejiang University - Science A
- Louisiana Board of Regents RCS proposal

Conferences:
- 2009 : ISVLSI.
- 2008 : DATE.
- 2006 : ISCAS and DAC.
- 2005 : DAC and GLVLSI.

Services to the University
- Faculty judge for USF Undergraduate Research Symposium, April, 2009.
- Reviewer for USF College of Engineering CAREER reviewing panel Summer 2008
- Faculty advisor of the IEEE Computer Society USF Chapter 2006—present
  Won Best Student Organization of College of Engineering award (2009).
- Member of the Undergraduate Committee, CSE Dept., USF 2004—present