Computer Science Academic Program Review
Self-Study Document

Department of Computer Science
University of San Francisco

Fall 2015

1 Mission

The Department of Computer of Science at the University of San Francisco offers rigorous undergraduate (BS) and graduate (MS) programs that prepare students for computing careers as well as for advanced study in computer science. Consistent with the University's mission to draw from the resources of the San Francisco Bay Area and train students to be men and women for others, the CS faculty and students are engaged in research, industrial and entrepreneurial efforts with companies in the surrounding community, and are also engaged in several community outreach initiatives. Consequently, our students not only receive a foundation in computer science principles, but they are exposed to a wide range of extracurricular experiences. Our mission is to provide our students with currently accepted foundations while leveraging the specialties of our faculty and local resources.

Our undergraduate mission statement is as follows:

> Students who graduate with a Bachelor of Science (B.S.) degree in Computer Science will be prepared for both graduate school and for software development careers. The curriculum provides a solid base in computer science fundamentals that includes software design and development, problem solving and debugging, theoretical and mathematical foundations, computer systems, and system software.

Our graduate mission statement is as follows:

> The mission of the Master of Science in Computer Science graduate program is to give students a strong theoretical background in computer science and deep technical programming skills by focusing on one-on-one student interaction, not only to provide personalized education but also to access the unique capabilities of each student.

1.1 Recent Changes

In our last program review, we sought advice on how to address waning enrollments and attract more majors to the program. We were proactive in reducing the number of units required for our major to make it more attractive to a broader set of students and also more manageable for students wishing to begin the major one or even two semesters late. We also moved to a model that allowed us to cross list graduate and undergraduate classes to offer both student populations more options, particularly for elective courses.

With a well over 3x increase in our number of majors over the past five years, we now face the opposite problem. Whereas at the time of the last review, we offered a single introductory section in computer science each semester, in Fall 2015 we offered five sections of the introductory course for majors, two sections of our non-major course, and could have filled many more. We have also had to increase the number of sections offered of our upper-division undergraduate courses and we have streamlined our graduate program to make it more scalable. There is no longer space in undergraduate courses for graduate students, and we are understaffed nearly every semester. This growth has also resulted in a more diverse student population who need an increased level of support and guidance.

In addition to growth in undergraduate Computer Science, the university has created two programs with significant computational components—a BS in Data Science (BSDS) and an MS in Analytics (MSAN)—and is actively pursuing a school or program of engineering. An open question is how best Computer Science can participate in these efforts given the growth of BSCS and constraints on staffing core CS courses.

1.2 Faculty Summary

Since our last program review, three faculty have retired (two had joint appointments in mathematics), one faculty member has been in the Dean's office since 2010, and we have hired three permanent faculty. Two of our most recent hires are female, one is Asian American, one is Korean, and one is Indian. We have also hired four full-time faculty into one-year, term positions (USF's term for a full-time, teaching-only position that comes with a 3-3 teaching load), and all of those hires were women. We have two tenure-track CS positions we hope to fill this year, and we will also participate in the hire of a joint CS/MSAN faculty member.

Our students are exposed to a wide range of faculty activity. Faculty conduct research in areas as diverse as computer security, home energy management, data visualization, and CS education. Several faculty are NSF funded and many faculty members actively publish in top-tier venues, even receiving several best paper awards in recent years. We also have faculty with close ties to industry in Silicon Valley, offering a pipeline to internships and full-time positions for many of our students.

1.3 Key Aspects

This document provides extensive detail on our programs, faculty, and students. Here is a summary of some of the key features of the Department of Computer Science:

- **Teaching Emphasis:** All of our faculty are extremely dedicated teachers. We spend a significant amount of time on teaching and interacting with students in and out of the classroom. Many faculty employ innovative teaching techniques,

including team-based learning and mastery learning. Interactive code review and grading is commonly used in our courses providing students lots of opportunity for feedback and faculty interaction.

- **Project-based Learning:** We place significant emphasis on hands-on learning and most of our classes require students to implement one or more large, often realistic programming projects. Where possible, faculty require use of modern tools and infrastructure, such as github and Amazon Web Services.

- **Capstone Project/Research Opportunities:** All students are required to complete a capstone project where students either work with an industry sponsor or faculty member. Students working with industry sponsors get a complete picture of how software development is done in a real-world setting while students opting to work with faculty members get an opportunity to work on a research project.

- **Location:** Our location in the heart of San Francisco enhances the student experience in several ways. The SF Bay Area and Silicon Valley has a vibrant tech meetup community, and hosts various contests and hackathons. Our department is able to partner with several local tech companies and startups in our capstone projects course, and students are often able to find internships with these companies.

1.4 Key Issues

While we are interested in receiving feedback on all aspects of our programs from the outside evaluators, we have identified some key issues on which we are particularly interested in hearing feedback. These issues are discussed in detail in the remainder of this document, and summarized here:

- **Managing Undergraduate Growth:** Though we are excited by the large and diverse set of students interested in taking CS courses, it is not without challenges. In particular, the University is not able to provide resources (e.g., faculty) to support undergraduate growth. As a result, we feel the need to put in place some mechanisms to control the number of students entering the major. We are also concerned about how best to funnel students into our non-major courses—our non-major sections fill up rapidly, so many students who are better suited for that gentler introduction end up in the course for majors. This dynamic has led to students having unsuccessful experiences and challenges for teachers in accommodating the less prepared students while also preparing student for the rigor of the upcoming classes in the major. We discuss some initial ideas for addressing these challenges in Section 13, and would like feedback on these and other possible approaches.

- **Student Support:** Likely as a result of our growth and diversity, we have seen a large increase in students needing increased support. This includes students who have personal issues that impact them academically, as well as students with disabilities, and students who fail to understand our standards of academic honesty. In some cases, faculty spend a significant amount of time assisting, or disciplining, students. We would like feedback on strategies the department may employ to ensure that students receive the support they need without incurring an unreasonable burden for the faculty.

- **Relationship to other programs:** With new interdisciplinary programs like Data Science and Analytics developed in the college, there is an increased burden on the department to devote faculty to teaching and administrative tasks outside of the department. This has caused some tension, particularly given our significant growth. The department would like feedback about strategies for managing these kinds of interdisciplinary relationships.

- **Considering Graduate Growth:** The recent changes to our graduate program, including moving to a cohort model, were largely designed to make the program more scalable. We have felt some pressure to grow our graduate program, which would require more faculty, however we are very concerned about moving in this direction while our undergraduate enrollments are skyrocketing. Section 13 discusses some of the opportunities for growth we have considered, though we are very concerned about growing before resources, specifically faculty and an administrative director, are secured.

- **Attracting Faculty:** Though we hope to hire to fill the faculty lines we have available this year, we had a failed search in 2014/2015. The high cost of living and plethora of other opportunities in the bay area are challenges we must overcome. Any advice on how to attract qualified applicants to our positions is welcome.

1.5   Key Needs

Based on our goals and the future success of our programs we have identified the following key needs for the department:

- **Faculty:** We are in dire need of additional teaching staff. We have been short-staffed for some time now, and have dealt with this deficit in unsustainable ways, such as faculty regularly teaching overload. The growth trend of our undergraduate program is unlikely to slow, and more departments are requiring our courses (e.g., Math and Physics). Without additional faculty, we will soon need to turn away potential majors; reduce our offerings for non-majors at a time when interest has never been higher; and/or drop sections for courses in the major that will impact timely completion of the coursework.

- **Operating and TA Budget:** Our operating and TA budget are insufficient to support a growing department. We have had to reduce the TA support offered to our courses because the number of sections, particularly of the lower-division courses where students need the most help, has increased so significantly. Though a generous external donation has allowed us to create a tutoring center to offset some of the impact of this, the Center is only funded for three years. Moreover, our operating budget has been stagnant for several years, and there has been a recent reduction in additional support for items such as desktop hardware. This impacts our ability to be innovative in the classroom, using cutting-edge hardware and modern tools and infrastructure.

- **Administrative Director:** Particularly at the graduate level, we feel that a program of our size should have an administrative director who can assist with tasks such as generating offer letters and responding to general questions about the program. Programs smaller than ours do have such a staff member, however we do not,

in part because we are a legacy program. Particularly with our undergraduate growth and increased burden on our single program assistant, we feel a graduate administrative director is warranted.

2 History

The department had its most recent program review during the academic year 2007–2008. At that time we were still feeling the effects of the bursting of the dot-com bubble and the subsequent nationwide collapse in undergraduate CS enrollments. Consequently, the program review focused on the problem of attracting students to the undergraduate major.

2.1 Major Changes Since the Last Program Review

There have been several significant changes in the department since the last program review:

Undergraduate   We significantly *reduced the number of units* required for the undergraduate major, from 50 to 38 units in CS, from 12 to eight units in Mathematics, and from eight to four units of rigorous laboratory science. We have also seen a significant *increase in our number of CS majors*, from 51 in fall 2010 to 161 in fall 2014.

Graduate   Beginning Fall 2014 we *streamlined our MSCS program* and phased out our MS in Web Science and three-year bridge programs. Demand for the MSCS program is extremely high; focusing on this single program allows us to meet large demand by streamlining the management and advising overhead. Our MSWS program had several very specific requirements and, thus, staffing the required courses and advising students to ensure they fulfill their requirements stretched our limited resources for the small pool of students in the program. Similarly, the Bridge program was designed to allow graduate students to fill holes in their backgrounds by taking our undergraduate courses. With undergraduate enrollments climbing, our classes are full, introducing tension between satisfying foundational requirements for Bridge students and ensuring undergraduate students get the courses they need to graduate on time.

Relationship to Other Programs   The University has also created *two new programs* since our last program review, an undergraduate program in Data Science (BSDS) and a graduate program in Analytics (MSAN), both of which CS has supported. Up to one half (depending on area of concentration) of the BSDS courses are offered by Computer Science. Fortunately, these courses can also all be taken by our CS undergraduates. MSAN, on the other hand, is a very specialized program and, while there is increasing pressure for CS to participate in the MSAN program this taxes our already-stretched resources. In addition, the Mathematics department allows CS 110 to fulfill one of their required courses and the Physics department recently added CS 110 to their curriculum as well. Finally, the Advertising program requires up to eight units of Computer Science, primarily our CORE and non-major courses, for students on the technical track.

General   Other than the change to the programs, the most noteworthy change since the last review is the change in the department's faculty. At the time of the last review, the department had 10 faculty; one was a woman; and three had joint appointments in mathematics. Now the department has 9 permanent faculty; three are women; and only one has a joint appointment in mathematics. We also have two open positions we hope to fill this year.

Finally, with the opening of the Lo Schiavo Center for Science and Innovation (LS) in the fall of 2013, the department added two new classrooms: one based on the very successful Kudlick lab/classroom, and one that utilizes a design suited for both lecture-style presentations and project-based classes. With these additions the department is able to schedule all of its major classes in its own classrooms and labs.

2.2   Recommendations of the Previous Program Review

The recommendations made by the members of the 2008 program review team fall into four broad categories:

1. The faculty,

2. The undergraduate program,

3. The graduate program, and

4. Administration and university support.

The faculty   The reviewers recommended that the department form a committee to discuss the curriculum: they argued that our trying to complete a major overhaul of the curriculum in routine department meetings would be impossible. They also recommended that the administration create a new, regular, position to be filled by an individual whose expertise would address the greatest need identified by the department curriculum committee.

The reviewers strongly encouraged the faculty to give more students the opportunity work with them on their research.

Undergraduate program   The reviewers made a number of recommendations for changes to the curriculum:

- The curriculum that then consisted of 50 units of CS, 12 units of mathematics, and 8 units of physics should be reduced to 40 units, 8 units, and 4 units, respectively.

- We should not add a BA program.

- We should add more interdisciplinary courses by offering courses that are team taught by CS faculty and faculty in other disciplines.

- We should reduce the number of required systems courses, and we should shorten prerequisite chains.

- The difficulty of the junior year courses, CS 326, Operating Systems, and CS 315, Computer Architecture, needed to be reduced. We should either reduce the workload in these courses, or make one or both elective.

- In order to encourage more women and minority majors, we should hire more women and minority faculty.

- We should increase the number of courses for non-majors. They explicitly mentioned CS 107.

Graduate program The reviewers also made a number of recommendations for changes to the graduate program:

- We should hire another faculty member.

- We should form a curriculum committee charged with curricular reinvigoration at the graduate level.

- We should identify areas of expertise that would help us move toward our vision of a rigorous but more welcoming academic program.

- We should publicize that choosing the MS thesis option precludes the need to take the Master's project course.

- The reviewers believed it entirely possible to offer a set of courses appropriate simultaneously for advanced undergraduates and beginning graduate students, rather than forcing the two populations to be distinct.

- They indicated having one faculty advisor for the whole MS program is simply insufficient.

Administration and university support   They made the following recommendations to the administration.

- The University Scholars program provides a large amount of financial aid for four years to students with exceptional records. However, the amount of financial aid had been reduced before the program review. The reviewers thought that the university should reconsider the reduction. This, they felt, could have a significant impact on the number of first-rate students in computer science.

- The administration should provide better, more personalized, guidance to faculty preparing to apply for promotion or tenure.

- They felt that it was essential that CS hardware, software, and systems support should be independent of the rest of the university.

- They recommended that the department have two full-time systems support positions fully devoted to computer science.

2.3   Changes Following the 2008 Program Review

The department acted energetically on the recommendations of the reviewers. Specifically, we formed a committee that met regularly to discuss the curriculum. The committee recommended and the department approved the following changes:

- As noted earlier the curriculum was reduced to 40 units of CS, 8 units of mathematics, and 4 units of physics, chemistry, or biology. We later reduced the number of CS units to 38 when we stopped offering the one-unit Special Lecture Series course.

- We didn't add a BA program.

- We have added some interdisciplinary courses, but these have been at the graduate level.

- We no longer require the systems course, CS 210, Assembly Language and Systems Programming, and the longest "prerequisite chain" for a required course now consists of three courses.

- We've hired six women into tenure-track or visiting positions since 2008.

- We've doubled the number of sections of CS 107.

- We have completely revised the graduate program.

- We did move to cross-listed graduate and undergraduate courses to offer both populations more choice, however we have moved away from that recently due to our overwhelming enrollments.

Less progress has been made on the administrative recommendations:

- The amount of support offered University Scholars has been increased somewhat, although not to the level offered prior to 2007.

- There has been little change to the support offered faculty applying for promotion or tenure. The university does offer a support seminar for new faculty, a mentor for new members of the faculty, and workshops that review the process of applying for tenure, however these are not new since the last program review, nor are they discipline specific. There also appears to have been little change in the ACP.

- The computing facilities and support provided to CS are still separate from the rest of the university, although the administration has recently reduced the variety and cost of hardware and software available to the CS faculty.

- The number of support staff has technically increased, however our system administrators also have significant responsibilities outside of the department.

2.4 Department Morale

In general, both faculty and students in the department are enthusiastic and hardworking. We have a very strong faculty who spend significant time with students, and most have very active research and service programs. The growth in the number of majors, however, has been accompanied by some new problems:

- Faculty feel our limited resources and pressure to contribute to other programs has some impact on job satisfaction. Faculty would like to have more opportunity to integrate their research and service interests into the classroom.

- There has been a very large increase in the number of students who have been involved in one or more incidents of academic dishonesty. A significant percentage of these students did not grow up in the United States, and they may have less rigorous views of what constitutes cheating. Many students (and parents) view a degree in computer science as a guarantee of a good job, and the weakness of the job market has made some of these students willing to try to complete the program at any cost.

    A further problem is the faculty's perception that the system doesn't provide strong enough deterrents to academic dishonesty. This can discourage faculty from bringing cases to the attention of the University,

3 Assessment

3.1 Undergraduate Program

Mission Statements and Learning Outcomes   Students who graduate with a Bachelor of Science (B.S.) degree in Computer Science will be prepared for both graduate school and for software development careers. The curriculum provides a solid base in computer science fundamentals that includes software design and development, problem solving and debugging, theoretical and mathematical foundations, computer systems, and system software.

Students who complete a B.S. in Computer Science will be able to:

- **THEORY:** Explain and analyze standard computer science algorithms and to describe and analyze theoretical aspects of various programming languages.

- **APPLICATION:** Apply problem-solving skills to implement medium- and large-scale programs in a variety of programming languages.

- **SYSTEMS:** Understand the interactions between low-level hardware, operating systems, and applications.

- **PROJECT:** Communicate and organize effectively to deliver a large-scale software as part of a team of software developers or researchers.

Measurements   We currently do not have a universal means to assess if our students are achieving these learning outcomes over the entire duration of the program. Each course has detailed learning outcomes that reflect the program learning outcomes, and communicates the detailed learning outcomes through syllabus. Each course measures students' success achieving these detailed learning outcomes by the combination of programming assignments, on-paper assignments, written exams, and/or oral presentations. Prof. Benson, Prof. Engle, Prof. Jung, and Prof. Rollins use "interactive" grading for programming assignments, where students have to demonstrate their software to the instructor and also explain their software. The additional benefits of interactive grading include enhancing students' oral communication, deepening their understanding of the assignments and their solutions, and also making plagiarism very difficult.

The grade from each course is the comprehensive evaluation on the detailed outcomes. Below are the learning outcomes from a selection of the required courses. An open question is how to combine per-course evaluations into program-level assessment in a manageable fashion.

THEORY: CS 245 - Data Structures and Algorithms Learning Outcomes

- Analyze the O() and Theta() running times of both imperative and recursive algorithms.

- Write larger and more complex Java applications.

- Understand all of the following algorithms and implement them in Java: Stacks/Queues/Lists, Binary Search Trees, General Trees, Heaps (Priority Queues), Hash Tables, B-Trees, Sorting Algorithms (Insertion sort, quicksort, mergesort, bucketsort, radixsort), Graph Algorithms (Dijkstra's, Prim's, DFS/BFS, Topological sort, Connected Components).

- Understand the basics of dynamic programming and write a memoized version of an algorithm.

APPLICATION: Details depend on which elective students choose, but all application elective courses include mid-sized application design and development as a learning outcome.

SYSTEMS: CS 326 Learning Outcomes

- Understand and evaluate operating system implementations.

- Understand the implementation of fundamental OS structures, including Threads, processes, system calls, scheduling, virtual memory, and file systems.

- Develop UNIX system software.

- Write and debug concurrent programs.

- Debug complex systems and low-level software.

- Work with UNIX tools such as make and git.

PROJECT: CS 490

- Specify, design, implement, test, and document a significant software project.

- Effectively and efficiently solve problems that arise during the development of a software project with a hard deadline.

- Provide detailed technical documentation of the software to both users of that software, and to developers wishing to extend the functionality of that software.

- Communicate effectively, productively, and professionally with the project sponsor, instructor, team members, and potential users.

- Clearly verbally communicate technical concepts in numerous settings, including in small groups, poster presentations, and presentations to the larger USF community.

3.2   Graduate Program

Mission Statements and Learning Outcomes   The mission of the Master of Science in Computer Science graduate program is to give students a strong theoretical background in computer science and deep technical programming skills by focusing on one-on-one student interaction and fostering the unique capabilities of each student.

Our mission statement coincides with the university mission to give students the knowledge and skills needed to succeed as professionals, and we are sensitive to the needs of our extremely diverse student population.

Students who graduate with a Master of Science in Computer Science (MSCS) will be able to:

1. Demonstrate advanced knowledge in a breadth of topics in computer science, including theory, systems, and development.

2. Demonstrate mastery in at least one area of specialization in computer science.

3. Demonstrate ability to independently solve advanced problems in academia or industry.

4. Demonstrate ability to learn, use, and adapt emerging developments in the state-of-the-art.

Measurements   This curriculum map shows how each course supports the learning outcomes of MSCS program.

Curriculum Map

Learning Outcome	Required					Special			Selected Electives															
	CS 601	CS 631	CS 652	CS 673	CS 690	CS 695	CS 698	CS 699	CS 615	CS 620	CS 621	CS 625	CS 635	CS 636	CS 640	CS 642	CS 662	CS 675	CS 680	CS 681	CS 682	CS 683	CS 685	CS 686
1. Demonstrate advanced knowledge in a breadth of topics in computer science																								
Advanced knowledge in theory			M	C															C	M				
Advanced knowledge in systems		M							C	M	M	M	C	C					M		M		M	
Advanced knowledge in development	C	M								M	M	M			M	M	M		M	M	M	M	M	M
2. Demonstrate mastery in at least one area of specialization in computer science			M	M	M				M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
3. Demonstrate ability to independently solve advanced problems																								
Solve problems in academia					M		M	M																
Solve problems in industry					M	M																		
4. Demonstrate ability to learn, use, and adapt emerging developments in the state-of-the-art.					M	M	M	M																

I : *Introduced -or- Minimal Coverage*   M : *Moderate Coverage*   C : *Comprehensive Coverage*

Table 1: *Provides a mapping between learning outcomes and the majority of computer science graduate courses.*

The curriculum map can be summarized as follows:

- Core Courses: Students will develop introductory to moderate knowledge for outcome 1. Some core courses will also provide introductory knowledge in the other outcomes.

- Elective Courses: Students will demonstrate introductory through comprehensive knowledge for outcome 2.

- Some electives will also provide moderate knowledge in the other outcomes.

- Special Electives: Students will demonstrate comprehensive knowledge for outcome 3. Some electives will also provide moderate knowledge for outcome 4.

- Project Course: Students will demonstrate moderate knowledge for outcomes 3 and 4.

Similarly to the undergraduate program, we currently do not have a formal means beyond course grades to assess if our students are achieving these learning outcomes. An open question is how to introduce formal assessment in a manageable fashion. Anecdotal evidence suggests that we are doing a good job with respect to these outcomes. Here are the quotes from the recent alumni with their graduation years.

- Every project that I did over the past two years was challenging and valuable. The experience here has changed my life. (2014)

- The program is highly underrated and I think it definitely needs to be out there with some of the best schools for computer science. I was blessed with a wonderful learning experience. (2014)

- USF is a great place to study. All instructors are genuinely interested in your education and success and they all have relevant real-world experience in the topics they teach. (2013)

- I had direct access to my professors who happily answered any questions inside and outside the class... One of the best parts of USF's Computer Science program is that hands-on experience you get building applications [in classes] are actually real-world... All of these experiences filled my resume and put me a good deal ahead of any other applicants. (2012)

4   Undergraduate Curriculum

4.1   Undergraduate Degree Programs

The department offers a Bachelor of Science in Computer Science (BSCS) degree and a minor in Computer Science. The department also supports the Bachelor of Science in Data Science Degree, with roughly one-third to one-half (depending on the concentration) of required BSDS courses offered by the Computer Science department. In addition, the Mathematics department allows CS 110 to fulfill one of their required courses and the Physics department recently added CS 110 to their curriculum as well. Finally, the Advertising program requires up to eight units of Computer Science, primarily our CORE and non-major courses, for students on the technical track.

4.2 Distinguishing Features

Our program has several unique features:

- **Lecture/Lab Format:** All of our early classes are taught in an interactive lecture/lab format where students get an introduction to a topic then have an opportunity to practice the topic during an in-class assignment, assisted by the professor and teaching assistants. This intermixing of lecture with hands-on work allows students to learn conceptually difficult topics more quickly. This has been especially helpful with the use of Python in the introductory classes, where students can get straight to implementing complex topics without too much syntax getting in the way.

- **Early Parallel Class:** We require a parallel class quite early in the program, at the beginning of the Sophomore year. Writing parallel code requires a different kind of thinking from sequential coding, and the earlier students are exposed to parallel topics the deeper their knowledge by the time they graduate. This course has already reaped rewards in terms of student performance in the operating systems class.

- **Project-based Learning:** We place significant emphasis on hands-on learning and most of our classes require students to implement one or more large, often realistic programming projects. This allows us to teach concepts in context, using the project as a motivation rather than introducing topics from a theoretical perspective, which can lose the attention of our student population. Where possible, faculty require use of modern tools and infrastructure, such as github and Amazon Web Services. Finally, some faculty employ a mastery learning approach, requiring students to revise and resubmit code with an emphasis on quality. This gives students more realistic experience with software development.

- **Capstone Project/Research Opportunities:** All students are required to complete a capstone project where students either work with an industry sponsor or faculty member. Students working with industry sponsors get a complete picture of how software development is done in a real-world setting while students opting to work with faculty members get an opportunity to work on a research project. Our top students often work with faculty on multi-semester research projects. Below are a few examples of recent projects:

  Kinect Physical Therapy, Sponsor - David Galles: In this project, students are working on the system that uses Microsoft Kinect to track the movements of a patient who is doing physical therapy exercises, and provides live feedback to the user as to how well they are doing the exercises. The patient's movements are compared with the physician's recorded movements, and the mistakes are highlighted in the corresponding skeletal model.

  Real Time Beacon-based Location Tracking and Visualization, Sponsor - Kinetech Arts: The goal of this project is to track the positions of people inside a building using Estimote beacons and users' smartphones, as well as create a visualization of this data. Such a system can be used to show the areas of high traffic during an exhibit or a conference, or help firemen rescue people when a building is on fire.

4.3   BSCS Major

The Computer Science major is a total of 48 units—10 Computer Science courses and two Mathematics courses. In addition, we require students to take a rigorous laboratory science course, where rigorous is defined as a course that serves as the introductory course for the majors in the field. Practically, this means that students must either take Biology 105 - General Biology I, Chemistry 111 - General Chemistry I, or Physics 110 - General Physics I. All required courses are four units and meet the University's policy on credits.

   All courses must be passed with a grade of C or better, and we recently approved a change to the major that will limit the number of courses that may be repeated to two. Previously, there was no restriction on the number of courses that could be repeated.

4.4   BSCS Minor

The minor requires five computer science courses: CS 110, CS 112, and three additional courses from the following list:

- Math 201 Discrete Mathematics OR Math 235 Introduction to Formal Methods OR CS 107 Computing, Mobile Apps and the Web

- CS 212 Software Development

- CS 220 Introduction to Parallel Programming OR CS 221 C and Systems Programming

- CS 245 Data Structures and Algorithms

- ART 385 Interaction Design

- Any 4-unit Computer Science course at the 300-level or higher

4.5   Required Computer Science Courses

Our existing curriculum is the result of extensive work by a departmental curriculum committee following our last program review. Our curriculum offers a one-year programming foundations sequence beginning in Python then transitioning to Java in the second semester. In the second year, a student takes introductory courses in three categories: *theory and languages*, *systems*, and *applications*. In the third and fourth years, a student gains depth in each category by taking advanced courses in each area, and must also complete a capstone project.

CS 110	Introduction to Computer Science I
4 Units	Taught in Python, CS 110 covers basic programming concepts including functions, parameter passing, data types, iterative and recursive processes, conditional control, and input/output. No Computer Science or programming background is required for this course. Majors, minors, and non-majors take this course—over half of the students who take this course are not CS majors.

CS 112

4 Units

Introduction to Computer Science II

CS 112 is the second course in our two-semester introductory sequence. Rather than introducing data structures in the second semester, we provide a gentler introduction to the field, which serves our student population well. In the second semester, we introduce Java and reiterate many of the CS 110 concepts using the new syntax. The course focuses on design and development of a significantly sized piece of software, and introduces object-oriented design. The course also provides an introduction to algorithm analysis and basic data structures, including linked lists.

CS 220 *or*
CS 221

4 Units

Introduction to Parallel Computing *or*
C and Systems Programming

Students must take an *introductory systems* course in the second year. The meta-goal of this course is to introduce students to basic systems concepts and prepare them for operating systems. More specifically, this requirement introduces students to (1) the C language and (2) concurrency and multi-threaded programming. We offer CS 220 most often; CS 221 is being offered only for the second time in Fall 2015.

CS 245

4 Units

Data Structures and Algorithms

Considered our *linchpin* course, CS 245 provides rigorous coverage of data structures and algorithms topics including algorithm analysis, algorithm design and implementation details, algorithms for searching and sorting, trees, graphs, and other selected topics. In addition, the course emphasizes implementation in Java, giving students significant experience with independent programming.

CS 212

4 Units

Software Development

Originally designed as a second-year course to emphasize programming maturity in preparation for upper-division, programming-heavy courses, CS 212 is an advanced Java course emphasizing software development principles. Typically taught with an emphasis on backend web development, many faculty who teach this course employ a mastery learning approach whereby all projects undergo rigorous code review in a one-on-one meeting with the instructor.

CS 315

4 Units

Computer Architecture

Though there is some variation in how this course is structured, it is typically taught in a fairly traditional manner. In some instances, students build a complete pipeline processor, from basic logic gates, which implements a subset of the MIPS instruction set architecture.

CS 326

4 Units

Operating Systems

Considered the most challenging course in the curriculum, it covers the design and implementation of operating systems. Student study processes, threads, scheduling, synchronization, interprocess communication, device drivers, memory management, and file systems. Students complete substantial programming projects, in C, in this course.

Theory

CS 411 *or*
CS 414 *or*
CS 345

4 Units

Automata Theory
Compilers
Programming Language Paradigms

Students choose one upper-division course in the area of *theory and languages*. Automata Theory has three major goals: teaching students how to think formally and prove statements about computation; giving students experience using different kinds of computational formalisms; and understanding NP-Completeness. In Compilers, students implement a compiler that compiles a subset of Java to MIPS. Programming Language Paradigms, offered less regularly than the other two options, covers syntax, semantics, concepts, capabilities, and implementation of several programming languages, including imperative, functional, object-oriented, and logical languages.

Applications

Elective

Any 300- or 400-level course excluding directed study. 4 Units	Students choose one upper-division course in an applications area. This requirement is largely an elective computer science course and is designed to give students some depth in an application area of computer science. We offer a variety of other courses that meet this requirement, including the following: Data Mining, Data Visualization, Computer Networks, Game Engineering, Computers and Society: Privacy, Security, and Ethics, Computer Graphics, Database Systems. Special topics courses may also be introduced. We especially encourage new faculty to develop courses in their areas of interest. Students may not use directed study credit to meet this requirement, however the courses in the Theory and Languages category may be used to fulfill this requirement. In that case, a student takes one theory/languages course for the theory requirement and one theory/languages course for the applications requirement (i.e., double dipping is not allowed).
CS 490 4 Units	**Senior Team Project** In this course, students work in teams of two or three to specify, design, implement, test, document, and present a significant software project that is sponsored by a faculty member or industry partner. Written and verbal communication is emphasized through frequent documentation submissions, informal group discussions, code walkthroughs, and student presentations. Students are frequently offered internships or full-time positions by their industry sponsors.

4.6   Prerequisite Structure
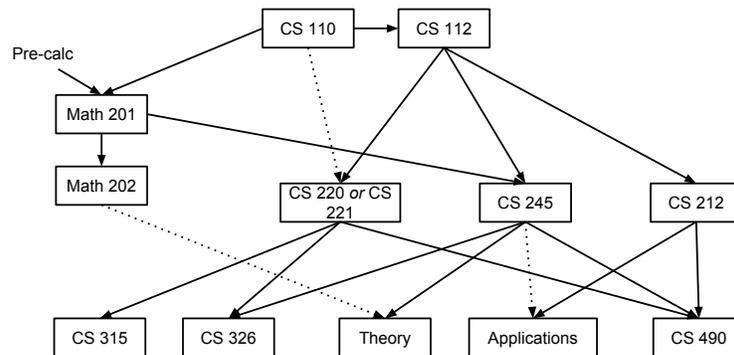
Figure 1: *Prerequisite Chart*

Figure 1 illustrates the prerequisite chain for our courses. If a student receives a grade of B or better in CS 110 she may take CS 220/221 before completing CS 112. This is especially helpful for students beginning the major a semester late. Math 202 must be taken before the Theory and Languages course if a student chooses CS 411. Most, but not all, Applications courses require CS 245 as a prerequisite. CS 490 may only be taken by students with senior standing.

4.7   Service Courses

The computer science department also offers the following service courses:

CS 107 - Computing, Mobile Apps and the Web

- This extremely popular course for non-computer science majors is typically taught by David Wolber, who is a leader in teaching beginners to learn coding by programming phones and tablets using the visual language App Inventor. His appinventor.org site has helped over 1.5 million new app creators, and his course-in-a-box materials have served as a template for numerous App Inventor courses at the K-12 and university levels. This course is required by one track of the advertising major, and also meetings the university's CORE Math and Computational Thinking requirement. Many students who end up in CS 110 would likely be better served by CS 107. An outstanding question is how to transition to that model.

2-Unit practical computer science courses

- These courses are designed to give non-majors specific, practical skills. They are all 2-unit courses, so that they can be easily added to a student's standard 16-unit schedule to get 18 units, which is the maximum number of units a full-time student can take without an increase in cost. They are typically not taught by regular faculty members, but rather part time staff. In recent years, the Advertising program has added Web Site Design and Development as a required course in one track of their program, and business students regularly take our spreadsheet computing classes.

    - Creating Images: Photoshop I
    - Word Processing
    - Creative Tools: Publishing I
    - Spreadsheet Computing I
    - Database Computing I
    - Web Site Design & Development I
    - Web Site Design & Development II
    - Presentations with Powerpoint
    - Animations with Flash

4.8   Scheduling

Our rotation of undergraduate courses for 2014/2015 was as follows:

Fall	Spring
CS 107 (non-majors) – 2 sections	CS 107 (non-majors) – 2 sections
CS 110 – 5 sections	CS 110 – 2 sections
CS 112 – 1 section	CS 112 – 3 sections
CS 212 – 1 section	CS 212 – 1 section
CS 490 – 1 section (cross listed w/ 690)	CS 490 – 1 section
CS 220/221 – 2 sections	CS 245 – 2 sections
CS 326 – 1 section	CS 315 – 2 sections
CS 411 (Theory) – 1 section	CS 414 (Theory) – 1 section
Game Engineering (Applications) – 1 section	Database Systems (Applications) – 1 section

Though this is somewhat representative of our rotation over the past couple of years, there are several factors have that have and will continue to influence our course offerings.

- **Growth:** - In 2014 we offered five sections of CS 110, up from only three sections the previous fall. Similarly, we have had to increase the number of sections of even our upper-division courses over the past two years. Contributing to this is the increasing number of majors that require or encourage CS 110.

- **Graduate program revisions:** Prior to 2014 we often had graduate students take our upper-division undergraduate courses and many courses were cross-listed graduate and undergraduate. Beginning in 2014, we have separated the graduate and undergraduate programs both because of growth as well as to increase quality in our graduate program.

- **Data Science major:** The data science major places an increased burden on our elective courses. In order to service BSDS students, we must offer Data Visualization, Data Mining, and Database Systems on a regular rotation, ideally once per year. This restricts the number of other elective courses, such as the extremely popular Game Engineering course, that we are able to offer because of staffing restrictions.

- **Student quality:** With an increase in our number of students we have seen an increase in the number of students who must repeat courses. We also have a significantly increased number of transfer students who are often difficult to place and not prepared for our second- or third-year courses. As staffing permits, we would like to transition to a model wherein courses that require two sections per year are offered one section per semester rather than two in fall or two in spring. This provides students with more flexibility to repeat courses.

In general, our priority is to meet the needs of our majors first, then support core courses and other departments. Until recently we have been able to comfortably support all areas, however our growth has introduced significant strain and we hope the reviewers will be able to provide some feedback on how to achieve balance with our limited staffing resources.
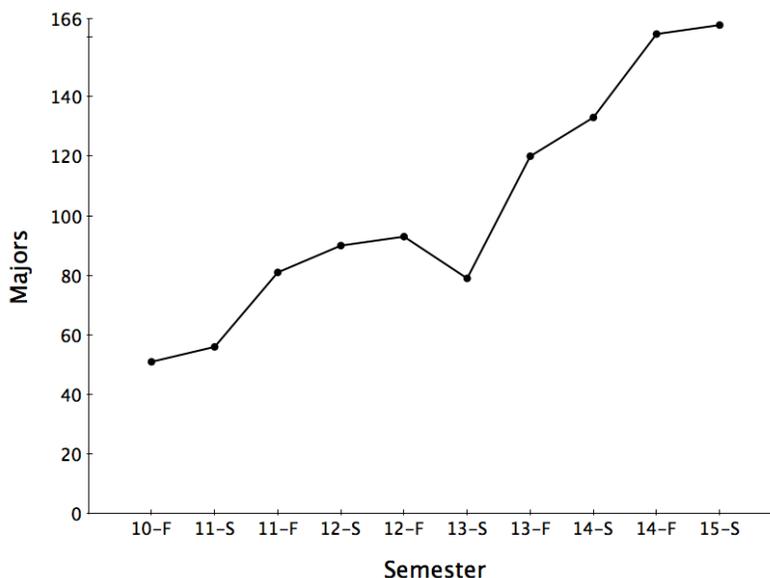
Figure 2: *Majors per Semester*

4.9 Enrollments

AY	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015
SCHs	2364	2917	3148	3544	4109

Consistent with national trends, our enrollments have skyrocketed over the past five years. The number of student contact hours (SCHs) in our major courses increased from 2,364 in 2010-2011 to 4,109 in 2014-2015. The number of declared CS majors increased from 51 in fall 2010 to 161 in fall 2014 while the number of students receiving BSCS degrees increased from 7 to 17 over five years (see Figures 2 and 3). Similarly, the number of declared CS minors increased from 13 to 31 over the same time period. Though it is impossible to predict future enrollments, we anticipate interest in computer will continue to grow.

AY	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015
Minors Awarded	2	6	4	3	7
All Minors Spring	13	12	12	21	31

Our class size is limited by the number of seats in our classrooms, with 30 as the maximum. We have overenrolled a few of our lower-division classes in recent semesters, up to 36 students, however we believe that to be much too large. Our first- and second-year classes are now consistently at 25 students or larger, and even our upper-division courses are regularly over 25.

We do believe this to be too large to meet the needs of our students. Many of our classes are highly interactive as described above, and it becomes difficult to encourage
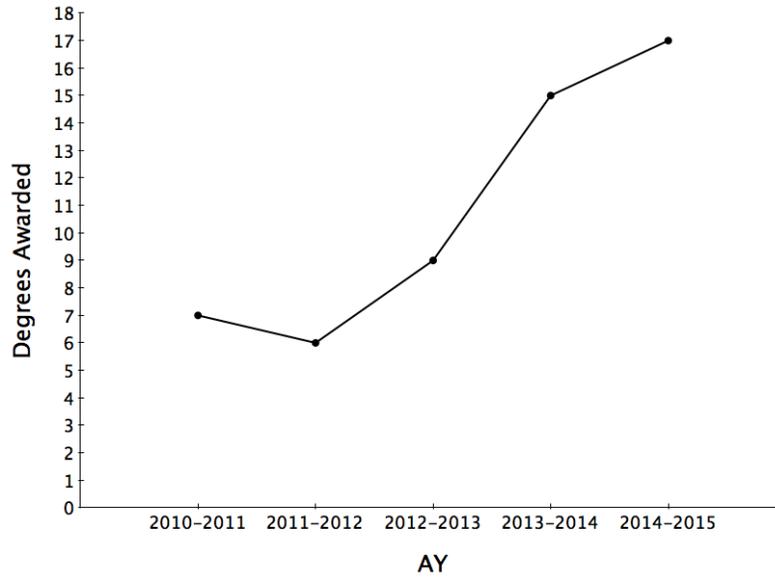
Figure 3: *Degrees Awarded*

student participation when class size exceeds 20.

Despite our growth, we have not had trouble ensuring that students who stay on track satisfy their graduation requirements in a timely manner. Our major is designed to be completed in three years, therefore students who begin in the freshman year have no trouble. Transfer students and those who start late often have to be very careful to stay on track, and the instances of students staying past five years are the result of students failing courses.
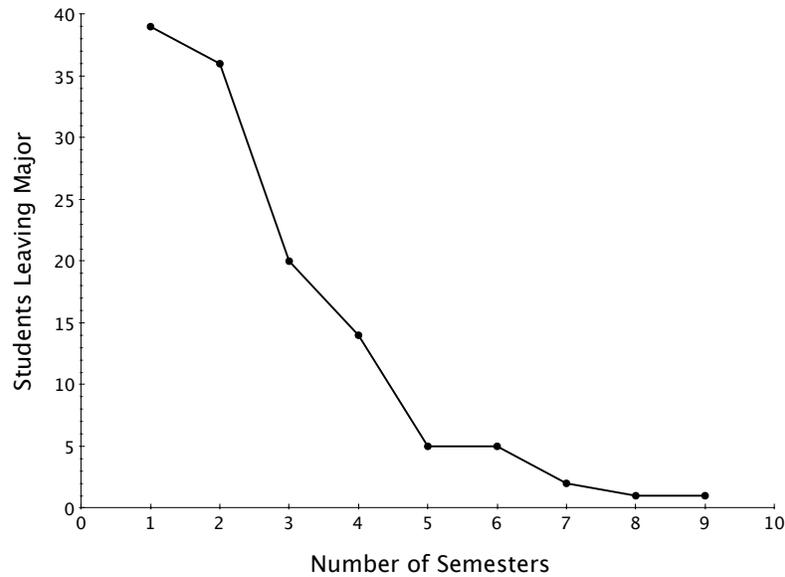
Figure 4: *Students Leaving the Major*

There are a significant number of students who leave the major. Of the 329 students

who have declared a CS major since Fall 2010, 123 of those students have left the major or university. We are not surprised that students, freshmen in particular, begin in our introductory sequence and decide to switch to another major. Figure 4 shows the number of semesters a student stays in the major, for example a total 39 students left the major after one semester over the past five years. We lose a number of students in the first year, significantly fewer in the second year, and very few once they make it through four semesters in the major. Note, however, that this is only the number of semesters that a student has been a computer science major, which does not necessarily reflect the number of computer science courses a student has taken.

We do not think this is a direct reflection on our program, but influenced by a number of factors including misconceptions students may have about computing. Most students who begin our program have never taken a computer science course. They (or their parents) see computing as a path to a lucrative career, however because students have limited exposure to computing in high school they do not necessarily understand what a major in computer science entails.

4.10   Admission

There is no special admission procedure for the computer science major. Any student admitted to the university is welcome to major in computer science.

Transfer students consult with the chair regarding transfer of courses. Students must provide syllabi for any course they wish to count toward their major requirements. The chair, in consultation with the faculty member(s) who teach the equivalent course at USF, determines whether to request a subsitution.

4.11   Advising

All freshman and sophomore students are required to see their advisor every semester before registering for courses. In their first meeting, the advisor and student work out a complete schedule of courses that will ensure timely graduation. In subsequent advising sessions, the advisor monitors the student's progress towards graduation, making sure that they stay on track. While advising for most students is straightforward and advising appointments tend to be short, the regular contact with the advisor helps build more personal relationships. Regular advising also helps to identify problems early, so that they can be solved before becoming insurmountable.

A few years ago, the department decided to no longer require one-on-one advising for juniors and seniors as upper-class students generally have a course plan in place. Students are encouraged, however, to meet with advisors and often do. In addition, the department regularly holds group informational sessions on career and professional topics such as preparing a resume and preparing for technical job interviews. The senior team project and Master's project courses also offer content in these areas and often open relevant sessions to all students, not just those registered for the courses.

In addition, each semester the chair and department program assistant perform an audit, flagging all students who are in classes for which they do not have all of the required prerequisites. The chair communicates this information both to the students and faculty of the courses.

5   Graduate Curriculum

5.1   Graduate Programs

The department offers a single 36 unit Masters of Science in Computer Science (MSCS) degree that may be completed full-time in 2 years.

5.2   Distinguishing Features

Our graduate program has several unique features:

- **Location:** Our location in the heart of San Francisco enhances the student experience in several ways. The SF Bay Area and Silicon Valley has a vibrant tech meetup community, and hosts various contests and hackathons. Our department is able to partner with several local tech companies and startups in our capstone projects course, and students are often able to find internships with these companies.

- **Partial Cohort Model:** We follow a cohort model in the first year; all students take the same set of core courses at the same time. However, the second year students may pick and choose electives. This model allows for a balance between streamlined requirements, student community, and flexibility.

- **Small Class Sizes:** Each cohort will be 30 or fewer students. This allows for close interaction between students and faculty. In particular, this allows our faculty to be a better resource for students in this fast-paced field.

- **Project-based Learning:**   Our graduate program takes a similar hands-on approach as our undergraduate degree. Most of our graduate courses involve realistic large-scale software development projects, and require the use of modern tools and infrastructure.

- **Industry Experience:**   Students that want to work immediately after graduation have several opportunities to boost their industry experience. For example, students can choose the practicum option to earn degree credit for software development internships. And, students can choose to work with an industry sponsor in the capstone projects course.

- **Research Experience:**   Students that wish to continue their studies in a PhD program elsewhere have several opportunities to boost their research experience. For example, students can participate in the research seminar, work on a research project with a faculty member using the directed reading and research course, apply for research assistant positions, and can choose to work with a faculty sponsor on a research project in the capstone projects course.

5.3   Curriculum

The Masters of Science in Computer Science (MSCS) degree is a 36 units and requires 2 years of full-time study. Students who graduate with a MSCS degree will be able to:

1. Demonstrate advanced knowledge in a breadth of topics in computer science, including theory, systems, and development.

2. Demonstrate mastery in at least one area of specialization in computer science.

3. Demonstrate ability to independently solve advanced problems in academia or industry.

4. Demonstrate ability to learn, use, and adapt emerging developments in the state-of-the-art.

The program follows a cohort model during the first year; all students take the same set of 4 core courses (16 units total). These courses provide a breadth of topics (outcome 1), including theory systems and development. All students must also take 4-unit capstone project course during their second year. For details, see Table 3.

Finally, students must choose 16 units of 600-level graduate electives during their second year. The systems-oriented graduate electives require a B or above in CS 631, theory-oriented graduate electives require a B or above in CS 673, and development-oriented graduate electives require a B or above in CS 652. For a full listing of electives, please see our website.

For graduate elective units, no more than 4 units may come from 690 to 699 level elective courses. See Table 4 for details on these special electives.

5.4   Recent Changes

Prior to Fall 2014, we offered a more flexible Masters of Science in Computer Science degree, a Masters of Science in Web Science degree. We also had 4 + 1, Bridge, and Emphasis in Entrepreneurship options for both degrees. At the time, this allowed us to tailor our program to student needs and increase enrollment. However, this complexity became unsustainable.

Under the old requirements, graduate students in the Bridge program took several of our undergraduate courses to finish their degree. Graduate students were also allowed to use undergraduate courses towards their elective requirements. As our undergraduate program grew, courses had less and less space to accommodate these graduate students.

Given these challenges, all faculty were invited to a series of meetings to draft new requirements for the MSCS program. These meetings started in September 2013. Professors Engle and Rollins drafted a proposal based on those meetings, which were sent to all faculty via email on March 2013. Faculty were given an additional week to review and comment on those requirements before they were sent to the curriculum committee for final approval. The new requirements maintain quality, reduce complexity, and relieve pressure on our undergraduate courses.

As a part of this process, we also discontinued the Masters of Science in Web Science degree and Emphasis in Entrepreneurship option, and paused the 4 + 1 and Bridge options. We also only admit students during the Fall term now, as a result of moving to a cohort model for the core courses.

5.5   Scheduling

Our planned rotation once all students are on our new requirements is given in Table 5. The graduate electives offered each semester may be cross-listed with undergraduate

CS 601 4 Units	**Principles of Software Development** Study of software development. Software engineering principles and structured methods are discussed as a prelude to the focus on object-oriented approaches. All phases of the software lifecycle are covered, including analysis, design, implementation and testing, and maintenance. Other topics include user interface design and development, software reuse and the design of reusable software components, software patterns, and web-based client-server programming. Prerequisites: None
CS 673 4 Units	**Algorithms** Algorithm analysis and asymptotic running time estimates. Expected running times and amortized analysis. Design techniques, including divide and conquer, greedy, and dynamic programming. Algorithms for searching and sorting, graphs, and advanced topics. Prerequisites: None
CS 631 4 Units	**Systems Foundations** Study of the foundations of computer systems and the hardware/software interface. Topics span the design, implementation, and programming of processor architectures, networks, and operating systems. Computer architecture topics include instruction set design, cache design, hardware virtual memory, and virtualization. Network topics include network interfaces, protocol design, and network programming. Operating system topics include kernel design, the system call interface, resource management, software virtual memory, and file systems. Project Required • Prerequisites: CS 601
CS 652 4 Units	**Programming Languages** Study of the design and implementation of software development languages. Topics chosen from: syntax, semantics, translation, run-time systems, advanced programming techniques, and debugging. Language families to be chosen include: functional, logic, visual, formal specification, design, pattern, database, and concurrent. Project Required • Prerequisites: CS 601
CS 690 4 Units	**Master's Project** At the discretion of the instructor, the project will be either a sponsored project for a commercial concern or other institution or a research project. In either case, the project will result in the specification, design, and development of a significant software system with full documentation, an oral presentation to the university community, and a written report. Project Required • Prerequisites: CS 652

Table 3: *Core Courses and Project Requirement for the MSCS Program*

CS 694	**Research Seminar in CS**
1 Unit	Exploration of research topics in Computer Science. Students will read academic papers, independently learn tools and technologies related to the area, present research findings, lead tutorials on relevant tools, and participate in group discussion.
	Prerequisites: None
CS 695	**Practicum Study**
2 Units	Participation in a supervised work program where students apply USF coursework knowledge in a practical setting. Work is supervised by a USF faculty member and a corporate sponsor.
	Prerequisites: CS 652, Advisor Approval, Good Academic Standing
CS 698	**Directed Reading and Research**
1–4 Units	Faculty-supervised directed study of a specific topic. Requires written approval of the instructor, advisor, and dean.
	Prerequisites: CS 652, Advisor Approval, Good Academic Standing
CS 699	**Master's Thesis**
4 Units	The thesis is not required and is reserved for exceptional students.
	Prerequisites: CS 652, Advisor Approval, Good Academic Standing

Table 4: Special Graduate Electives

Fall	Spring	Summer
CS 601 (Core)	CS 631 (Core)	
CS 673 (Core)	CS 652 (Core)	
CS 690 (Project)	CS 6XX (Elective)	
CS 6XX (Elective)	CS 6XX (Elective)	
CS 6XX (Elective)	CS 6XX (Elective)	
CS 694 (Seminar)	CS 694 (Seminar)	
CS 695 (Practicum)	CS 695 (Practicum)	CS 695 (Practicum)
CS 698 (Research)	CS 698 (Research)	CS 698 (Research)

Table 5: Graduate Course Rotation

courses if necessary. The special graduate courses vary from 1 to 4 units, and may or may not count towards teaching load depending on the situation.

The course schedule from previous years are not representative. The 2014–2015 academic year was a transition year to our current requirements, and previous years met the needs of our old requirements and programs.

5.6 Enrollments

Year	SCH	Total Students		Total Degrees	
		MSCS	MSWS	MSCS	MSWS
2010–2011	790	43	19	9	8
2011–2012	877	40	12	28	6
2012–2013	647	36	14	12	4
2013–2014	1052	52	11	18	4
2014–2015	1007	48	2	33	3

Historic enrollments are a complex to track due to the complexity of our pre-2014 programs. Specifically:

- We have several cross-listed undergraduate/graduate courses, and many graduate students in undergraduate courses. The graduate director and advisor also traditionally received course release to handle advising and admissions. These factors may affect the SCH numbers above.

- Graduate students in the program could be in the MSCS, MSWS, MSCS Bridge, MSWS Bridge, MSCS 4 + 1, or MSWS 4 + 1 programs. Furthermore, not all students with foundational requirements were formally placed in the Bridge program and some students had visiting student status to take foundational courses before being formally admitted. This may affect the total number of students listed for the MSCS and MSWS programs.

- We allow domestic students to take courses part-time. These students switch between full-time and part-time status throughout their program. The time-to-completion for these and Bridge students could be anywhere between 2 to 4 years. This, and the number of special programs we had, may affect the number of total degrees awarded.

Scheduling and predicting enrollment in courses is now simplified with our new program. We target approximately 25 students per cohort, and aim for core courses with 25 students per course and elective courses with 15 to 25 students per course.

5.7 Admission

Academic Year	Completed	Admitted	Enrolled
2012–2013	218	120	26
2013–2014	221	114	42
2014–2015	283	57	24
2015–2016	245	70	23

Admissions is primarily handled by the graduate director, but other faculty occasionally help review applications and interview applicants. The director handles reviewing applications, entering admission decisions and scholarship amounts, creating offer letters, contacting applicants, and tracking deposits. The CS program assistant helps deliver those offer letters and mailing addresses to the graduate office, and starting folders for admitted students.

Two years ago, we began sending a soft offer to applicants via email and only admitting those students that accepted the soft offer. This resulted in fewer admitted applications, but similar numbers of enrolled students. Last year, we also began interviewing applicants via Skype that completed applications early.

5.8   Advising

The director and advisor roles are handled by the same person; the graduate director advises all graduate students. Other faculty occasionally provide additional support as needed.

In the past, advising was complicated due to the number of different programs and options we offered, as well as the fact that many students had separate foundational requirements that had to be tracked internally in the department. We also had to approve and track several one-time substitutions for students to allow them to graduate on-time.

With our current streamlined requirements and partial cohort model, selecting courses has been significantly simplified. Students must take core courses when they are offered, and only need to decide on their electives during their second academic year. We no longer need to track foundational requirements, and special cases are now rare.

An orientation is held once a year for incoming students. For continuing students, mass advising is held once a semester and one-on-one advising is available for special cases. Graduate students are also welcome to stop by office hours or setup an appointment for advising throughout the semester.

We maintain a mailing list of all undergraduate and graduate students, and use this mailing list to advertise social events, workshops, and open positions. All graduate students are also added to an internal Canvas course where program-specific announcements are posted.

6   Faculty

6.1   Demographics

The department has nine permanent, tenured or tenure-track faculty, not including Chris Brooks who has been in the Dean's office since 2010. In 2015, we'll also have two full-time teaching (term) faculty members. A search is scheduled this year to add two more tenure-track faculty.

The permanent faculty includes three women. Six of the nine are of Caucasian descent, three are of mixed or Asian descent.

6.2 Teaching

6.2.1 Scheduling

The faculty has the breadth and expertise to cover the primary sub-disciplines within Computer Science. Historically, this has provided coverage for the courses in our curriculum. The challenge in the past few years has been to keep up with the incredible growth in Computer Science student population as multiple sections are now needed for most courses.

The department chair, Sami Rollins, designs the schedule based on our curriculum and how best to meet the student's needs in terms of fulfilling the requirements in a timely manner. In terms of faculty scheduling of these courses, she asks each faculty to send their wishes each semester, then asks for feedback on each iteration of the schedule. For the most part, faculty are able to teach the courses they want and typically enjoy the courses they teach.

The one exception to this involves the MS in Analytics programs (MSAN). Faculty, for the most part, would rather teach CS courses, as the MSAN serves a different type of student, on a different campus, and with a different schedule (e.g., 8 week courses). Besides logistics, faculty have had less than positive experiences teaching MSAN courses.

The MSAN program requires 30 teaching units per semester in CS-related topics, so scheduling faculty for these courses is a challenge. The challenge has been met through CS faculty volunteering to teach overloads and through the hiring of adjuncts and terms to cover the CS courses when CS faculty instead teach in MSAN. The MSAN needs have exacerbated the already difficult challenge of finding faculty to cover the additional sections now needed because of the dramatic growth in the CS department.

There is also a new undergraduate program in Data Science. The Data Science students take CS undergraduate courses which further impact our enrollments. The CS-track Data Science students are required to take particular undergraduate courses which may restrict the CS electives that we can offer.

Because of open communication, willing faculty, and the hard work of the chair, the scheduling challenges have been met and there have not been faculty who have expressed wishes to teach other courses than the ones they've agreed to, nor have any expressed a desire to teach a course differently.

There is a system for experimental course development—CS 386, 486 and 686 are special topics courses that can be scheduled. Because of growth and the need to cover multiple sections of standard courses, there has been few such courses in recent years. However, innovation within courses is encouraged.

6.2.2 Monitoring Teaching Effectiveness

The department monitors overall teaching effectiveness through discussions in department meetings and informal meetings. Junior and adjunct faculty often invite others to visit their courses, informally, and offer feedback. This is not required, however.

Each full-time faculty member also meets with the Dean or Associate Dean each year for an Academic Career Prospectus (ACP), at which time they discuss their teaching as well as their research and service.

All faculty members receive student evaluations of their courses each semester. Full-

time faculty discuss evaluations with the Dean or Associate Dean and the yearly ACP. Adjunct faculty may discuss evaluations with the chair of the department to monitor teaching effectiveness, however CS relies little on adjuncts to teach major courses.

6.2.3 Innovative Teaching

Many faculty members use innovative teaching methods in their classes, some of which have been reported in published research papers. Such methods are promoted by USF's Center for Teaching Excellence (CTE), and faculty-run organization which facilitates sharing of methods and faculty visiting each others class rooms.

- Alark Joshi uses the team-based learning pedagogy which relies on students preparing before the class and using class time for peer learning and addressing challenging concepts. David Wolber is another strong proponent of group work and interactivity in class. Alark is also on the Steering Committee of the Center for Teaching Excellence.

- Greg Benson has long used interactive grading in his Operating Systems course, sitting with each student or team and reviewing the code and the assignment. This technique has also been incorporated into Professor Engle's software development course.

- Professors Engle and Rollins use innovative mastery learning and expert code review in the software development course and have published a paper on the topic in the Journal of Computing Sciences in Colleges. One form of mastery learning is a technique called "code camp" in which students can earn a portion of lost quiz/midterm points by coming to office hours and working out problems with other students. Professor Wolber has incorporated this idea into his courses as well.

- Professor Jung teaches CS 480 Computers and Society, a service-Learning course where students use their computer knowledge to make a difference in Bay Area communities. The students learn the basics of security and privacy such as password authentication and packet sniffing, and do an individual project that helps non-computer experts in the community.

- Professor Wolber's non-major course, based on creative app building and the App Inventor visual language, is used as a model for K-12 and university CS0 courses.

- Peter Pacheco designed and teaches a lower-division Parallel Computing course, providing students with early and uncommon exposure. The second version of his book on the subject will appear in 2016. He has also been working with Professor Uminsky of the math department and students in Physics and CS (and, until recently staff at LLNL) on the development of scalable codes for the simulation of fluid flow. He has also worked with Professor Uminsky and a CS student on codes for parallel graph partitioning, and Professor Devlin of the math department on the development of graph codes for simulating social interactions.

- Professor Rollins uses innovative methods in her Wireless Sensor network course and has published a SIGCSE paper on the course.

6.2.4   Teaching Outside the Classroom

The department is active in involving students with educational experience outside of the classroom. Opportunities for students include guided real-world development projects, research projects and community teaching:

- Professor Benson involves many students in independent study work on real world projects, including projects from his industry work at SnapLogic.

- Professor Wolber involves many students with independent study work on the MIT App Inventor project (Java-based open source software development) and his appinventor.org on-line education site (web development and curriculum building).

- Professor Rollins involves many students in her Green Homes research project.

- Professors Joshi and Jung involve students in CS teaching activities including curriculum development and delivery of the CS4SF grant-funded summer workshops for girls.

- Professors Wolber and Joshi involve students in teaching at local schools and organizations including with the Google CS4HS grant-funded project.

- Professors Rollins, Engle, and Joshi started a research seminar to involve students in weekly discussions with faculty.

- Professors Joshi and Engle started the Data Visualization speaker series.

6.2.5   Courses Taught

The table below lists our courses and the faculty who have taught them in recent years.

Course	Faculty
CS 107	Wolber, Joshi, Rollins
CS 110	Joshi, Karpenko, Benson, Wolber, Daltayanni, Galles
CS 112	Joshi, Rollins, Jung, Galles
CS 212	Engle, Karpenko, Rollins
CS 220	Pacheco
CS 221	Benson, Yu
CS 245	Galles, Karpenko, Engle
CS 315	Pacheco, Benson, Segal
CS 326	Benson, Segal
CS 345	Parr, Benson
CS 411	Galles
CS 414	Galles
CS 490	Karpenko, Engle
Undergrad Elective	Jung, Engle, Joshi, Wolber
CS 601	Parr, Rollins
CS 673	Galles
CS 631	Benson
CS 652	Parr
CS 690	Karpenko, Engle
Grad Elective	Benson, Rollins, Joshi, Engle, Parr, Jung

6.3 Research and Scholarly Work

The faculty has a wide variety of research and creative interests. Sami Rollins is active in Energy research, Sophie Engle and Alark Joshi specialize in Data Visualization, Terence Parr works in Programming Languages and Compilers, E.J. Jung works in Security, David Galles works in Therapeutic Games, Peter Pacheco works in Parallel Computing, Greg Benson works in Systems Research, and David Wolber works in CS Education and Visual Languages.

6.3.1 Impact

The department has had a significant impact on computer science education, with several faculty (Rollins, Engle, Wolber, Joshi) publishing papers on innovative techniques in conferences and journals, Professor Pacheco's recent book on teaching parallel computing in the lower division, Professor Wolber's recent books and popular AppInventor.org site on using App Inventor to teach app building as a way to motivate beginners, and Professor Galles' book on Compiler Design and his teaching tool for data structure visualization.

In CS Research, Professor Parr's work on programming language parsers has been influential in terms of conference publications and his books and Antlr tool have had a major practical impact on the field. Professor Rollins GreenHomes work in Energy has resulted in several publications including a best paper award.

Professors Joshi and Engle have had an impact on the field of Data Visualization, with several publications and best paper awards. Professor Engle is also influential in Security, focusing on vulnerability analysis, including creating a theoretical vulnerability analysis

framework, applying this framework to buffer overflows and looking for vulnerabilities in electronic voting machines

Professor Benson area is Systems research and his work includes the design and development of several run-time systems and tools for parallel programming languages and libraries, including a multi-threaded implementation of MPI 1.2 for Linux and River, a rapid prototyping tool for parallel systems. Benson was also instrumental in creating Flashmob Computing and the software tools that enabled the harnessing of 700 volunteer computers in a single day at the USF gym to run HPL (Linpack).

Professor Galles worked many years at Industrial Light and Magic and has recently been involved with UCSF on a project studying how games can be used to improve recovery time for patients.

EJ Jung's CRISP (Communicating Risks in Internet Security and Privacy) Project is an interdisciplinary usable security research project with Prof. Evelyn Ho in Communication Studies. The goal is to find an effective and inclusive way to communicate risks to users at all proficiency levels, from tech-savvy engineers to those who have limited access to computers and the Internet.

The procurement of grant funding is not required for tenure and promotion at USF. The department has had some recent success, including Professor Rollins NSF grant for her Green Homes project, Professor Wolber's NSF and Keck Foundation funding for his work on using app building to teach beginners, and Wolber and Professor Joshi's recent Google CS4HS grant.

6.3.2 Collaboration within the Department

Historically, the department has had a small faculty mostly working in different subfields. However, recent developments show promise for the potential of collaborative work.

Recent hires Joshi and Engle both work in Data Visualization and have recently initiated a joint project as well as a speaker series on the subject.

In CS education, Professors Rollins and Engle recently published a journal paper on Mastery Learning. Professors Joshi and Wolber recently were awarded a Google grant for training and assisting high school teachers in Computer Science Principles (CSP), and they have a pending NSF proposal.

Professor Rollins, Joshi, and Engle have also initiated a research seminar to encourage faculty collaboration.

6.3.3 Faculty Expectations

The expectations for faculty are spelled out in USF's Collective Bargaining Agreement, which weighs teaching, research, and service equally. USF's mission, its dedication to educating hearts as well as minds, and its dedication to public service is a clear theme within these expectations.

6.4 Service

The department is dedicated to service activities within the department, college, and university, as well as within the community and the research community. These activities are spelled out in the CVs of each faculty member.

6.4.1   Connections with the Research Community

Professor Engle and Professor Joshi have made great connections with the community through the Data Visualization Speaker Series. The Speaker Series has brought world-renowned speakers to campus, including Dan Hubbard, Cole Nussbaumer, Andy Kirk, Anita Lillie, and Reza Ali.Professor Engle has also connected with the community through her service at International Conferences.

Professor Engle has also served as Publication Chair (2013,2015) and Program Chair (2014) at the Symposium on Visualization for Cyber Security (VizSec), Poster Chair (2013-2015) at the IEEE Symposium on Security and Privacy (IEEE S&P), and Local Chair at the New Security Paradigms Workshop (NSPW) in 2011, and also served on four other program committees from 2010-2015.

Professor Rollins has served on the board of Networking Networking Women (N2Women), an organization of over 600 women in the field of computer networking. She served as the fellowship co-chair for two years, and was the co-chair of the N2Women Workshop co-located with SIGCOMM in 2014.

Professor Rollins is also on the editorial board of Get Mobile, formerly Mobile Computing and Communications Review. She co-edits a column that explores mobile computing in education.

6.4.2   Connections with the Community

Data Visualization Speaker Series   Professors Engle and Joshi, along with Professor Murray (Art + Architecture), started the Data Visualization Speaker Series in 2014. The speaker series draws between 100-150 external attendees to USF each semester. There is also seen significant attendance from USF students and interactions between our students and industry practitioners.

Promoting CS in K-12   Professors Joshi and Wolber are active in working with K-12 teachers in the Bay Area. They received a Google CS4HS grant ($30,000) to teach a summer 2015 workshop to twenty teachers and create a community of practice with the teachers throughout the school year, including sending USF students out to schools to assist the high school teachers during the school year. This grant and program is a formalization of previous ad-hoc collaborations with schools and organizations over the past years.

From 2010-2014, Professor Jung directed the CS4SF Youth Camp, a week-long summer camp for middle-school girls and particularly those from diverse populations of San Francisco. In 2015, Alark Joshi took over the program and the program received a $20,000 grant from AT&T.

College-Level Teacher Workshops   Professor Wolber has led numerous SIGCSE teacher workshops and five week-long summer workshops on App Inventor and teaching mobile programming to beginners, some as part of an NSF group involving MIT, Wellesley, Trinity, and UMass-Lowell. He has also given workshop in Guongzhou, China and Tallinn,

Estonia.

CS 480: Computers and Society Professor Jung's Computers and Society is a Service-Learning course where students use their computer knowledge to make a difference in Bay Area organizations

ACM Programming Contest In the Summer/Fall of 2014, Professor Pacheco organized and administered the Northern California Region of the ACM's International Collegiate Programming Contest.

Video Game Therapy with St. Mary's Medical Center Professor Galles directs a collaboration with Dr. Kevin Caroll, a neuropsychologist from St. Mary's Medical Center, focusing on helping disabled patients stand and walk again with therapeutic video games that build patients' strength and agility.

The games, designed for Microsoft's 3D Kinect camera, allow patients to fly a plane, race a car, and search a tropical island for treasure âĂŤ all without a joystick. Physicians and therapists can modify the games to require patients to control the action by leaning, bending, jumping, and lifting their legs âĂŤ depending on each patients' needs and ability.

AppInventor.org Wolber's appinventor.org site reaches thousands both in the educational community as well as the developer/hobbyist community and in particular beginners seeking to learn programming and app building.

6.4.3 Connections with Industry

Professor Benson currently serves as Chief Scientist at SnapLogic, Inc., a cloud and big data integration company. He designed large parts of the cloud-based infrastructure, the data processing model, and SnapLogic's support for Hadoop and big data processing. Several of Professor Benson's students have worked on research and development projects at SnapLogic that have resulted in numerous internships and full-time positions.

6.5 University Collaborations

6.5.1 Collaboration with other Departments and Programs

MSAN and Data Science The CS department collaborates with two new programs, the Masters in Analytics (MSAN) and the undergraduate Data Science program. There is a joint appointment in CS/MSAN and professors Engle and Parr have taught regularly in the program as well.

The MSAN program courses are in downtown San Francisco so not on the main USF campus, and the schedule is different from the 15-week semesters of most of USF. These

differences make teaching in both programs logistically challenging, and also make it so that a course can't be co-offered to both CS and MSAN and there is no intermingling of students.

The joint appointment and need for other CS faculty to teach in the program significantly complicates scheduling for the CS department chair.

The university encourages and supports relationships with other departments. In terms of the relationships with the MSAN and Data Science programs, the CS department could benefit from a clear delineation of responsibilities and administrative help in terms of scheduling and recruiting adjunct faculty to fill the courses.

Education   Professor Joshi is leading a new project that involves USF's School of Education. Professor's Joshi and Wolber are co-PIs along with Xornam Apedoe of Education on a new NSF proposal on increasing diversity in CS at the Middle School level. The hope is that this project can lead to increased collaboration with CS and Education.

CS has also collaborated with the Design program. Currently, Professors Engle and Joshi are working with Professor Scott Murray of the Design program on the Data Visualization Speaker Series. A few years ago, Professor Wolber and Design Chair Rachel Beth Egenhoefer collaborated to offer two experimental courses which intermixed students from the two departments.

6.6   Recruitment and Development

The growth in student population has made the recruitment and development of faculty a major priority. We will perform a search for two new CS faculty members this fall, and we'll also be involved with an Analytics (MSAN) search which will hire a joint CS/MSAN faculty member. With the explosion of interest in CS nation-wide, these searches will be extremely challenging. The department is aware of these challenges and views the development of creative recruitment strategies as a must.

Because of the challenging environment, our plan is to advertise for and recruit the best people we can find irrespective of a particular sub-discipline. We do have interest in hiring a Systems person to help with the teaching load in that area, and there is interest in continuing to build our strength in Data Visualization. But we will be satisfied to hire two excellent computer scientists in any subdisciplines.

For the MSAN position, it is in the department's interest to hire a well-rounded faculty member capable of teaching as many of the MSAN courses as possible, as covering the courses has been a challenge for the CS faculty (most faculty would choose to teach CS courses).

Mentoring and developing our existing faculty is and must continue to be a priority. Professors Joshi is going up for tenure this year, and Professor Engle next year, so supporting them is of highest priority. We also have three term (one-year) faculty members who may be candidates for the upcoming tenure-track positions.

The department has a number of senior faculty who communicate regularly with junior faculty about department matters and expectations. We will continue to help foster their growth through visiting their classes and providing feedback, and discussing expectations in terms of teaching, research, and service (we feel we've been effective in this in the past).

7 Departmental Structure

7.1 Governance

The department of Computer Science has two primary leadership roles: department chair and graduate program director. The chair is elected for a three-year term and the graduate program director is selected as needed. The last graduate director served a term of 10 years, however the current director plans to serve a three-year term and the department plans to continue a rotating model.

The chair receives five courses of release time over a two year period, resulting in a teaching load of one course per semester. The graduate program director has a teaching load of 2/1, however the graduate director typically elects to run our practicum course every semester (including summer) to reduce the load to one course per semester along with the practicum. The practicum instructor ensures that students in internships are performing as expected and coordinates with supervisors to assign grades for the work.

Major departmental decisions, for example curriculum changes or large expenditures, are brought to the entire faculty for discussion. Decisions are typically reached by consensus.

The duties of the department chair include the following:

- Run monthly faculty meetings.

- Prepare the schedule of courses for each semester.

- Recommend hire of part-time and visiting faculty as needed to cover course load.

- Assist with evaluation of part-time faculty.

- Oversee staff and provide performance feedback to the administration.

- Organize Fall and Spring orientation for new students.

- Handle student issues and complaints.

- Work with the program assistant to schedule advising.

- Audit student progress and collaborate with CASA regarding at-risk students.

- Organize the annual CS Night event.

- Implement curriculum changes.

- Manage the CS budget and plan for infrastructure improvements.

- Represent CS in campus-wide councils and forums.

- Help the administration maintain relationships with CS alumni.

- Organize faculty attendance at student recruiting events.

- Interface with the administration regarding resources and initiatives.

The duties of the graduate program director include the following:

- Evaluate all graduate applications.

- Make admissions decisions.

- Communicate with prospective graduate students.

- Organize Fall and Spring orientation for new students.

- Organize social events and workshops for graduate students

- Advise all graduate students, including handling issues and complaints.

- Make decisions regarding scholarships, probation, and disqualification.

- Coordinate alumni outreach efforts.

- Provide regular program updates to faculty.

- Collaborate with the chair regarding course needs.

- Collaborate with the chair and Dean's office on budget.

- Collaborate with the Office of Graduate Programs on marketing and recruitment efforts.

In addition to the ongoing activities that the chair and graduate director lead, the department also has many special projects, for example the tutoring center and summer programs discussed elsewhere in this document. These projects are typically spearheaded by a faculty member, providing leadership opportunities to junior faculty and others in the department.

7.2   Program Resources and Support Services

Faculty   The significant growth of our program and increased pressure from BSDS and other programs that require CS have taxed our stagnant departmental budget and other limited resources. Staffing has been an ongoing challenge. Though the administration has been generous in granting faculty lines, the new lines we have been granted are largely expected to support other programs, thus we remain understaffed and it has been very difficult to plan for the future. It is expected that we can fill in gaps, for example replace faculty on leave, using part-time adjuncts, however it has been nearly impossible to find suitable adjuncts in this market. Most of our classes are full with 30 or more students, a size we believe is too large.

Hardware   Until recently, the Computer Science department had a long-standing exception to the University standard for computing hardware. Faculty at the University are generally granted a single mid-range desktop or laptop, however we believe that is insufficient for faculty in computing. Until the recent policy change, Computer Science faculty were generally granted an exception for any hardware that they could argue was useful or necessary for teaching or research, with the cost being absorbed by the college. The policy change, which happened without discussion or even notice, requires

that either the department absorb extra costs, or individual faculty members request an exception from the associate dean, which may or may not be approved. The department proposed a new exception rule whereby each CS faculty member would be granted one "top-of-the-line" desktop and one "top-of-the-line" laptop, however some faculty feel this is too restrictive as it discourages experimentation with cutting-edge hardware for teaching and research. Even so, the proposal was denied, leaving the department to absorb the cost of any extra hardware. With a decreasing operating budget, the department feels this new policy could impact our teaching and research.

	2011	**2015**	**2016**
TA Budget	$86,648	$92,671	$111,753
Operating Budget	$76,491	$74,033	$72,533
Student Contact Hours	2,364	4,109	unknown

Operating and Student Salary Budget Budgetary support, particularly to support student teaching assistants, has also been a challenge. The table above shows that the number of student contact hours has nearly doubled while our operating budget has actually decreased. In the context of the new hardware policy, the department feels the operating budget is insufficient to support faculty needs. In addition, in the past our budget supported a 10 hour per week student teaching assistant for any faculty member who requested one; two such TAs for our 30-student introductory courses; and two student system administrators to help with lab and system maintenance tasks. Particularly in the introductory classes where we combine lecture and hands-on lab work, TAs allow us to provide students with the one-on-one, personalized attention we believe they should expect from a school such as USF. Even though we have seen modest increases in our student salary budget, last year, we were forced to cut back to one TA per introductory section and one student sysadmin during the spring semester. This is simply because we have gone from six sections of introductory CS (107, 110, and 112) annually, to 16 sections.

Administrative Support   Finally, many other graduate programs at the University, even many that are smaller in size than ours, have an administrative director who assists with tasks such as email communication with prospective students, processing admissions paperwork, and organizing workshops and events. Adding such a position in CS would allow our graduate director to focus more attention on student advising and interaction, as well as recruitment.

8   Students

8.1   Student Successes

Though we do not have complete statistics about student placement, anecdotally our students are well placed and also prepared for further study. In recent years, we have

had undergraduate students continue on to the MS program at Stanford and the PhD program at the University of Notre Dame. Graduates from both BS and MS programs in recent years have continued to positions at Google, Facebook, Amazon, Twitter, Square, Uber, Salesforce, Microsoft, and countless other larger companies as well as startups. Many of our alums remain engaged with the department after they graduate. A recent alum, Chris Boyce, returned to take on an administrative role in our tutoring center (described below). Many alums also return to our annual Computer Science Night, an open house and poster session held each December.

Recent graduates have offered the following quotations about their experience in the department:

- *Every project that I did over the past two years was challenging and valuable... The experience here has changed my life.*

- *The program is highly underrated and I think it definitely needs to be out there with some of the best schools for computer science. I was blessed with a wonderful learning experience.*

8.2   Undergraduate Program

Many of our undergraduates are from the United States, however our department has the second largest percentage of international students across the College of Arts and Sciences. Detailed demographic data is provided in Section 10. Most of our international undergraduates are from China and most of the domestic students are from the Bay Area or California. Our undergraduates come in with a wide range of preparation for computer science. Many have never taken a computer programming class or written a program at all. However, each year, a few students come in with quite a bit of programming experience and perhaps good scores on the Computer Science AP exam.

Most of our students are not strong in mathematics and they are not enthusiastic about their required Math and science courses. We do not require much mathematics in the undergraduate major courses, so the Math courses tend to be terminal rather than serve as prerequisites for advanced CS courses. Most of our attrition occurs in the sophomore year when the CS classes tend to become a bit more difficult. Also, the sophomore year is a good time to switch majors at USF, because many of them can be completed in three years.

We are also experiencing tension between maintaining the rigor of our program and supporting and retaining students who struggle with the level of difficulty of our programs. Though the percentage seemingly remains the same, the absolute number of students who require special attention has grown. This ranges from students who are registered with student disabilities services or simply need a bit of extra attention, to students who require some kind of disciplinary action, for example because of increasingly common instances of cheating. Though the university has some infrastructure in place to deal with these kinds of situations, fundamentally much of the responsibility falls back on the department.

8.3   Graduate Program

Over the last few years our graduate program has remained steady in terms of enrollment with a significant portion of the enrollments in the form of international students

primarily from China. This program had the highest percentage of international students across the university in Fall 2014 (85.96%). A downside to our large number of international students is that many of them do not have the same software development and programming experience that we find with U.S. students. Historically, we often required deficiency courses for our graduate students who did not have the core undergraduate CS background. Our new MSCS program, however, targets only students with a strong background in computing. Still, many professors find that they must teach quite a bit of remedial material in the beginning of each graduate course to compensate for a lack of preparation. We are interested in finding ways to better vet international candidates before their arrival at USF, and to bring them up to speed more quickly. One strategy we have employed recently is Skype interviews of promising candidates.

8.4   Student Organizations

Women in Computer Science (WICS)   The Women in Computer Science (WICS) group was started in Fall 2007 with Professor Sami Rollins as the faculty advisor. This group aims at providing support and guidance to the women in the CS department at USF. The group provides a forum for the women to voice their ideas, issues or concerns and strengthen the bond between the members. In the past, this group has organized events to further increase the interest of women in computer science.

ACM Student Chapter   The ACM Student chapter is a student driven chapter that organizes social events for the department such as weekly Pizza socials, the Annual CS Picnic in Golden Gate Park and other allied activities. The ACM student chapter played a big role in helping out with the 2014 Pacific NW Regional ACM Programming Contest which was hosted at our department by Professor Peter Pacheco.

8.5   Tutoring Center

The CS Tutoring Center was launched by Professor David Wolber in Spring 2013 thanks to a generous grant by Craig Conway. Thanks to another generous award from Christopher Seiwald, the Center is funded through Spring 2018. The tutoring center is a student-staffed center where students from any undergraduate course can go and ask for help. Professor Sophie Engle took over the role as Faculty Sponsor for the 2013–2014 academic year when Professor Wolber was on sabbatical.

The CS Tutoring Center is employing seven students in fall 2015, including five focused on lower-division classes and two graduate students focusing on upper-division courses. Tutors are available in the lab Monday-Friday at nearly every hour between later morning and early evening.

To better serve students and professors, a tutor liaison is assigned to each lower-division course. The liaison communicates periodically with the course instructor(s) and monitors the course schedule to identify project deadlines and the need for "surge" availability.

The Center will also provide one-on-one tutoring outside the lab on a limited basis. This service is for students having difficulties in a particular course who either request help on their own or are referred to the center by a professor.

Finally, the Center conducts focused workshops on various topics. In the past we have had workshops hosted by faculty for the CS Tutoring Center, including a workshop on LaTeX by Professor Joshi and a workshop on Professional Websites using GitHub pages by Professor Engle. Both of those workshops were held in conjunction with the CS 490 and CS 690 courses, and had over 20 students in attendance.

9 Staff

9.1 Rosa Maria Garay - Program Assistant

Rosa Maria provides administrative support for the department. She is located in the CS department office, Harney 545. Rosa Maria is the main contact point for students and outside requests. Rosa Maria's responsibilities include:

- Assists the Department Chair in scheduling courses and CS lab space

- Facilitates hiring of TAs and research assistants

- Ensures basic departmental and faculty information is up to date a posted

- Transcribes and reports all department meeting notes

- Assists in finalizing student degree audits

- Assists with CS Night logistics as well as other CS related events

- Inventories and orders essential department supplies

9.2 Alexey Fedosov - Director of Scientific Computing

Alex Fedosov is Director of Scientific Computing for the Computer Science Department. Alex is responsible for designing, implementing, maintaining, and supporting the server and network infrastructure, consisting of:

- Nine separate network subnets (5 private, 4 public)

- Two firewalls / routers

- Two separate connections to the rest of the University (and outside world) with failover capabilities

- Two data centers

- On-site and off-site backup servers

- Multiple virtual servers

- Our own LDAP domain and accounts (separate from the rest of the University)

- Our own file server and home directories

- Multiple DNS servers

- Web server

Additional responsibilities include:

- Mentoring the System Adminstrator (Elias Husary) and student system administrators

- Faculty and student support

- Administering the Chemistry cluster

- Supporting the IBM PureFlex cloud for the College

- Writing software for the Dean's Office to automate various tasks, including a web site used to apply for a faculty position in A&S (3283 successfully submitted applications for 49 faculty searches as of today)

- Frequent special projects (e.g., nVidia Jetson TK1 cluster)

9.3   Elias Husary - System Administrator

Elias responsibilities include:

- Maintenance of two computer labs used for classes, CSI G12 and Kudlick, one desktop lab for student projects and one laptop lab. Also, the LS 307 CS classroom (2 LED's)

- Hardware maintenance, troubleshooting and purchasing

- Software support, installation of programs needed for classes

- Maintenance of images for deployment

- Physical security of the labs

- Faculty and student support, including some help with software installation

- Managing two student assistants

- Coordinating with various vendors and internal departments to maintain the lab facilities and specialized equipment (projectors, LED's systems that allow screen-sharing for student monitors)

- ITS to manage changes that they make to the network infrastructure, firewall

- Hardware replacement needs for the student labs and Faculty computers

- Avocent and BugID for installation and troubleshooting of specialized equipment in G12 and Kudlick

- Additional support responsibilities to the College of Arts and Sciences.

- Providing support and expertise where needed to counterparts in the College (Languages and Psychology)

- Software and hardware maintenance of clusters:

- Bass cluster for Hadoop

- Penguin cluster

- New TK1 cluster for GPU's

- Micro-cloud cluster

- Student Assistants

The Department of Computer Science regularly hires student assistants to help in the CS office and to work with Alex and Elias for system administration.

10   Diversity

The department of computer science is extremely committed to encouraging and supporting efforts to diversify both the department, and the field of computing more generally. There is overwhelming agreement that the field of computing suffers from severe lack of both ethnic and gender diversity. The 2013 Taulbee Survey, conducted by the Computing Research Association, reports that in 2012-2013 the number of women receiving bachelor's degrees in computer science increased, to an abysmal 14.2%. Similarly, the survey reports that the number of bachelor's degrees awarded to Whites decreased, but to an extremely high 61.2%. Only 3.8% of degrees were awarded to Black or African-American students, and Hispanics earned only 6% of bachelor's degrees in computer science. It is widely noted that as technology pervades every element of our lives, as well as every corner of our planet, the impact of having such a limited community of contributors who develop that technology will become more significant. The department of computer science believes that with USF's diverse student population, as well as its commitment to social justice, we are in the ideal position to help diversify the field of computing to bring a broader perspective to technology, how we use technology, and the problems we address with technology.

10.1   Student Diversity

	African American	Asian	Hispanic or Latino	International	Multi Race	Pacific Islander	Unknown	White
Degrees 2010–present	**1.7%**	**15.5%**	**5.2%**	**17.2%**	**12.1%**	**0.0%**	**3.4%**	**44.8%**
Majors 2010F	5.9%	17.6%	13.7%	27.5%	5.9%	0.0%	0.0%	29.4%
Majors 2011F	1.2%	12.3%	16.0%	32.1%	8.6%	1.2%	0.0%	28.4%
Majors 2012F	1.1%	16.1%	15.0%	38.7%	7.5%	0.0%	2.1%	27.5%
Majors 2013F	1.7%	16.7%	14.2%	33.3%	5.0%	0.0%	1.7%	27.5%
Majors 2014F	2.5%	21.7%	18.6%	24.2%	3.1%	0.0%	1.9%	28.0%

Table 6: *Ethnic breakdown of majors.*

Our student population is quite ethnically diverse. Table 6 shows the ethnic breakdown of majors over the past five fall semesters, as well as the breakdown of all 54 students who have received BSCS degrees since fall of 2010. Notably, Computer Science had the second highest percentage of international students of any major in the College of Arts and Sciences in Fall 2014. Anecdotally, most of our international students come from China and often need a lot of support, particularly with regard to language skills and standards regarding academic honesty. This is a continuing challenge for the department. We also note that we graduate a larger proportion of white students and a smaller proportion of both Hispanic or Latino and International students than we see across the general CS population. Though it is useful for us to be aware of these trends, the number of students who have graduated over the past five years has been so small in comparison to the number of majors that it is difficult to draw firm conclusions. For example, we have seen a total of 59 Hispanic or Latino majors in total. Thirty three of those were still enrolled in the major last spring and three have been awarded degrees. As our larger cohorts get closer to graduation we anticipate having more useful data regarding retention.

	Degrees Awarded	Majors 2010F	Majors 2011F	Majors 2012F	Majors 2013F	Majors 2014F
Percentage Females	**19.0%**	7.8%	17.3%	16.1%	19.2%	21.7%

The percentage of women who have received degrees from our program is better than the national average, and the percentage of women in the major has seen a small increase over the past five years. We note that attracting women to the CS major is as difficult at USF as it is at other universities and companies, though we describe several efforts by our faculty to recruit and retain women into computing below. Particularly

since the broader USF population is well over 60% female, we would like to explore more aggressive strategies for recruiting women into the major.

10.2   Faculty Diversity

Since 2006, the department of computer science has shown remarkable progress in its efforts to diversify its faculty. Prior to 2006, the department suffered from a complete lack of diversity. Sami Rollins became the first female full-time faculty member in Fall 2006, and the department has since hired seven women into full-time term (visiting) or tenure-track positions (EJ Jung, Sophie Engle, Patricia Francis-Lyon, Cindi Thompson, Olga Karpenko, Maria Daltayanni, and Gwoing (Tina) Yu), as well as hired one Asian-American faculty member (Sophie Engle) and five faculty members who bring an international perspective from their home countries of South Korea, India, Russia, Greece, and China respectively (EJ Jung, Alark Joshi, Olga Karpenko, Maria Daltayanni, and Gwoing (Tina) Yu). This has been extremely valuable for our graduate program, which is comprised almost entirely of international students, as well as our undergraduate program where roughly 18% of our students are Hispanic and nearly 25% are international. Our current faculty are enthusiastic and excited about the potential to recruit as well as retain a more diverse student body.

10.3   Activities

Over the past several years, our faculty have undertaken a number activities in an effort to diversify both the department and the field of computing. Many of these activities are discussed in greater detail in other sections of this document.

Women in CS - Since 2006, the department has supported a Women in CS club. Mostly student driven, the club provides an opportunity for female students to network and discuss their experiences at USF.

Girl Tech Power - Over the past 10 years, four of our faculty, David Wolber, Sami Rollins, EJ Jung, and Alark Joshi, have directed Girl Tech Power (formerly CS4SF and the Summer Enrichment Program), a one-week program that brings 30 young women to campus to learn about opportunities available to them in the field of computing. In recent years, the program has also reached out to a more diverse population of students, recruiting through partners such as Upward Bound. In 2015, Alark Joshi received a grant of $20,000 from AT&T to support the program, which allowed him to double the number of participants to include 25 middle school students and 25 high school students.

Grace Hopper Scholarships - In 2015, alumna Sarah Clatterbuck, Director of Web Development at Linked In, granted the department an award to fund four women to attend the Grace Hopper Celebration of women in computing.

Tutoring Center - Thanks to a generous external donation, David Wolber and Sophie Engle have worked to build a center that provides significant support resources for students in our beginning courses, where we often see the greatest attrition.

Democratize Computing Lab - David Wolber directs our Democratize Computing Lab. Funded by the Keck Foundation, the mission of the lab is to break down the programmer divide and radically broaden and diversify the pool of software creators.

Networking Networking Women - Our faculty have also engaged in activities to support the field as a whole. Sami Rollins chaired the fourth annual workshop for Networking

Networking Women, an organization that provides opportunities for networking and mentorship among female researchers in the field of computer networking. Under her leadership, for the first time the workshop welcomed all underrepresented minorities, male and female, to the event.

11 Facilities

The Department of Computer Science at the University of San Francisco is located in the Harney Science Center and Lo Schiavo Center for Science and Innovation buildings on main campus. The Harney Science Center houses several science laboratories, faculty offices, and classrooms. The Center for Science and Innovation is a new green building completed in 2013, and houses 17 state-of-the-art classrooms and laboratories (dry and wet), instrumentation rooms, and digital studios.

To support teaching and research, the department has its own dedicated computing resources, classrooms, lab facilities, wired and wireless networks, and support staff. The departmental computing resources include an IBM PureFlex virtual cloud with 8 nodes, each with Dual Xeon E5-2670 2.6 GHz GPUs, 128 GB RAM, and shared V7000 storage with 14 TB of space. The department maintains a microcloud cluster with 12 nodes, each with 3.30 Ghz Intel Xeon E3-1230 V2 CPUs, 16 GB RAM, 240 GB SSD storage, and two gigabit ethernet interfaces. The department also maintains a 24 node Infiniband cluster and 24 node Myrinet cluster. Professor Engle also has a dedicated system with 3.5 Ghz 6-core Intel Xeon E5 processors, 32 GB memory, and 500 GB flash storage for her own research.

In addition to the classroom and lab space provided by the university, the department has two dedicated high-tech multi-tier interactive classrooms equipped with individual student workstations containing quad-core Intel Xeon 2.4 Ghz processors, 16 GB RAM, and 1 TB disk space. The department also has a dedicated collaboration space with four breakout pods equipped with high-resolution plasma screens. Students also have access to a dedicated computer lab with workstations equipped with 3.4 Ghz CPUs, 8 GB RAM, and 500 GB harddrives, and a special lab for students working on research with faculty.

All departmental computing resources, faculty offices, classrooms, and computer labs are connected via a Gigabit Ethernet network. The department also maintains its own high-speed wireless network in its classrooms and lab spaces. The university is also connected to the Internet2 Network via the Corporation for Education Network Initiatives in California (CENIC).

Here is a detailed inventory of our Computer Science classrooms and computing resources:

11.1 The Lo Schiavo Center for Science and Innovation 307 Classroom

One of the newest additions to the Computer Science department's resources, the Lo Schiavo Center for Science and Innovation 307 classroom is equipped with, among other things:

- Two LED screens

- A whiteboard

- Four breakout spaces, each with an LED screen and whiteboard

- DVD capabilities

11.2   The LS G12 Classroom

This classroom is used every day for lectures, labs, and individual student work. It has 28 PCs available for student use with the following configuration:

- Ergonomic multi-tiered setup, with ideal sight lines for class discussions

- Intel(R) Xeon(R) CPU E5-2609 @ 2.40GHz with 4 cores and 10MB cache

- 16 GB of RAM

- 1 TB hard drive

- Gigabit Ethernet network

- 22 inch ViewSonic LED Monitors

- Ubuntu Linux

11.3   The Kudlick High-tech Interactive Classroom

Donated by Alfred Chuang , CEO and Co-Founder of BEA Systems and an alumnus of USF. the Kudlick interactive classroom is equipped with:

- Two plasma screens

- An electronic whiteboard

- Individual presentation screens and workstations for students

- A camera that can project physical objects on the screens

- DVD capabilities

- Ergonomic multi-tiered setup, with ideal sight lines for class discussions

The classroom was named after Alfred's favorite teacher at USF, former Chair of Computer Science Michael Kudlick.
The Kudlick Classroom is used every day for lectures, labs, and individual student work. It has 30 PCs available for student use with the following configuration:

- Intel(R) Xeon(R) CPU E5-2609 @ 2.40GHz with 4 cores and 10MB cache

- 16 GB of RAM

- 1 TB hard drive

- Gigabit Ethernet network

- 24-inch NEC flat panel LCD monitors

- Ubuntu Linux

11.4   Computing Clusters

The Computer Science Department has two clusters available for teaching and research:
Infiniband Cluster:

- 24 nodes

- 2 dual-core AMD Opteron 2.0 GHz processors

- 4 GB of RAM

- 320 GB hard drive

- Gigabit Ethernet network

- Infiniband high-speed network

Gigabit Ethernet Cluster:

- 24 nodes

- 2 dual-core AMD Opteron 2.0 GHz processors

- 8 GB of RAM

- 320 GB hard drive

- Gigabit Ethernet network

11.5   Computer Labs

In addition to the Kudlick Classroom, the CS Department currently has 2 computer lab facilities located on the 5th floor of the Harney Science Center available for general student use. One lab is a laptop lab for use with laptops, the other has 12 desktop computers with the following specs:

- Intel(R) Core(TM) i7-2600 CPU @ 3.40GHz with 8 cores

- 8 GB of RAM

- 500 GB hard drive

- Gigabit Ethernet network

- DVD-RW drive

- 24-inch Widescreen HDMI flat panel LCD Monitors

- Ubuntu Linux

- Xbox 360 consoles for game development

12   Conclusion

Rigorous Education   The department views both our graduate and undergraduate programs as largely underrated in comparison to similar programs at other universities. We provide a rigorous education in the foundations of computing while offering students the opportunity to practice what they learn in a hands-on environment and using modern tools that prepare them for careers in the industry. Our alums secure lucrative and desirable jobs and we receive frequent positive feedback from alums and their employers.

Dedicated Faculty   Our faculty are extremely dedicated to teaching. A large percentage of faculty have published text books or academic papers on unique curricula and teaching methods. Still others incorporate cutting-edge methods into the classroom. All of our faculty give students significant personalized attention and opportunity for learning both in and out of the classroom.

Research Impact   With a wide range of interests, our faculty maintain active research programs. Faculty have garnered several best paper awards in recent years, as well as NSF and other funding for research projects. Faculty also actively engage students in research, offering them valuable experience outside of the classroom.

Resources   The surging enrollments that have resulted from growing interest in computing have posed significant challenges. Our faculty has not grown at anywhere near the rate of our student population, nor has our budget or administrative staff. Even with faculty lines, we struggle to hire as the bay area is extremely expensive and faculty in Computer Science have many other, more lucrative, options.

Students   We are also experiencing tension between maintaining the rigor of our program and supporting and retaining students who struggle with the level of difficulty of our programs. Though the percentage seemingly remains the same, the absolute number of students who require special attention has grown. Though the university has some infrastructure in place to deal with these kinds of situations, fundamentally much of the responsibility falls back on the department.

Interdisciplinary Programs   Another challenge is the increased interest in interdisciplinary majors and programs. The department wishes to support programs such as Data Science, Analytics, and also the CORE math requirement, however it is a struggle to staff our core CS courses. In addition to course staffing, more interaction with other departments also necessitates more faculty taking on service roles such as serving on advisory boards of other programs.

Vision   Computing is becoming a critical piece of many fields. This is exciting for computer science in general, however servicing a wide variety of areas, particularly amid extreme growth, is not without challenges. Above all else, CS faculty want to offer the best education we can to our large and growing population of CS students.

13   Comprehensive Plan for the Future

The department has worked very hard to develop top-quality undergraduate and graduate programs in core computer science. We have hired a diverse faculty with a broad set of expertise. Looking ahead, our goal is to focus on delivering our programs in the most effective way possible as well as providing an environment where our faculty can flourish.

Increasing Standards   The faculty unanimously recognize that managing our undergraduate growth is necessary and, we believe, putting in place some additional standards is the best approach. Specifically, the department approved the following new requirements we plan to put in place by Fall 2016:

1. Students must receive an average of a B or better in CS 110 and 112 in order to continue in the program. This is motivated by data that shows that very few students with a C in CS 112 are able to successfully complete the major. We believe that encouraging students who are unlikely to be successful to leave the major earlier rather than later is better for all parties.

2. Math 109 - Calculus will be required for BSCS and our current requirement of a *rigorous* lab science course will be removed. A goal of the current lab science requirement is to offer students breadth and rigor in another scientific discipline, however we believe requiring calculus rather than one of a set of lab science courses is a better implementation of this goal.

3. CS 110 will have a co-requisite of Math 109 (Calculus) or a prerequisite of CS 107 (our non-majors CS course) with a grade of B or better. Many students enter CS 110 without the intellectual maturity to complete the course. This requirement will encourage students who are taking CS as a core requirement to take CS 107 rather than 110 and will ensure that students have sufficient quantitative thinking and reasoning background to be successful in 110.

We have also formed a curriculum committee to examine the undergraduate curriculum more carefully and determine whether there are courses we feel should be added or removed. Initial discussion has suggested that most faculty feel one additional upper-division course would help give our students more practice with computing concepts, which would help to better prepare them for their careers. This discussion is ongoing and will continue through 2015/2016. We plan to propose changes in 2016 to take effect Fall 2017.

Leveraging Faculty Expertise   An open question is how best to leverage the expertise of our faculty. With our growth, opportunities for faculty to bring their research into the classroom, for example through elective courses, are few. As part of our curriculum discussion, we plan to identify ways in which faculty will have more opportunity to teach in areas of interest which, in turn, will open opportunities to engage more students in cutting-edge computing work.

Graduate Growth   We have outlined two main strategies for growing our graduate program, however we cannot implement either without having additional resources first. The first strategy is a straightforward doubling of our cohort size. In this case, we would effectively double the number of classes and offer two sections of each class. This requires more faculty to teach classes, however our streamlined cohort model would likely mean that one graduate director could handle the larger program. The concern about this approach is whether we would be able to identify up to 50 students per year qualified to enter our program. Another strategy we have outlined is to offer a bridge or reentry program. The goal would be to attract more local or domestic students interested in retraining in CS. Anecdotally, we have about half a dozen second-degree students in our undergraduate program and so this approach seems promising. In contrast to our previous bridge program where students took our already-existing undergraduate classes, we believe that the right approach would be to design a specific set of classes for reentry students. We hope that this would lead to a pipeline of strong students entering our MS program. If we were to pursue this approach there would be significant overhead in outlining an appropriate curriculum. We would like to hear feedback from the external reviewers on these proposals and also understand the timeline for securing the faculty and staff needed to make these changes before outlining a specific timeline for growing our program.

Branch Campuses   Because USF has limited space there is a push to expand by offering our degrees at branch campuses in nearby cities. We are in the early stages of exploring whether offering a Computer Science degree at one or more of the branch campuses would be viable. Questions include whether there would be a market for the degree, whether we could hire faculty to deliver our curriculum, and whether transfer students coming in to such a program would be prepared to complete our curriculum in a two-year period. Our understanding is that USF is conducting market research to answer some of these questions and we await the result of that report.

A   Faculty CVs

Peter S. Pacheco
Department of Mathematics
University of San Francisco
San Francisco, CA 94117
Phone: (415) 422-6630
Fax: (415) 422-5800
Email: `peter@usfca.edu`

Professional Experience

Professor, Department of Mathematics, University of San Francisco, Interim Chair, fall, 2010. Chair, 2005 to 2009. Professor 2000 to present. Interim Chair, 1999. Associate Professor, 1994–2000. Assistant Professor, 1989–1994.

Professor, Department of Computer Science, University of San Francisco, 2000 to present. Chair, 1997–2002, 2011–2013. Associate Professor, 1997–2000.

Visiting Research Professor, Department of Mathematics, University of South Alabama, 1988–1989.

Adjunct Assistant Professor, Program in Computing, UCLA, 1984–1988. Co-founder of UCLA's Program in Computing.

Publications

Introduction to Parallel Programming, Burlington, MA: Morgan Kaufmann, January, 2011.

"Object-Oriented NeuroSys: Parallel Programs for Simulating Large Networks of Biologically Accurate Neurons," (with Patrick Miller, Jin Kim, Taylor Leese, and Yulia Zabiyaka) in *Proceedings of the 10th European PVM/MPI Conference,* Springer Verlag, 2004.

"The Performance of Parallel Disk Write Methods for Linux Multiprocessor Nodes," (with Gregory Benson and Kai Long) in *Proceedings of the 10th European PVM/MPI Conference,* Springer Verlag, 2004.

"Parallel NeuroSys: A System for the Simulation of Very Large Networks of Biologically Accurate Neurons on Parallel Computers" (with Marcelo Camperi, and Toshi Uchino), *Neurocomputing,* 2000, v. 32–33, pp. 1095–1102.

"Using MPI to Teach Parallel Computing," in *Proceedings of the Second Forum on Parallel Computing Curricula,* 1997. Available as `http://www.cs.dartmouth.edu/FPCC/papers/pacheco.html`.

Parallel Programming with MPI, San Francisco: Morgan Kaufmann, 1997.

"MPI User's Guide in Fortran," 1997. Available as `http://www.hku.hk/cc/sp2/ftp/mpi/MPI_ug_in_FORTRAN.doc`.

"A User's Guide to MPI," 1995. Available as `ftp://math.usfca.edu/MPI/mpi.guide.ps`.

"Circuit Simulation on Multicomputers," (with J. A. Jackson), in *Proceedings of the Sixth SIAM Conference on Parallel Processing for Scientific Computing*, 1993, pp. 254–257

"Parallel SPICE on distributed memory parallel processors," (with J.M. del Rosario and T. Rashid), *Supercomputer*, vol 8, 1991, pp. 109–116

"SPICE³: A program for simulating integrated circuits on hypercubes," (with J.M. del Rosario and T. Rashid) in *Proceedings of the International Symposium on Supercomputing, '91*, K. Ushijima and M. Shimasaki, eds., 1991, pp. 201–205

"K_{-i} Obstructions to Factoring an Open Manifold," (with J.L. Bryant), *Topology and Its Applications*, vol. 29, 1988, 107–139

Presentations

"Teaching Parallel Computing to Lower Division Undergraduates," EduPar Workshop, IEEE International Parallel and Distributing Processing Symposium, May 16, 2011. See `http://techtalks.tv/talks/5313/`.

"Undergraduate Parallel Computing at USF," Union College Workshop on HPC in liberal arts colleges, 2009. (Invited)

"Teaching Parallel Computing to Lower Division Undergraduates," SIAM Conference on Parallel Processing for Scientific Computing, 2008.

"Object-Oriented NeuroSys: Parallel Programs for Simulating Large Networks of Biologically Accurate Neurons," (with Patrick Miller, Jin Kim, Taylor Leese, and Yulia Zabiyaka), 10th European PVM/MPI Conference, 2003.

"The Performance of Parallel Disk Write Methods for Linux Multiprocessor Nodes," (with Gregory Benson and Kai Long), 10th European PVM/MPI Conference, 2003.

"Parallel NeuroSys: A System for the Simulation of Very Large Networks of Biologically Accurate Neurons on Parallel Computers" (with Marcelo Camperi, and Toshi Uchino), Computational Neuroscience '99, Pittsburgh, PA, July, 1999.

"An Introduction to Parallel Programming with MPI," Mathematical Sciences Research Institute, Berkeley, CA, April, 1999. (Invited)

"Eigenvalues, Eigenvectors, and Graph Partitioning," M∗A∗T∗H Colloquium, Sonoma State University, Rohnert Park, CA, December, 1998. (Invited)

"Using MPI to teach parallel computing," Forum on Parallel Computing Curricula, Newport, Rhode Island, July, 1997.

"MPI," NSF-CBMS Conference, Numerical Linear Algebra on Parallel Processors, University of San Francisco, June, 1995.

"A Text for Teaching Parallel Programming," DOE High-Performance Computing Conference on Computational Science Education, Albuquerque, New Mexico, February, 1994.

"Circuit Simulation on Multicomputers," SIAM Conference on Parallel Processing for Scientific Computing, Norfolk, Virginia, March, 1993.

"SPICE[3]: A program for simulating integrated circuits on hypercubes," International Symposium on Supercomputing, Fukuoka, Japan, November, 1991.

Organizer

"Sixth Bay Area Scientific Computing Day," USF, March 5, 2005.

NSF-CBMS Conference "Numerical Linear Algebra on Parallel Processors," June 12–16, 1995.

Other Activities

"Interview with Peter Pacheco at IPDPS 2011," Interviewed by Amy Barton of Intel, `http://software.intel.com/en-us/videos/interview-with-peter-pacheco-at-ipdps-2011`, May 16, 2011.

"Parallel Programming Talk #104," Inteviewed by Kathy Farrell and Clay Breshears of Intel, `http://software.intel.com/en-us/blogs/2011/03/31/parallel-programming-talk-104-dr-peter-pacheco-discusses-new-book-introduction-to-parallel-programming`, March 29, 2011.

Grants and Donations

Grant of $600,000 from the WM Keck Foundation to build and do research on a parallel computer. (Co-PI with Gregory Benson.) 2001–2004.

Donation of $2,500,000 from the Chuang Family Foundation for the construction and maintenance of the Kudlick Computer Science Classroom. (Joint proposal with Kerry Bresnahan.) 2001.

Grant of $23,000 from the NSF for an NSF-CBMS Conference "Numerical Linear Algebra on Parallel Processors," June 12–16, 1995.

Grants from the San Diego Supercomputer Center, the Pittsburgh Supercomputing Center, Argonne National Laboratory, and Caltech's Concurrent Supercomputing Facility for the use of various parallel computers.

Loan of 32-processor nCUBE and donation of Sun Workstations from nCUBE. 1996.

Various grants from USF's Faculty Development Fund. Grants supported travel to conferences and student research assistants.

Graduate Students

Juan Miguel Del Rosario, *High Performance Parallel I/O on Distributed Memory Multicomputers,* MS, 1994.

Noriko Hosoi, *Preconditioned Krylov Subspace Methods for Linear Systems,* MS, 1993.

Tariq Rashid, *A Direct-Methods Sparse Numeric Factorization and Triangular Solution for Distributed Memory Parallel Computers,* MS, 1992.

Program Committees, Grant Reviews

Computational Science and Engineering (CSE) 2012, 2013.

NSF/TCPP Workshop on Parallel and Distributed Computing Education (EDUPAR) 2012, 2013, 2014.

NSF-IEEE-TCPP (Technical Committee on Parallel Processing) Early Adopter Curriculum Initiative: reviewed proposals, 2014.

NSF-IEEE-TCPP Curriculum Initiative: Workshop on Education for High-Performance Computing, 2014.

Education

Ph.D., Florida State University, 1983, major in Mathematics, minor in Computer Science

M.S., Florida State University, 1979

B.A., University of Iowa, 1977

Professional and Honorary Societies

Phi Kappa Phi, National Honor Society

Pi Mu Epsilon, National Mathematics Honor Society

Sigma Xi, National Research Society

Association for Computing Machinery

David Wolber

Department of Computer Science • University of San Francisco
2130 Fulton Street, San Francisco, CA 94117
415 422-6451   wolberd@usfca.edu

Education

University of California, Davis, Department of Computer Science, Ph.D (1991) M.S. (1988), B.S. (1986)

Appointments

Professor of Computer Science, University of San Francisco, 2004-present

Visiting Professor, Massachusetts Institute of Technology, fall 2013

Chair, Department of Computer Science, University of San Francisco, 2000-2004

Associate Professor of Computer Science, University of San Francisco, 2000-2004

Assistant Professor of Computer Science, University of San Francisco, 1993-2000

Interests

My recent work focuses on empowering artists, designers, kids, women, men, humanity majors, business students-- *makers* of all types-- to add coding to their creative arsenals. I've been a leader in teaching beginners coding with the visual language App Inventor, which lets them learn by programming their most precious device—their phone. My site appinventor.org site has helped over 1.7 million new app creators, and its Course-in-a-Box materials have served as a template for numerous teachers and courses at the K-12 and university levels.

Previous interests include programming by example, campaign finance tracking, and personal and social software tools.

Books

David Wolber, Hal Abelson, Ellen Spertus, Liz Looney, *App Inventor 2: Create Your Own Android Apps.* O'Reilly 2015.

David Wolber, Hal Abelson, Ellen Spertus, Liz Looney, *App Inventor: Create Your Own Android Apps.* O'Reilly 2011.

Recent Projects

David Wolber, *AppInventor.org*, 2011-present, educational site for beginners to learn coding through app development using the App Inventor visual tool. The site provides video and text tutorials as well as "Course-in-a-Box" materials for teachers. The site serves over 40,000 users a month.

Ralph Morelli, Jennifer Rosato, and David Wolber, *Mobile-CSP.org*, 2014-present , on-line course that teaches the new high school Advance Placement (AP) course in Computer Science Principles (CSP). This course is one of three CSP courses certified by the College Board.

David Wolber, Bin Lu, and Vincent Zhang, *MIT App Inventor Community Gallery* (2012-present). Along with USF students, I developed and integrated an app gallery to promote sharing and community in the MIT App Inventor tool (ai2.appinventor.mit.edu). This work is an on-going partnership with the MIT App Inventor team.

Recent Publications

David Wolber, Harold Abelson, and Mark Friedman. 2015. Democratizing Computing with App Inventor. *GetMobile: Mobile Comp. and Comm.* 18, 4 (January 2015), 53-58. DOI=10.1145/2721914.2721935 http://doi.acm.org/10.1145/2721914.2721935

Franklyn Turbak, Mark Sherman, Fred Martin, David Wolber, and Shaileen Crawford Pokress. 2014. Events-first programming in App inventor. *Journal of Computing Sciences in Colleges.* 29, 6 (June 2014), 81-89.

Franklyn Turbak, David Wolber, Paul Medlock-Watson, The Design of Naming Features in App Inventor 2 *IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC '14)*, DOI: 10.1109/VLHCC.2014.6883034

Amber Wagner, Jeff Gray, Jonathan Corley, and David Wolber. 2013. Using app inventor in a K-12 summer camp. In *Proceedings of the 44th ACM technical symposium on Computer science education* (SIGCSE '13). ACM, New York, NY, USA, 621-626. DOI=10.1145/2445196.2445377 http://doi.acm.org/10.1145/2445196.2445377

David Wolber. 2011. App inventor and real-world motivation. In *Proceedings of the 42nd ACM technical symposium on Computer science education* (SIGCSE '11). ACM, New York, NY, USA, 601-606. DOI=10.1145/1953163.1953329 http://doi.acm.org/10.1145/1953163.1953329

David Wolber, A Blocks Language for Mobile Phones: App Inventor for Android, Chapter in *m-Science: Sensing, Computing, and Dissemination*, edited by Canessa, E., and Zennaro, M., October, 2010, http://m-science.net/book

Recent Teacher Workshops and Panels

David Wolber, Alark Joshi, *Google CS4HS week-long workshop on App Inventor and Computer Science Principles for High School teachers*, June 2015.

David Wolber, Ralph Morelli, Franklyn Turbak, and Fred Martin, App Inventor Teacher Workshop (summer 2014, week-long), part of *NSF Transforming Undergraduate Education in STEM* (TUES) project.

Ralph A. Morelli, David Wolber, Jennifer Rosato, Chinma Uche, and Pauline Lake. 2014. Mobile computer science principles: a professional development sampler for teachers (abstract only). In *Proceedings of the 45th ACM technical symposium on Computer science education (SIGCSE '14)*. ACM, New York, NY, USA, 750-750. DOI=10.1145/2538862.2539030 http://doi.acm.org/10.1145/2538862.2539030

Franklyn Turbak, Fred Martin, Shaileen Crawford Pokress, Ralph Morelli, Mark Sherman, and David Wolber. 2014. Mobile computational thinking with app inventor 2 (abstract only). In *Proceedings of the 45th ACM technical symposium on Computer science education (SIGCSE '14)*. ACM, New York, NY, USA, 745-745. DOI=10.1145/2538862.2539023 http://doi.acm.org/10.1145/2538862.2539023

David Wolber, Ralph Morelli, Franklyn Turbak, and Fred Martin, App Inventor Teacher Workshop (summer 2013, week-long), part of *NSF Transforming Undergraduate Education in STEM* (TUES) project.

Ralph Morelli, David Wolber, Shaileen Pokress, Franklyn Turbak, and Fred Martin. 2013. Teaching the CS principles curriculum with App Inventor (abstract only). In Proceeding of the 44th ACM technical symposium on Computer science education (SIGCSE '13). ACM, New York, NY, USA, 762-762. DOI=10.1145/2445196.2445516 http://doi.acm.org/10.1145/2445196.2445516

Jeff Gray, Hal Abelson, David Wolber, and Michelle Friend. 2012. Teaching CS principles with app inventor. In *Proceedings of the 50th Annual Southeast Regional Conference* (ACM-SE '12). ACM, New York, NY, USA, 405-406. DOI=10.1145/2184512.2184628 http://doi.acm.org/10.1145/2184512.2184628

Hal Abelson, David Wolber, Ralph Morelli, Jeff Gray, and Chinma Uche. 2012. Teaching with app inventor for android (abstract only). In *Proceedings of the 43rd ACM technical symposium on Computer Science Education (SIGCSE '12)*. ACM, New York, NY, USA, 681-681. DOI=10.1145/2157136.2157437 http://doi.acm.org/10.1145/2157136.2157437

David Wolber, Using Google App Inventor to Design Mobile Applications, *UNESCO Workshop*, Trieste, Italy, 2010.

Ellen Spertus, Mark L. Chang, Paul Gestwicki, and David Wolber. 2010. Novel approaches to CS 0 with app inventor for android. In *Proceedings of the 41st ACM technical symposium on Computer science education (SIGCSE '10)*. ACM, New York, NY, USA, 325-326. DOI=10.1145/1734263.1734373 http://doi.acm.org/10.1145/1734263.1734373

Recent Invited Talks

Teaching App Inventor (keynote) *The 1st International Conference on Mobile Learning and Computational Thinking Education*, Guangzhou, China, June 13-15, 2015.

Coding with App Inventor, *Yahoo Visions of Success* event for middle schoolers, May 16, 2015

App Inventor Education (keynote), *Estonia Estonian Information Technology Foundation for Education, International Conference*, April 16-17, 2015, Tallinn, Estonia

Teaching Children to Build Apps, *San Jose Tech Museum of Innovation*, Oct. 18, 2014.

Recent Funding

David Wolber, Alark Joshi, *Google CS4HS Award*, Google, Inc., **$30,000**, 7/1/15-8/1/15

David Wolber, *Democratize Computing Lab*, W.M. Keck Foundation, Undergraduate Education, 1/1/12-9/1/16, **$200,000**.

David Wolber, Hal Abelson (MIT), Franklyn Turbak (Wellesley), Ralph Morelli (Trinity) and Fred Martin (UMass-Lowell), *Computational Thinking through Mobile Computing*, National Science Foundation (NSF) Transforming Undergraduate Education in STEM (TUES) program #1225745, 9/1/12-12/1/15, **$565,836 (**$94,306 USF portion of the award).

David Wolber, *Google RISE Award*, **$10,000**, 6/1/11

David Wolber, Google grant for App Inventor tutorial development, **$10,000**, 6/15/10

Teaching

Recent Courses:

CS 107: Computing, Mobile Apps, and the Web, Designed in 2009 and now taught most semesters, this course provides USF Humanities and Business students with an introduction to coding and computer science. Students learn by building mobile apps using App Inventor. This course fulfills the Math Core at USF and provides approximately 120 students a year with an introduction to coding and computer science (traditionally, very few non-CS students took a CS course). This course provided the model for the "Course-in-a-Box" teaching materials used by numerous teachers at AppInventor.org

CS 110: Introduction to Computer Science, Taught an experimental section in 2015 which taught Python and then Java using the App Inventor Java Bridge, a Java library that allows you to program Android apps using the same terminology as is used in the visual App Inventor tool. See http://www.appinventor.org/jBridgeIntro for teaching materials and student testimonials.

CS 486: Mobile App Development. Taught this special topic course in 2013 to upper-class and graduate CS students, focusing on the Android SDK and environment.

Directed Research Courses – I've directed seven individual students since 2012.

Pre-2010:

Taught Software Engineering courses (undergrad and grad), Senior Project, and introductory courses for many years.

Recent Service Activities

Community:

Co-Director, *USF Google CS4HS program* (2015-). The program helps Bay Area High School teachers develop courses for the new Computer Science Principles (CSP) Advance Placement course. Our work includes workshops, sending USF students to schools to assist teachers, and regular meetings with teachers to build a community of practice.

Director, *USF's Democratize Computing Lab (2012-)*, umbrella organization for my CS education work.

Director, *AppInventor.org (2010-)*, sites serves thousands of self-directed learners and teachers (2011-)

University Advisor, *Computer Science Teachers Association (CSTA) (2015-)*, San Mateo Chapter.

Contributor, *MIT App Inventor*, (2013-) coding and management of student developers to add features to the MIT App Inventor tool, which serves thousands of developers and students.

University:

Director, *USF CS Tutoring Center* (2012-13,2014-)

Contributor *WebTrack Summer Advising*, 2012,1014, 2015

Member, *USF Computer Science Hiring Committee*, 2013

Member, *USF Design Program Hiring Committee, 2012*

Curriculum Vitae

DAVID GALLES
galles@usfca.edu

Education:

Ph.D. in Computer Science	University of California, Los Angeles	1997

  Major field: Artificial Intelligence
  Minor fields: Theory, Programming Languages

M.S. in Computer Science	University of California, Los Angeles	1994
B.S. in Computer Science	Stanford University	1992

  with distinction

Employment:

2003 – present   Associate Professor, University of San Francisco

Courses Taught
Computer Science 107 Robots, Computing, and the Web
Computer Science 110 Introduction to Computer Science
Computer Science 112 Introduction to Computer Science I
Computer Science 245 Data Structures and Algorithms
Computer Science 345 Programming Language Paradigms
Computer Science 411 Automata Theory
Computer Science 414 Compilers
Computer Science 421 Game Engineering 2D
Computer Science 422 Game Engineering 3D
Computer Science 461 Senior Team Project
Computer Science 606 Software Engineering (Graduate)
Computer Science 686 Artificial Intelligence (Graduate)
Computer Science 662 Artificial Intelligence Programming (Graduate)
Computer Science 673 Algorithms (Graduate)
Computer Science 675 Theory of Computation (Graduate)

Independent Study Courses
Artificial Neural Networks

1997 – present   Associate Professor, University of San Francisco

2008 – 2013   (Summers) Trainer and Engineer, Industrial Light and Magic

2006 – 2007   Associate Engineer, Lucasarts

2003 – 2006   Director, Dual Degree in Teacher Preparation Program, University of San Francisco

Publications

D. Galles Data Structure Visualizations www.cs.usfca.edu/galles/visualization

D. Galles "Compiler Design", (textbook) Scott/Jones Publishing
2003

D. Galles and J. Pearl "An Axiomatic Characterization of Causal Counterfactuals"
Foundations of Science I(1998) pp. 151-182

D. Galles and J. Pearl "Axioms of Causal Relevance" *Artificial Intelligence 1997,* pp. 9-43

D. Galles "Structural Causal Models: A Formalism for Reasoning About Actions and
Counterfactuals" UCLA PhD Thesis, 1997

D. Galles and J. Pearl "Testing Identifiability of Causal Effects"
Uncertainty in Artificial Intelligence 1995, pp. 185-195

D. Galles "Map Building and Following Using Teleo-Reactive Trees"
Intelligent Autonomous Systems 3 1993 pp. 390-399

Honors & Awards

Outstanding Ph.D. in Computer Science, UCLA 1997
Honorary Member, Alpha Sigma Nu Honor Society, USF, 2000
Member, Tau Beta Pi, Engineering Honor Society, Stanford 1992

Professional Memberships

Member, American Association of Artificial Intelligence (AAAI), 1995-present

Gregory D. Benson

http://benson.cs.usfca.edu

Department of Computer Science
College of Arts and Sciences
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117-1080

benson@usfca.edu
tel: (415)422-5066
fax: (415)422-5800

Research Interests

My interests include large-scale data processing, parallel and distributed computing, system software, operating systems, and programming languages.

Education

Ph.D. in Computer Science, University of California, Davis; 1993–1999.

M.S. in Computer Science, University of California, Davis; 1991–1993.

Summer Graduate Program, University of Jyvaskyla, Finland; 1991.

B.S. in Computer Science, University of California, Davis; 1987–1991.

Experience

Professor, University of San Francisco; 2008–present.

Chief Scientist, SnapLogic, Inc.; 2014–present.

Director of Research, SnapLogic, Inc.; 2012–2014.

Co-Founder and CTO, Trendulate, LLC; 2011–2012.

Director of Research, SnapLogic, Inc.; 2010–2011.

Chair, Department of Computer Science, University of San Francisco; Fall 2005–Summer 2009.

Associate Professor, University of San Francisco; 2004–2008.

Assistant Professor, University of San Francisco; 1998–2004.

Research Assistant, University of California, Davis; 1991–1998.

Visiting Researcher, University of Utah; January 1997–June 1997,
    Worked with Jay Lepreau and the Flux research group.

Visiting Researcher, Vrije Universiteit, Amsterdam, The Netherlands; March 1996–June 1996,
    Worked with Henri Bal and the Orca research group.

Lecturer, University of California, Davis; Spring 1995.

Teaching Assistant, University of California, Davis; Spring 1994 and Summer 1994.

Programmer, Institute of Governmental Affairs, University of California, Davis; 1990–1991.

Programmer and Lab Manager, Robotics Laboratory, University of California, Davis; 1989–1991.

Programmer, Smith Micro Software, Inc., Aliso Viejo, California; 1985–1988.

Significant Projects

CodeVR: Full State Recording of Python Programs CodeVR is a new system for accurately recording the full execution state of Python programs and allowing for navigation of the recorded state using a graphical interface. The recorder is extremely robust in that can record any type of Python program, even those that use various forms of I/O, including file and network I/O. The recorder is also parallelized so that the full state can be elaborated more quickly on multi-core machines and clusters. Finally, we have developed a novel interface to the recorded state to easily acquire arbitrary states, retrieve console output, and analyze dynamic program behavior. The GUI allows for seamless navigation of program execution state, included moving both forward and backward through the recorded states. The console output is tightly integrated with the code view so that clicking on arbitrary output takes you directly to the line of code and state that produced the output.

River: Reliable Virtual Resources River is a parallel and distributed programming environment written in Python. The River core interface is based on a few fundamental concepts that enables the execution of code on multiple virtual machines and provides a flexible mechanism for communication. These concepts are supported by the River run-time system, which manages automatic discovery, connection management, and naming. River can be used directly by an application programmer to implement parallel programs or it can be used as a framework for implementing programming models. We have found the simplicity and elegance of the River core combined with Python's dynamic typing and concise notation make it easy to rapidly develop a variety of parallel applications and run-time systems. In addition, River has integrated support for checkpointing, migration, debugging, and monitoring. (see `http://www.cs.usfca.edu/river`)

FlashMob Computing I was a co-creator and implementor of a Linux-based system for temporary supercomputing. I worked on the OS infrastructure for our live CD, porting MPI implementations, and adapting Linpack. We held the first FlashMob Computing event on April 3, 2004 at the University of San Francisco. We connected 700 volunteer computers to construct an instant supercomputer. The event attracted international interest from the general public and academia. It resulted in significant media attention, including two New York Times articles (one on the front page), reports on internet news sites, radio interviews, and TV spots. (`http://www.flashmobcomputing.org`, 2004)

USFMPI I was the principle investigator on a project to explore new implementation techniques for MPI. We developed a fully functional, but lightweight Linux-based MPI 1.2 library for TCP/IP and Myrinet clusters. Our target platform is clusters of multiprocessor nodes, so we used a multithreaded approach to separate computation and communication processing. For certain applications we achieved better performance than both MPICH and LAM. We also added static and dynamic mode switching for single threaded and multithreaded operation as well as for polling and blocking communication. For Myrinet, we implemented our own GM-based transport. (see publications, 2001-2004)

VPI I was the principle investigator for the Virtual Processor Interface, a library for building kernel-aware user-level thread systems. We modified the Linux kernel to support a form of scheduler activations. Our approach minimized the usage of processes found in a 1 to 1 thread implementation, but allowed maximum parallelism on true multiprocessors. (see publications, 1999-2003).

Mezcla For my dissertation I developed a source-level thread system generation tool. Unlike conventional thread packages, Mezcla enables a language implementor to generate specialized, light-weight thread systems based on the requirements of the run-time system and the functionality of the target platform. Mezcla can generate code for custom thread APIs and scheduling requirements. It will generate appropriate locking code for SMP targets, but eliminate locking on uniprocessors. (see publications, 1996-1998)

OSKit and xKernel I was a member of the Flux Research group at the University of Utah. I worked on the OSKit, a system for creating custom operating systems. I focused on adapting the OSKit to help create standalone language run-time systems. To support my OSKit implementation of the SR programming language, I developed an OSKit-based thread system and ported the xKernel for TCP/IP communication. (`http://www.cs.utah.edu/flux/oskit/`, see publications, 1997)

SR I am a member of the SR project. I contributed to the implementation if SR concurrent programming language. (`http://www.cs.arizona.edu/sr`, 1996-present)

Publications

G. D. Benson, "State Management for Distributed Python Applications," In *Proceedings of the 13th IEEE Workshop on Dependable Parallel, Distributed and Network-Centric Systems (DPDNS08)*, Miami, Florida, 2008.

G. D. Benson and A. S. Fedosov, "Python-Based Distributed Programming with Trickle," In *2007 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'07)*, Las Vegas, NV, 2007.

A. S. Fedosov and G. D. Benson, "Communication with Super Flexible Messaging," In *2007 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'07)*, Las Vegas, NV, 2007.

G. D. Benson, M. Butner, S. Padden, and A. Fedosov, "The Virtual Processor Interface: Linux Kernel Support for User-level Thread Systems," In *Proceedings of the 15th IASTED International Conference on Parallel and Distributed Computing and Systems*, Marina del Rey, CA 2003.

S. G. Caglar, **G. D. Benson**, Q. Huang, and C. Chu, "USFMPI: A Multi-threaded Implementation of MPI for Linux Clusters," In *Proceedings of the 15th IASTED International Conference on Parallel and Distributed Computing and Systems*, Marina del Rey, CA 2003.

G. D. Benson, C. Chu, Q. Huang, and S. G. Caglar, "A Comparison of MPICH Allgather Algorithms on Switched Networks," In *Proceedings of the 10th EuroPVM/MPI 2003 Conference*, Venice, Italy, September, 2003.

G. D. Benson, K. Long, and P. Pacheco, "The Performance of Parallel Disk Write Methods for Linux Multiprocessor Nodes," In *Proceedings of the 10th EuroPVM/MPI 2003 Conference*, Venice, Italy, September, 2003.

R. A. Olsson, **G. D. Benson**, T. Ge, and A. W. Keen, "Fairness in shared invocation servicing", Journal of Computer Languages, Systems, and Structures, volume 28, pages 327–351, Pergamon, 2003.

S. B. Gehani and **G. D. Benson**, "xDU: a Java-based Framework for Distributed Programming and Application Interoperability," in *Proceedings of the 12th IASTED International Conference on Parallel and Distributed Computing and Systems*, Las Vegas, Nevada, 2000.

G. Benson and R. Olsson, "A Framework for Specializing Threads in Concurrent Run-time Systems," In *Proceedings of 4th Workshop on Languages, Compilers, and Run-time Systems for Scalable Computers (LCR98)*, volume 1511 of *Lecture Notes in Computer Science*, pages 139–152. Springer-Verlag, Pittsburgh, PA, 1998.

B. Ford, G. Back, **G. Benson**, J. Lepreau, O. Shivers, and A. Lin, "The Flux OS Toolkit: A Substrate for Kernel and Language Research," In *Proceedings of the Sixteenth ACM Symposium on Operating System Principles*, pages 38–52, St. Malo, France, October, 1997.

M. Haines, **G. Benson**, and K. Langendoen, "On the Design of Substrate Software," In *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications*, pages 325–333, Las Vegas, NV, June 1997.

G. D. Benson and R. A. Olsson, "A Portable Run-Time System for the SR Concurrent Programming Language," In *Proceedings of the Workshop on Run-Time Systems for Parallel Programming*, IR-417, Department of Mathematics and Computer Science, pages 21–30, Vrije Universiteit, Amsterdam, The Netherlands, April 1997. In conjunction with with the 11th International Parallel Processing Symposium (IPPS'97).

G. D. Benson and R. A. Olsson, "Towards Microkernel Support for the SR Concurrent Programming Language," In *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications*, pages 1513–1524, Sunnyvale, CA, August 1996.

T. Rühl, H. Bal, **G. D. Benson**, R. Bhoedjang, and K. G. Langendoen, "Experience with a Portability Layer for Implementing Parallel Programming Systems," In *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications*, pages 1477–1488, Sunnyvale, CA, August 1996.

G. D. Benson, R. A. Olsson, and R. Pandey, "On the Decomposition of Run-Time Support for Concurrent Programming Languages," In *Proceedings of the Workshop on High-Level Programming Models and Supportive Environments*, held in conjunction with the 10th International Parallel Processing Symposium (IPPS'96), Honolulu, Hawaii, April 1996.

G. D. Benson and R. A. Olsson, *The Design of Microkernel Support for the SR Concurrent Programming Language*, chapter 17, pages 227–240. Languages, Compilers, and Run-Time Systems for Scalable Computers. Kluwer Academic Publishing, Boston, MA, 1996. B. K. Szymanski and B. Sinharoy (editors). Also in *Proceedings of the Third Workshop on Languages, Compilers, and Run-Time Systems for Scalable Computers*, Troy, New York, May 1995.

C. Zhang, R. Shaw, M. R. Heckman, **G. D. Benson**, M. Archer, K. Levitt, and R. A. Olsson, "Towards a Formal Verification of a Secure Distributed System and its Applications," *The 17th National Computer Security Conference*, October, 1994.

C. Zhang, R. Shaw, R. Olsson, K. Levitt, M. Archer, M. Heckman, **G. Benson**, "Mechanizing a Programming Logic for the Concurrent Programming Language microSR in HOL," *HUG93 The HOL User's Group Workshop*, Vancouver, B.C., 1993.

G. D. Benson and A. Prieditis, "Learning Reward Functions in Real-Time for Continuous-Space Navigation," *From Animals to Animats: Second International Conference on Simulation of Adaptive Behavior*, Honolulu, Hawaii, December 1992. (Abstract only).

Teaching

Courses Taught at the University of San Francisco

CS 110 Introduction to Computer Science; Fall 2010, Fall 2012, Fall 2013, Fall 2014.

CS 221 C and Systems Programming; Fall 2009.

CS 326 Operating Systems; Fall 1998, Fall 1999, Fall 2000, Fall 2001, Fall 2002, Fall 2003, Fall 2005, Fall 2006, Spring 2007, Fall 2007, Fall 2008, Fall 2009, Fall 2012, Fall 2013, Fall 2014, Fall 2015.

CS 315 Computer Architecture; Spring 2000, Spring 2001, Spring 2002, Spring 2003, Spring 2004, Spring 2008, Spring 2010, Spring 2011.

CS 345 Programming Language Paradigms; Spring 2013

CS 286 Computer Architecture; Spring 1999.

CS 486 Parallel Computing; Fall 2002.

CS 490/491 Senior Team Project; Fall 1998, Spring 1999, Fall 1999, Spring 2000, Fall 2006.

CS 625 Parallel and Distributed Computing (graduate); Fall 2002, Fall 2006.

CS 631 Systems Foundations (graduate); Spring 2015.

CS 636 Operating Systems (graduate); Spring 2000, Spring 2002, Spring 2006, Spring 2009, Spring 2011, Spring 2013, Spring 2014, Spring 2015, Fall 2015.

CS 315 Computer Architecture (graduate); Fall 2000.

CS 652 Programming Languages (graduate); Spring 2001, Spring 2014.

CS 686 Implementing Concurrency (graduate); Spring 1999.

CS 686 Program Instrumentation and Analysis (graduate); Spring 2010.

CS 650 Parallel Algorithms (graduate); Fall 1998.

CS 690 Masters Project (graduate); Spring 2001, Fall 2001.

CS 695 Practicum Study; Summer 2009.

Directed Research Courses Supervised at the University of San Francisco

Bitcoin and DHT Research, Justin Sher, Fall 2015.

Raspberry Pi Kernel Development, Seimei Matsusaki, Fall 2015.

Raspberry Pi Kernel Development, Juan Carlos Yescas and Jinpeng Bi, Spring 2015.

Raspberry Pi Kernel Development, Juan Carlos Yescas, Fall 2014.

Auto Grader Project, Adam Toth-Fejel and Milica Hadzi Tanovic, Summer/Fall 2014.

Mobile Discovery, Lihuan Xie, Fall 2009

Whole State Analysis, Peter Burns, Fall 2009

Full State Debugger, Chungro Lee, Fall 2008

Distributed System Implementation, Brian Hardie, Spring 2007.

Distributed System GUI, Tony Ngo, Spring 2007.

River Debugger Extension, Jennifer Reyes, Spring 2007.

River Monitor Extension, Joseph Guitierrez, Spring 2007.

Implementing MPI in River, Yiting Wu, Spring 2007.

Source Code Generation, Wen Dong; Fall 2002.

Linux Kernel Development, Shaun Padden; Fall 2001.

Java Tools for Classfile Manipulation, Jin Kim; Fall 2000, Spring 2001.

Implementing Threads for a JVM, Meghna Mehta; Fall 1999.

x86 Performance Analysis, Alex Fedosov; Fall 1999.

CPU Architecture, Nancy Montanez; Fall 1999.

Teaching at the University of California, Davis

Operating Systems (upper division) *lecturer*; Spring 1995.

Introduction to Software Development (lower division) *teaching assistant*; Summer 1994.

Software Engineering (upper division) *teaching assistant*; Spring 1994.

Service

Supervised Master Theses

Alex Fedosov, "A Python-based Framework for Distributed Programming and Rapid Prototyping of Distributed Programming Models," M.S. Thesis, Department of Computer Science, University of San Francisco, 2009.

Sadik G. Caglar, "An Implementation of MPI 1.2 for Linux Clusters," M.S. Thesis, Department of Computer Science, University of San Francisco, 2003.

Samir B. Gehani, "A Java-based Framework for Explicitly Partitioning Applications into Distributable Units,", M.S. Thesis, Department of Computer Science, University of San Francisco, 2000.

Professional Activities

USENIX Liaison for the University of San Francisco (`http://www.usenix.org/students/outreach.html`), 1999–present.

Swarthmore College Honors Examiner; Spring 2004 and Spring 2011.

Proposal Review Panel Member for the National Science Foundation (NSF) Course, Curriculum, and Laboratory Improvement (CCLI), Summer 2006

Program Committee Member for the International Conference on Distributed Computing Systems (ICDCS 2000), Taipei, Taiwan, April 10-13, 2000 (`http://www-cis.ohio-state-edu/~icdcs`).

Program Committee Member for the 4th Workshop on Runtime Systems for Parallel Programming (RTSPP), Cancun, Mexico, May 1, 2000 (`http://www.cs.ucdavis.edu/~olsson/confs/rtspp/2000`). To be held in conjunction with the 14th International Parallel and Distributed Processing Symposium (IPDPS 2000).

Program Committee Member for the 3nd Workshop on Runtime Systems for Parallel Programming (RTSPP), San Juan, Puerto Rico, April 12, 1999 (`http://www.cs.ucdavis.edu/~olsson/confs/rtspp/1999`). Held in conjunction with the 13th International Parallel Processing Symposium (IPPS'99).

Co-Chair for the 2nd Workshop on Runtime Systems for Parallel Programming (RTSPP), Orlando, Florida, March 30, 1998 (`http://www.cs.ucdavis.edu/~olsson/confs/rtspp/1998`). Held in conjunction with the 12th International Parallel Processing Symposium (IPPS'98).

Co-Chair for the Workshop on Runtime Systems for Parallel Programming (RTSPP), Geneva, Switzerland, April 5, 1997 (`http://www.cs.ucdavis.edu/~olsson/confs/rtspp/1997`). Held in conjunction with the 11th International Parallel Processing Symposium (IPPS'97).

Referee for:

ACM Computing Surveys

IPL – Information Processing Letters

ICDCS – International Conference on Distributed Computing Systems

ICPP – International Conference on Parallel Processing

HUG – The HOL (Higher Order Logic) User's Group Workshop

Service to the Department of Computer Science at the University of San Francisco

CS Faculty Search Committee, Chair 2015-2016.

CS Faculty Search Committee, Chair 2014–2015.

Co-organizer for CS Night 2005, 2006, 2007, and 2008.

Department Chair; Fall 2005–Summer 2009.

Chair, Library Acquisitions Committee; 2001–2004.

Undergraduate advisor; 1999–present.

CS Faculty Search Committee; 1998–1999, 1999–2000, 2000–2001, 2001–2002 (hired Chris Brooks), 2004–2005 (hired Terence Parr), 2006–2007 (hired Sami Rollins), 2012–2013 (hired Sophie Engle and Alark Joshi).

Computer Support Committee; 1998–2004.

Graduate Program Committee; 1998–1999.

Service to the College of Arts and Sciences at the University of San Francisco

Engineering Task Force; 2015–present.

University Scholars Mentor; 2015–present.

CS Representative for Harney Renovation Planning; 2014–present.

Webtrack Summer Advising; 2015.

Advertising Search Committee; 2014–2015.

Analytics Search Committee; 2012–2013 (hired Cindi Thompson).

College Council, 2005–2009.

COSEC Chair, 2007–2008.

COSEC, 2005–2009.

Harney Science Extension Development Committee, Fall 2005–2009.

Academic Advising Workshop for new Faculty, Spring 2007

Summer advising; 2000, 2001.

Science Open House; 2000.

Sciences Systems Administrator Search Committee; 2000.

New student phone-a-thon volunteer; 1999, 2000, 2001, 2002.

Major/minor fair volunteer; 1999, 2000, 2001, 2002, 2005, 2014.

Service to the University of San Francisco

JULAC Committee Member; 2014-2015.

USFFA Policy Board; 2005–2007.

USF ITS Communications Infrastructure and Security Subcommittee; 2005–2008.

Kudlick Classroom Design Committee. Significant contributor to the design of high-technology computer science classroom. Project budget: $2,500,000.00. Funded by the Chuang Family Foundation. 2001–2002.

ITS Communication Infrastructure Subcommittee; Fall 2005–2008.

University Information Technology Committee (UITC); 2000–2004.

UITC Network Security Subcommittee; 2002–2004.

Information Technology Users Committee (ITS Users); 1999-2000.

Talks

Bay Area Beowulf User Group (BayBUG), "Rapid Development of Parallel Systems and Applications in River", April 17, 2007.

USF Women in Science, "River: Reliable Parallel Computing", Spring 2006.

HP Labs, "Rivers: Reliable Virtual Resources", Spring 2006.

Awards and Honors

University of San Francisco Faculty Development Fund for Research, *CodeVR: Program Comprehension and Analysis Using State Capture*, 2010.

University of San Francisco Faculty Development Fund for Research, *River: Reliable Virtual Resources for Parallel and Distributed Computing*, 2006 and 2007.

University of San Francisco Faculty Development Fund for Research, *Research in Parallel Software Development* (with Peter Pacheco), 2003.

University of San Francisco Faculty Development Fund for Travel to the 10th EuroPVM/MPI Conference, Venice, Italy, September, 2003.

University of San Francisco Faculty Development Fund for Travel to the 15th IASTED International Conference on Parallel and Distributed Computing and Systems, Marina del Rey, CA 2003.

University of San Francisco Faculty Development Fund for Travel to Operating Systems Design and Implementation (OSDI) 2002.

W. M. Keck Foundation, $600,000.00, *A Self-built Parallel Supercomputer for Interdisciplinary Undergraduate Research*, A collaboration with Peter S. Pacheco and Tristan Needham, 2001.

University of San Francisco Faculty Development Fund for Research, *Frameworks and Run-time Systems for Simplified Distributed Programming in Java*, 2000.

University of San Francisco Faculty Development Fund for Research, *Advanced Thread Systems for Applications and Programming Languages*, 1999.

Altera Software Donation, $44,000.00. Licenses for Max+plus II digital design software. Used in undergraduate and graduate computer architecture. 1999.

Symposium on Operating Systems Principles (SOSP), Student Scholarship: 1997 and 1995.

UC Davis Graduate Student Travel Grant 1997.

Operating Systems Design and Implementation (OSDI), Student Grant: 1996 and 1994.

USENIX Technical Conference Student Grant 1996.

Mach III Symposium Student Grant 1993.

Memberships

Association for Computing Machinery (ACM)
ACM Special Interest Group on Operating Systems (ACM SIGOPS)
ACM Special Interest Group on Programming Languages (ACM SIGPLAN)
USENIX The Advanced Computing Systems Association

Terence John Parr

http://www.cs.usfca.edu/~parrt

Department of Computer Science
College of Arts and Sciences
University of San Francisco
2130 Fulton Street
San Francisco, CA 94117-1080

parrt@cs.usfca.edu
tel: (415)422-5707
fax: (415)422-5800

Research Interests

My interests include programming language design, language implementation, language translation, and developer tools. For over 20 years, I have developed, maintained, and distributed open-source programming language tools such as ANTLR and StringTemplate.

Education

Ph.D., School of Electrical Engineering, Purdue University; 1993
> *Thesis*: "Obtaining Practical Variants of $LL(k)$ and $LR(k)$ for $k > 1$ By Splitting the Atomic k-Tuple". Invented useful approximation to interesting, but intractable parsing-related computation; reduced space and time complexity from $O(n^k)$ to $O(nk)$.

MS in Engineering, School of Electrical Engineering, Purdue University; 1990

BS Computer Science, School of Science, Purdue University; West Lafayette Indiana, 1987

Expert Witness Activity

Oracle v Google. July 2011 - May 2012. Defended Google on 2 of 7 patent infringement allegations, 1 of which went to trial (US patent 6,061,520). Testified in federal court May 11, 2012. Jury found in favor of Google. Ars Technica: "*Parr, a polished witness, seemed fresh and tireless on the stand.*" Testimony: http://www.groklaw.net/article.php?story=20120511165908331

Ajaxo, Inc. v Bank Of America Corporation. July-August, 2008. Defended Bank Of America against copyright infringement allegations. Settled in favor of Bank Of America.

Employment

University of San Francisco; **Full professor of computer science**; 2014-present.

University of San Francisco; **Associate professor of computer science**; 2008-2014. Graduate program director in *computer science / web science* Summer 2004-2014. Founding director of *MS in Analytics* 2011-2014.

University of San Francisco; **Assistant professor of computer science**; 2003-2008.

jGuru.com. Cofounder and Chief Scientist San Francisco, CA; 1995-2004 jGuru.com was a well-respected and large independent site for Java developers. Solicited and received $5M private investment, managed 20+ people (10 Ph.D.s) when doing business as MageLang Institute, and implemented 110k-line jGuru server using Java/XML/RDBMS. *Sold in 2004 to Jupiter Media.*

Parr Research Corporation; President and Founder Minneapolis, Minnesota; August 1994 - 1995 Software developement and consulting firm. Clients included NeXT Computer, Army Research Lab (Aberdeen Proving Grounds), Tandem, Computing Devices International, Berkeley Systems, Pencom.

Army High-Performance Computing Research Center; Postdoctoral Research Fellow Minneapolis, Minnesota; August 1993 - 1994 Research interests: language translation tools and their role in parallel supercomputing.

Army High-Performance Computing Research Center; Predoctoral Fellow Minneapolis, Minnesota; September 1991 - August 1993 Involved in the formulation of portable, application-specific programming language (Fortran-P) and compiler for supercomputers (e.g. MasPar MP-1 and Thinking Machines CM-200, CM-5).

IBM; Software Engineer Lexington, Kentucky; June 1990 - December 1990 Developed translator that generated a proprietary IBM language from C++

Renault Automation; Engineer Paris, France; Direction des Techniques Avancees; January - June 1988. Completed work on compiler, interpreter, and debugger for KAREL (robot-control language), ported to industrial robot controller; continuation of work from Cybotech.

Cybotech Corporation; Software Engineer West Lafayette, Indiana; May 1986 - December 1987 Principle developer of compiler, debugger and environment for KAREL, a robot control language; supervised work of two other employees.

Lockheed Missiles and Space Company; Summer Technical Hire Sunnyvale, California; May - August 1984, 1985 Assistant system administrator for network of 45 Apollo workstations. Developed program to schedule calibration of fleet ballistic missile test consoles.

Purdue University Psychology Department; Software developer West Lafayette, Indiana; January - April 1984; September 1984 - May 1985 Created library of routines to control and monitor hardware functions required for psychological experimentation.

Kaman Sciences Corporation; Junior Programmer Colorado Springs, Colorado; May - August 1983 Developed graphics package for representation of data from nuclear tests.

Bio-Analytical Systems; Software Engineer West Lafayette, Indiana; September 1982 - May 1983 Developed software to collect and display data from chemical analysis hardware.

Significant Projects

ANTLR. Designer and project lead. ANTLR is a very popular, well-respected parser generator that almost single-handedly diverted attention from $LR(k)$ to $LL(k)$ and introduced numerous (now standard) parsing/translation techniques and ideas. *Impact*: The software is included in all RedHat Linux distributions and Mac OS X developer distributions. There are roughly 5000 ANTLR software downloads a month. The ANTLR v4 project website has roughly 100,000 page views a month and attracts 20,000 unique visitors a month (75% of which originate from outside the US). The ANTLR v3 website has 60,000 page views a month and 12,000 unique visitors a month. Data provided by *Google Analytics* site statistics service (February 1 - July 31, 2013). http://antlr.org

StringTemplate. Co-designer (with Thomas Burns) and project lead. StringTemplate is a java template engine (with ports for C# and Python) for generating source code, web pages, emails, or any other structured text output. StringTemplate is particularly good at retargetable code generators, multiple website skins, and website internationalization/localization. The project website has 25,000 page views a month and attracts 4,000 unique visitors a month (75% of which originate from outside the US). Data provided by *Google Analytics* site statistics service (February 1 - July 31, 2013). http://stringtemplate.org

ANTLRWorks. Co-designer (with graduate student Jean Bovet, the primary implementor). ANTLRWorks is a novel GUI grammar development environment for ANTLR grammars that combines an excellent grammar-aware editor with an interpreter for rapid prototyping and a language-agnostic debugger for isolating grammar errors. ANTLRWorks helps eliminate grammar nondeterminisms, one of the most difficult problems for beginners and experts alike, by highlighting nondeterministic paths in the syntax diagram associated with a grammar. http://antlr3.org/works

ANTLR 4 Intellij Plugin— An open-source plug-in that helps programmers quickly develop ANTLR 4 grammars. A "live programming" shows parse trees for sample input as programmers type and reflects changes to the grammar immediately without generating code. The plug-in has a sophisticated profiler that identifies ambiguous phrases and grammar hotspots. https://github.com/antlr/intellij-plugin-v4

Mantra programming language. Co-designer (with graduate student Jean Bovet) and project lead. Mantra is essentially Java with some of the weight dropped off and some features from functional programming added for data manipulation. In a sense Mantra combines the rapid development aspects of the new class of scripting languages with the static types and efficiency of Java.

Books

"The Definitive ANTLR 4 Reference", Terence Parr, Pragmatic Bookshelf, Dallas Texas, January 2013. ISBN 978-1-93435-699-9. Sold 6,837 copies as of Mar 11, 2015. http://amzn.com/1934356999.

"Language Implementation Patterns", Terence Parr, Pragmatic Bookshelf, Dallas Texas, 2009. ISBN 978-1-93435-645-6. Sold 14,590 copies as of Mar 11, 2015. http://amzn.com/193435645X.

"The Definitive ANTLR Reference: Building Domain-Specific-Languages," Terence Parr, Pragmatic Bookshelf, Dallas Texas, May 2007. ISBN 0-9787392-5-6. Sold 16,967 copies as of Mar 11, 2015. http://amzn.com/0978739256.

Section in "Lucene in Action", Erik Hatcher and Otis Gospodnetic. Manning 2005.

"Language Translation Using PCCTS AND C++", Terence John Parr, Automata Publishing; San Jose, CA 1997 ISBN 0-9627488-5-4.

Papers in Refereed Journals

"ANTLRWorks: an ANTLR grammar development environment," Jean Bovet and Terence Parr. Software Practice and Experience. Volume 38, No. 12 (Oct. 2008), pp 1305-1332.

"The Fortran-P Translator: Automatic Translation of Fortran 77 Programs for Massively Parallel Processors," Matthew O'Keefe, Terence Parr, B. Kevin Edgar, Steve Anderson, Paul Woodward, and Hank Dietz; Journal of Scientific Programming, Vol. 4, pp 1-21, 1995.

"ANTLR: A Predicated-LL(k) Parser Generator," T.J. Parr and R.W. Quong; Journal of Software Practice & Experience, Vol. 25, No. 7; July, 1995.

Papers at Refereed Conferences

"*Adaptive LL(*)* Parsing: The Power of Dynamic Analysis," Terence Parr, Sam Harwell, Kathleen Fisher, OOPSLA; Portland, OR 2014.

"*LL(*)*: The foundation of the ANTLR parser generator," Terence Parr, Kathleen Fisher, Programming language design and implementation (PLDI), San Jose, CA 2011.

"Web Application Internationalization and Localization in Action," Terence Parr, International Conference on Web Engineering, Palo Alto, CA July 2006.

"Chronica: A Temporal Web Search Engine," Deniz Efendioglu, Chris Fraschetti, and Terence Parr, Poster paper, International Conference on Web Engineering, Palo Alto, CA July 2006. *Written with two USF graduate students.*

"Enforcing Strict Model-View Separation in Template Engines", WWW2004 conference, NYC May 2004. *Nominated for best paper (acceptance rate for WWW2004 was 14%).*

"A Language for Creating and Manipulating VRML", Terence Parr and Tim Rohaly, First Annual Symposium on the Virtual Reality Modeling Language, San Diego, 1995.

"Adding Semantic and Syntactic Predicates to LL(k): pred-LL(k)," Terence J Parr and Russell W. Quong; International Conference on Compiler Construction 1994; Edinburgh, Scotland; April 1994.

"An Overview of SORCERER-A Simple Tree-Parser Generator," Terence John Parr; Poster paper; International Conference on Compiler Construction 1994; Edinburgh, Scotland; April 1994.

Non-peer-reviewed Publications

"The Reuse of Grammars with Embedded Semantic Actions," Terence Parr, **Keynote presentation** at International Conference on Program Comprehension 2008. Amsterdam, Netherlands.

"LL and LR Translators Need $k > 1$ Lookahead," Terence J. Parr and Russell W. Quong; SIGNPLAN Notices, Vol. 31, No. 2, February 1996.

"PCCTS 1.00: The Purdue Compiler Construction Tool Set," T.J. Parr, H.G. Dietz, W.E. Cohen; SIGPLAN Notices, February 1992.

Web Publications

"The Importance of Model-View Separation", Terence Parr and Bill Venners, 2008
http://www.artima.com/lejava/articles/stringtemplate.html

"Learn the essentials of debugging," Terence Parr, IBM DeveloperWorks, 2004
http://www-128.ibm.com/developerworks/web/library/wa-debug.html

"Humans should not have to grok XML," Terence Parr, IBM DeveloperWorks, 2001
http://www-128.ibm.com/developerworks/xml/library/x-sbxml.html

"Why we care about Java," Terence Parr, JavaWorld Magazine, 1997
http://www.javaworld.com/javaworld/jw-11-1997/jw-11-portability.html

Workshops

"ALL(*) model of parsing in ANTLR," Parsing @ SLE, Nov 2013;
http://www.sleconf.org/blog/11-20-2013-parsing-at-sle-2013/

"Implementing parsers and state machines in Java," Java VM Summit, Sept, 2009;
http://wiki.jvmlangsummit.com/images/c/c3/Parr_Java_Parsers.pdf

ANTLR2009; co-organizer and presenter; USF, June 6-7, 2009.

ANTLR2005; co-organizer and presenter; BEA Systems, San Francisco, October, 2005.

"The Role of Template Engines in Translation", Source-to-source 2004 workshop co-located with OOP-SLA 2004; Vancouver, Canada; October 25, 2004.

ANTLR2004 (in cooperation with ACM); co-organizer and presenter; University of San Francisco, October 7-8, 2004.

PCCTS workshops; organizer and presenter at NeXT Computer July 1994, SGI July 1995, and Sun Microsystems August 1997.

"An Overview of SORCERER," SGI Compiler Summit; San Jose CA; June 26-28, 1994.

"Object-Oriented ANTLR Parsers," (Presented by R.W. Quong) "OO Compilation–What are the Objects?" workshop at OOPSLA 94; Portland OR.

Invited Presentations

"The Quest for the One True Parser," QCon San Francisco 2014, Nov 2014;
http://qconsf.com/presentation/quest-one-true-parser

"ANTLR 4, Honey Badger," Boundary, February 13, 2013.
http://www.youtube.com/watch?v=q8p1voEiu8Q.

"ANTLR 4, Honey Badger," Adobe, January 12, 2012.

"Why program by hand in 5 days what you can spend 5 years of your life automating?", Keynote presentation at Code Generation conference 2011, Cambridge, England, June 2011.
http://www.infoq.com/presentations/Automation-DSL

"A Taste of StringTemplate," Netflix Inc. August 2009.

"The Reuse of Grammars with Embedded Semantic Actions," Aachen Institute for Advanced Study in Computational Engineering Science (AICES); Aachen, Germany; June 16, 2008.

"The Reuse of Grammars with Embedded Semantic Actions," Centrum Wiskunde & Informatica Amsterdam, Netherlands; June 10, 2008.

"ANTLR v3, ANTLRWorks, and StringTemplate", BEA Systems; April, 2005. *With partial presentation by USF grad student Jean Bovet*

"The Evolution of The StringTemplate Engine", Harmonia Research group, UC Berkeley; December 2004.

"The ANTLR Parser Generator, Present and Future", University of Quebec at Montreal; November 12, 2004.

"The Role Of Template Engines in Code Generation", Microsoft Research; Seattle, Washington; July 2004.

"Language Translation, Domain Specific Languages, and ANTLR" with Loring Craymer, NASA JPL IT Symposium, October 2002.

"The ANTLR Parser Generator," Apple Computer; Cupertino, CA; February 1995.

"Language Translation with ANTLR and SORCERER," Sun Laboratories; Mountain View, CA; November 1994.

"PCCTS and It's Application to C++ Parsing," Lawrence Livermore National Lab; Livermore, CA; April 1994.

"An Overview of SORCERER," Argonne National Laboratories, Chicago Illinois; November 1994.

"An Introduction to PCCTS," IBM; Rochester, MN; April 1994.

"Parsing and Translation with ANTLR and SORCERER," Xerox Design Research Institute; Cornell University, Ithaca, NY; November 1993.

"Linear Approximation to Exponential LL(k) and LR(k) Lookahead," SUNY Albany; Albany, NY; November 1993.

"Translation with SORCERER," NeXT, Inc.; Redwood City, California; October 1993.

"Language Tools and Their Role in Scientific Computing," Konrad Zuse Institute of Berlin (ZIB); Berlin, Germany; September 1993.

"PCCTS," Technical University of Dresden; Dresden, Germany; September 1993.

"Advanced Parsing Strategies Using PCCTS," Argonne National Lab; Chicago, Illinois; July 1993.

"Advanced Parsing Strategies Using PCCTS: The ANTLR Parser Generator," Cray Research Inc.; Eagan, Minnesota; March 1993.

"The Role of Language Tools in Supercomputing," Army High-Performance Computing Research Center; Minneapolis, Minnesota; March, 1993.

Teaching

MSAN501 Computation for Analytics; Summer 2013

CS245 Data Structures and Algorithms (lower division); Spring 2007.

CS345 Programming Language Paradigms (lower division); Spring 2006, Spring 2012.

CS385 Special Lecture Series (upper division); Fall 2004

CS342 Software Engineering (upper division); Spring 2004, Spring 2005, Spring 2006, Spring 2007, Spring 2008, Fall 2008, Spring 2009

CS414 Compiler; Spring 2009

CS601 Object-Oriented Software Development (graduate); Fall 2002 (part-time position), Fall 2003, Fall 2004, Fall 2004, Fall 2005, Fall 2006, Spring 2006 (met with CS342), Spring 2007 (met with CS342), Spring 2008, Fall 2007, Spring 2008, Fall 2008, Spring 2009.

CS652; Programming Languages (graduate) Spring 2003 (part-time position), Spring 2004, Spring 2006, Spring 2008, Spring 2009, Spring 2011

CS680 Web Systems and Algorithms; Fall 2011, Fall 2012

CS690; Masters Project (graduate) Fall 2003, Fall 2004, Spring 2005, Fall 2005

CS698; Directed Research Courses

- Mantra Impl II, Spring 2012
- ANTLR GUI, Fall 2011
- ANTLR v4 Development, Spring 2010
- Grammar Diff Tool, Fall 2009
- ANTLR Performance, Spring 2009
- ANTLR Works Improvement, Fall 2008
- ANTLR Morph Rewrite Tool, Fall 2008
- Mantra Application, Fall 2008
- Software Data Recorder, Summer 2008
- Prototype Grammars, Summer 2008
- Rewrite Engine, Summer 2008
- Mantra Application, Spring 2008
- ANTLRWorks, Fall 2005, Spring 2006
- Chronica (2 students), Fall 2005
- Flashmob, Summer 2004
- Flashmob, Fall 2004

Grants and Awards

Awarded $5,000 research grant from Sun Microsystems entitled, "C/C++ Parser Generator for NetBeans C/C++ Development Pack," period September, 2006 – June, 2007.

Awarded $70,000 Army SBIR (Small Business Innovation Research) contract to develop languages for process simulation and 3D visualization based upon VRML, 1994.

Software grants

Received $8,800 software grant for Jira (bug tracking) and Confluence (wiki) from Atlassian, 2005 and 2006, respectively.

Received $3,000 site-license software grant from Jetbrains for PyCharm Python development environment.

Received $73,500 software grant from Perforce (revision control system) for 100 seat license; yearly since 2002.

Faculty development fund awards:

$2,913.00 "Research web presence update." July 2013

$954.90 Travel to present "LL(*): The foundation of the ANTLR Parser Generator" (PLDI 2011), June 2011.

$2,236.00 Travel to present keynote at Code Generation 2011 conference. May 2011.

$150.00 Registration fee for JVM Language Summit, July 2010.

$1,790.00 Travel to present paper "Enforcing strict model-view separation and template engines". April 2004.

$355.00 Travel to present "LL(*) parsing and code generation in ANTLR 3.0". December 2004.

$762.00 Travel to present "The role of template engines in translation". December 2004.

$1,301.98 Travel to attend "Generative programming and component engineering (GPCE2006)"; co-located with OOPSLA2006. December 2006.

$385.70 Travel to serve on program committee for conference and present paper "The internationalization and localization of web applications in action". December 2006.

Service

Program Committee Activity

SAC2010 Conference Object-Oriented Programming Languages and Systems. Lausanne, Switzerland, March 2010.

WASDeTT-3, Third International Workshop on Academic Software Development Tools and Techniques, 2010.

SAC2009 Conference language track, Hawaii March 2009.

First Workshop on Advances in Programming Languages (WAPL 2007), Wisla, Poland, October 2007.

Seventh Workshop on Language Descriptions, Tools and Applications (LDTA 2007), Braga, Portugal, March 2007.

International Conference on Web Engineering (ICWE 2006), served on program committee and acted as sponsorship chair. Palo Alto, CA July 2006. *Secured US$20,000 in sponsorship from Google, BEA, Adobe, and SAP; covered nearly half the expenses.*

Co-organized ANTLR workshops: co-sponsored by BEA Systems 2005, USF 2004, Sun Microsystems 1997, SGI 1995, NeXT Computer 1994.

Referee activity

Science of Computer Programming (Elsevier)

Transactions on programming languages and systems (TOPLAS)

Software Practice & Experience Journal

Programming Language Design and Implementation (PLDI) Conference

The Eighth Workshop on Language Descriptions, Tools and Applications (LDTA)

Information Processing Letters

INFORUM 2010, 2011

Service to the Department of Computer Science at the University of San Francisco

Graduate program director; Summer 2004 - Present.

Currently advising over 50 students and reviewing 150 graduate applications per year.

Doubled number of graduate applications (comparing 2005 to 2007); Fall 2006 was largest ever entering graduate class while schools across America see declining enrollment.

Developed Entrepreneurship emphasis (students take their electives in the business school); 5 entered first year, Fall 2006.

Created Practicum option (allowing Int'l students can work while going to school).

Created bridge program (allowing Int'l students with three-year degrees to get an MS).

Developed an international student representative program; existing students greet and guide prospective and incoming students.

Instigated formal graduate student orientation (with Chris Brooks).

Traveled to India to recruit graduate students, Summer 2004.

Travel to China to recruit graduate students, Fall 2007, Spring 2009.

Travel to China, Korea, Japan to recruit graduate students, Fall 2009.

Helped design and organize the MS Internet Engineering (MSIE) program (worked with Dave Wolber and Chris Brooks), 2002.

"How to get a job" workshops and "How to write a resume" workshops; Spring 2005, 2006, 2007.

Acquire nearly $60,000 per year in academic software licenses

- perforce revision control: $27,250.00
- intellij: site license; $499/person with about 50 students / year = $24,950
- clover code coverage tool; 250$ per workstation with 30 students per year = $7,500.

Built the FlashMob web site server, Spring of 2004.

Service to the College of Arts and Sciences at the University of San Francisco

"Mock lecture" for prospective students; Feb 2004, Feb 2006, April 2007.

Spoke at Research Opportunities in Science Luncheon for Women In Science group, March 2005.

Service to the University of San Francisco

Graduate program director; Spring 2012 - Present.

Helped design and create curriculum, launching with 16 students August 2012.

27 students deposited for July 2013.

Got program mentioned in NY Times article; `http://nyti.ms/10QarGu`

Served during 2011 and 2012 on the Innovation task force.

Served as parking committee chairman from 2009-2012, including as member of *Transportation Task Force* that came out of USFFA negotiations summer 2011.

Participated in Career Services review meeting, November, 2006.

Spoke at the International Student Orientation (Faculty Perspectives), August, 2006

Security Task Force (asked to serve by USF president, Father Privett), Fall 2005.

Open house for incoming freshmen, Spring 2005.

Major/minor fair volunteer, November 2003, February 2004.

Sang with the (student) men's *a cappella* group, 2004-2005.

Memberships

Association for Computing Machinery (ACM); member since 1990

Dr. Sami Rollins

CONTACT
INFORMATION

Associate Professor and Chair
Department of Computer Science
University of San Francisco
2130 Fulton Street
San Francisco, CA, 94117 USA

Phone: +1-415-422-2024
Fax: +1-415-422-5800
E-mail: srollins@cs.usfca.edu
WWW: www.samirollins.com

EDUCATION

University of California at Santa Barbara, Santa Barbara, CA
    Ph.D., Computer Science, June 2003
    Adviser: Professor Kevin Almeroth
    M.S., Computer Science, June 2000
Mills College, Oakland, CA
    B.A., Computer Science, May 1998

PROFESSIONAL
EXPERIENCE

Department Chair - University of San Francisco	Fall 2013 to present
Associate Professor - University of San Francisco	Fall 2010 to present
Assistant Professor - University of San Francisco	Fall 2007 to Fall 2010
Assistant Professor (term) - University of San Francisco	Fall 2006 to Fall 2007
Adjunct Assistant Professor - UMass Amherst	December 2005 to 2011
Research Assistant - UC Santa Barbara	June 2000 to June 2003
Teaching Assistant - UC Santa Barbara	Spring 2000, Fall 2002
Instructor - UC Santa Barbara	Summer 2002
Intern - Hewlett Packard Laboratories	Summer 2001
Intern - IBM Almaden Research Center	Summer 1998, June 1999 to March 2000
Teaching Assistant - Mills College	Fall 1996 to Spring 1998

RESEARCH
OVERVIEW

My core research focuses on energy management in homes, particularly those powered by renewable sources such as solar or wind. We have collected nearly three years of appliance and home energy consumption data from nine on-grid, off-grid, and grid-tied homes across the U.S. and performed extensive data analysis to understand energy needs. A key finding of this work has been that involving the user is necessary to both measure the impact of energy management solutions and to capture a more thorough understanding of energy requirements and usage patterns. The next step of this work is to explore ways in which the user may be effectively engaged in home energy management, including through interview-based studies and data visualization. I also plan to expand my work in area of computer science education by examining approaches to integrating energy, sustainability, and home automation topics into the classroom both at the advanced and introductory level.

HONORS AND
AWARDS

1. Best Paper Finalist – BuildSys Workshop	2012
2. Best Paper Award – Sigcomm HomeNets Workshop	2011
3. Best Student Paper Finalist – ACM Multimedia	2002
4. Outstanding Paper Award – ED MEDIA Conference	2002
5. Doctoral Scholars Fellowship – UC Santa Barbara	Fall 1998 to Spring 2002
6. Member – Phi Beta Kappa	
7. Arthur Vining Davis Scholarship – Mills College	Fall 1995 to Spring 1998

PUBLICATIONS   **Published Since Tenure**

[1] M. Law, S. Rollins, N. Banerjee, and A. Joshi, "Short Paper: Visualization-assisted Insights into Home Energy Usage", in Proceedings of the Eurographics Conference on Visualization (EuroVis 2015), Sardinia, Italy, May 2015.

[2] G. Irwin, N. Banerjee, A. Hurst, S. Rollins, "Contextual Insights into Home Energy Relationships", in Proceedings of the 1st IEEE Workshop on Pervasive Energy Services (PerEnergy 2015), St. Louis, MO, USA, March 2015.

[3] S. Rollins, N. Banerjee, L. Choudhury[1], and D. Lachut, "A System for Collecting Activity Annotations for Home Energy Management", *Pervasive and Mobile Computing Journal*, Volume 15, December 2014, p153–165.

[4] D. Lachut, N. Banerjee, and S. Rollins, "Predictability of Energy Use in Homes", in *Proceedings of the International Green Computing Conference*, Dallas, TX, USA, November 2014.

[5] G. Irwin, N. Banerjee, A. Hurst, S. Rollins, "Who Has My Data? Illuminating Renters' Smart Meter Privacy Concerns", in *Poster Proceedings of the Symposium on Usable Privacy and Security (SOUPS 14)*, Menlo Park, CA, July 2014.

[6] G. Irwin, N. Banerjee, A. Hurst, S. Rollins, "Understanding Context Governing Energy Consumption in Homes", in *Work-In-Progress, ACM CHI Conference on Human Factors in Computing Systems (CHI 2014)*, Toronto, Canada, April 2014.

[7] S. Rollins and N. Banerjee, "Using Rule Mining to Understand Appliance Energy Consumption Patterns", in *Proceedings of the 12th IEEE International Conference on Pervasive Computing and Communications (PerCom 2014)*, Budapest, Hungary, March, 2014. (**acceptance rate 14%**)

[8] S. Rollins, N. Banerjee, L. Choudhury[1], and D. Lachut, "Poster Abstract: An In Situ System for Annotation of Home Energy Data", in *Poster Proceedings of the 5th ACM Workshop on Embedded Sensing Systems for Energy-Efficiency in Buildings (BuildSys 13)*, Rome, Italy, November, 2013.

[9] A. Nelson, J. Schmandt, P. Kumar, W. Wilkins, D. Lachut, N. Banerjee, S. Rollins, J.P. Parkerson, and V. Varadan, "Wearable Multi-sensor Gesture Recognition in Assistive Devices for Paralysis Patients", in *Proceedings of IEEE Sensors*, Baltimore, MD, November, 2013.

[10] S. Engle and S. Rollins, "Expert Code Review and Mastery Learning in a Software Development Course", *Journal of Computing Sciences in Colleges*, Volume 28, Number 4, April 2013, pages 139–147.

[11] D. Lachut, L. Choudhury[1], K. Moran[1], S. Piel[1], Y. Xiong[1], N. Banerjee, and S. Rollins, "Minimizing Intrusiveness in Home Energy Measurement", in *Proceedings of the 4th ACM Workshop on Embedded Sensing Systems for Energy-Efficiency in Buildings (BuildSys 12)*, Toronto, Canada, November, 2012. **Best Paper Nominee** (top 6 of 54 submissions)

[12] S. Rollins, J. Porten[1], K. Brisbin[1], and C. Chang-Yit[1], "A Battery-aware Algorithm for Supporting Mobile Collaborative Applications", *Mobile Networks and Applications*, Volume 17, Issue 3 (2012), Page 353-364, Springer, June, 2012.

[13] N. Banerjee, S. Rollins, and K. Moran[1], "Automating Energy Management in Green Homes", in *Proceedings of the Sigcomm HomeNets Workshop 2011*, Toronto, Canada, August, 2011. **Best Paper Award** (acceptance rate 12 of 26 submissions)

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[1]USF Student Author

[14] S. Rollins, "Introducing Networking and Distributed Systems Concepts in the Context of an Undergraduate-Accessible Wireless Sensor Networks Course", in *Proceedings of SIGCSE 2011*, Dallas, TX, March, 2011. (acceptance rate 34%)

Published Prior to Tenure

[15] S. Rollins and C. Chang-Yit, "A Battery-aware Algorithm for Supporting Mobile Collaborative Applications", in *Proceedings of The 4th International Conference on Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom '08)*, Orlando, FL, November, 2008. (acceptance rate 37%)

[16] N. Banerjee, A. Rahmati, M.D. Corner, S. Rollins, and L. Zhong, "Users and Batteries: Interactions and Adaptive Energy Management in Mobile Systems", in *Proceedings of the 9th International Conference on Ubiquitous Computing (Ubicomp 07)*, Innsbruck, Austria, September, 2007. (acceptance rate 19%)

[17] N. Banerjee, J. Sorber, M. D. Corner, S. Rollins, and D. Ganesan, "Triage: Balancing Energy Consumption and Quality of Service in a Microserver", in *Proceedings of The Fifth International ACM/USENIX Conference on Mobile Systems, Applications, and Services (MobiSys '07)*, Puerto Rico, June, 2007. (acceptance rate 21%)

[18] D. Tilkidjieva, N. Banerjee, M. Kazandjieva, S. Rollins, and M. Corner, "LLAMA: An Adaptive Strategy for Performing Background Tasks on Mobile Devices", in *Poster Proceedings of the 7th IEEE Workshop on Mobile Computer Systems and Applications (WMCSA 2006)*, Semiahmoo Resort, WA, USA, April, 2006.

[19] J. Sorber, N. Banerjee, M. Corner, and S. Rollins, "Turducken: Hierarchical Power Management for Mobile Devices", in *Proceedings of the Third International Conference on Mobile Systems, Applications, and Services (MobiSys 05)*, Seattle, WA, USA, June, 2005. (acceptance rate 24%)

[20] S. Rollins and K. Almeroth, "Evaluating Performance Tradeoffs in a One-to-Many Peer Content Distribution Architecture", *Journal of Internet Technology*, Volume 5, Number 4, pages 373-387, 2004.

[21] S. Rollins and K. Almeroth, "Lessons Learned Deploying a Digital Classroom", *Journal of Interactive Learning Research*, Volume 15, Issue 2, pages 169-185, 2004.

[22] J. Humfrey, S. Rollins, K. Almeroth, and B. Bimber, "Managing Complexity in a Networked Learning Environment", in *Proceedings of the World Conference on Educational Multimedia, Hypermedia, and Telecommunications (ED MEDIA 2003)*, Honolulu, HI, June, 2003.

[23] K. Almeroth, S. Rollins, Z. Shen, and B. Bimber, "Creating a Demarcation Point Between Content Production and Encoding in a Digital Classroom", in *Proceedings of the World Conference on Educational Multimedia, Hypermedia, and Telecommunications (ED MEDIA 2003)*, Honolulu, HI, June, 2003.

[24] S. Rollins and K. Almeroth, "Pixie: A Jukebox Architecture to Support Efficient Peer Content Exchange", in *Proceedings of ACM Multimedia*, Juan Les Pins, France, December, 2002. (acceptance rate 14%)

[25] S. Rollins, K. Almeroth, D. Milojičić, and K. Nagaraja, "Power-Aware Data Management for Small Devices", in *Proceedings of the Workshop on Wireless Mobile Multimedia (WoWMoM 2002)*, Atlanta, GA, USA, September, 2002. (acceptance rate 33%)

[26] S. Rollins, R. Chalmers, J. Blanquer, and K. Almeroth, "The Active Information System (AIS): A Model for Developing Scalable Web Services", in *Proceedings of Internet and Multimedia Systems and Applications (IMSA 2002)*, Kauai, HI, August 2002.

[27] S. Rollins and K. Almeroth, "Seminal: Additive Semantic Content for Multimedia Streams", in *Proceedings of Internet and Multimedia Systems and Applications (IMSA 2002)*, Kauai, HI, August 2002.

[28] S. Rollins and K. Almeroth, "Deploying an Infrastructure for Technologically Enhanced Learning", in *Proceedings of the World Conference on Educational Multimedia, Hypermedia, and Telecommunications (ED MEDIA 2002)*, Denver, Colorado, USA, June 2002.

[29] S. Rollins and K. Almeroth, "A Model for Distributed Collaboration in a Distance Learning Application", in *Poster Proceedings of the Workshop on Networked Group Communication (NGC 2000)*, Palo Alto, CA, USA, November, 2000.

[30] S. Rollins and N. Sundaresan, "A Framework for Creating Customized Multi-Modal Interfaces for XML Documents", in *Proceedings of the IEEE International Conference on Multimedia and Expo (ICME 2000)*, New York City, NY, July 2000.

[31] S. Rollins and N. Sundaresan, "AVoN Calling: AXL for Voice-enabled Web Navigation", in *Proceedings of the 9th International World Wide Web Conference (WWW9 2000)*, Amsterdam, Netherlands, May 2000. Also appears in Computer Networks, Volume 33, Issues 1-6, pages 533-551, June 2000. (acceptance rate 19%)

[32] M. Neary, S. Brydon, P. Kmiec, S. Rollins, and P. Cappello, "Javelin++: Scalability Issues in Global Computing", in *Proceedings of the ACM 1999 Java Grande Conference*, pages 171 - 180, San Francisco, California, June 12-14, 1999. Also appears in Concurrency: Practice and Experience, Volume 12, pages 727-753, 2000. (acceptance rate 53%)

Non-refereed Publications

[33] D. Tilkidjieva, N. Banerjee, M. Kazandjieva, S. Rollins, and M. Corner, "LLAMA: An Adaptive Strategy for Utilizing Excess Energy to Perform Background Tasks on Mobile Devices", Technical Report 06-44, University of Massachusetts-Amherst, Amherst, MA, September, 2006.

[34] K. Nagaraja, S. Rollins, and M. Khambatti, "Looking beyond the Legacy of Napster and Gnutella", *IEEE Distributed Systems Online*, vol. 7, no. 3, 2006, art. no. 0306-o3005.

[35] N. Banerjee, J. Sorber, M. D. Corner, S. Rollins, and D. Ganesan. "Triage: A Power-Aware Software Architecture for Tiered Microservers", Technical Report 05-22. University of Massachusetts-Amherst, Amherst, MA. April, 2005.

[36] J. Sorber, N. Banerjee, M. Corner, and S. Rollins, "Turducken: Hierarchical Power Management for Mobile Devices", Technical Report 05-01. University of Massachusetts-Amherst, Amherst, MA. January, 2005.

[37] D. Milojičić, V. Kalogeraki, R. Lukose, K. Nagaraja, J. Pruyne, B. Richard, S. Rollins, and Z, Xu, "Peer-to-Peer Computing", *HP Labs Technical Report* HPL-2002-57, March, 2002.

[4] S. Rollins, "Travel to Percom", USF Faculty Development Fund, $3,034, 2014.

[5] S. Rollins, "Travel to N2Women", USF Faculty Development Fund, $1,197, 2014.

Funded Prior to Tenure

[6] S. Rollins, "RUI/CSR-PDOS:Cooperative Prefetching for Mobile Devices", National Science Foundation (NSF) grant CNS-0509095, $166,882, 6/15/05-5/31/10.

[7] S. Rollins, "Renewal: A Distributed Web-based Data Repository", USF Faculty Development Fund. $1,800, Spring 2008.

[8] S. Rollins, "A Distributed Web-based Data Repository", USF Faculty Development Fund. $1,800, Fall 2007.

[9] S. Rollins, "Travel to the Grace Hopper Celebration of Women in Computing", USF Faculty Development Fund. $2,058, Fall 2007.

[10] P. Shenoy, D. Ganesan, M. Corner, S. Rollins, S. Kaplan, "MRI: Acquisition of a Laboratory Testbed for Networked Embedded Systems and Sensor Research", National Science Foundation (NSF) grant CNS-0520729, $300,000, 9/1/05-8/31/08.

[11] S. Rollins, "Cooperative Prefetching for Mobile Devices", Mount Holyoke College Research Assistance Grant, $2,175, 7/1/05-7/1/06.

[12] S. Rollins, "Hierarchical Power Management for Mobile Devices", Mount Holyoke College Faculty Grant, $1,542, April 2005.

[13] M. Corner, B. Levine, S. Kaplan, S. Rollins, N. Howe, R. Weiss, "Collaborative Research: A Five-College Partnership for Information Assurance Education" National Science Foundation (NSF) grant DUE-0416481, $11,527 (Mt Holyoke award), 9/1/04-8/31/06.

CLASSES TAUGHT

Recent

1.	Principles of Software Development	Fall 2015
2.	Software Development[2]	Spring 2015, Fall 2009, Fall 2010, Spring 2011
3.	Distributed Software Development	Fall 2014, Fall 2009, Fall 2010[3], Fall 2011
4.	Computing, Mobile Apps, and the Web[3]	Spring 2014
5.	Practicum Study[2]	Fall 2013
6.	Intro to Computer Science II (Java)	Spring 2010, Fall 2011, Spring 2012
7.	Wireless Sensor Networks	Spring 2010, Spring 2012[4]
8.	Network Programming[2]	Spring 2011

Prior

1.	Intro to Computer Science II (Java)	Fall 2006, Spring 2007, Fall 2007 Fall 2008, Spring 2009
2.	Wireless Sensor Networks	Fall 2008
3.	Distributed Software Development	Spring 2008, Spring 2009
4.	Internet Systems Research (USF)	Spring 2007
5.	Intro to Computer Science I (Python/Java) - (USF)	Fall 2006, Spring 2007
6.	Master's Project Course (USF)	Fall 2006
7.	Object-Oriented Intermediate Programming (MHC)	Spring 2006
8.	Algorithms (MHC)	Spring 2005, Spring 2006
9.	Data Structures (MHC)	Fall 2004, Spring 2005, Fall 2005
10.	Computer Networking (MHC)	Fall 2005, Fall 2003
11.	Networked Systems and Applications (MHC)	Spring 2004
12.	Problem Solving and Programming in C (MHC)	Spring 2004, Fall 2004

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[2]New to USF.
[3]New preparation.
[4]Significant redesign.

13. TA: Intro to Computer Networks (UCSB)	Fall 2002
14. Introduction to Programming in Java (UCSB)	Summer 2002
15. TA: Programming Methods (UCSB)	Spring 2000
16. TA: Programming in C++ and Java (Mills College)	Fall 1996 – Spring 1998

CURRICULUM DEVELOPMENT

Recent

1. **Graduate Curriculum Redesign - 2013/2014** - Led effort to streamline our Master's program in Computer Science. Organized and led weekly curriculum redesign meetings. Co-authored curriculum proposal including motivation for program redesign and learning outcomes for the new program.
2. **Sustainability-Focused Computing for Non-majors Course - Spring 2014** - As part of NSF-funded research project, developed and delivered energy-related curriculum for our computing for non-majors course.
3. **Software Development Course - Fall 2009** - Developed and taught a sophomore-level software development course. The curriculum for the course has been adopted by two other faculty members and an evaluation of multiple offerings of the course has been published in a refereed conference.
4. **Computer Science Assessment Plan - Fall 2013** - Participated in department-level committee to redesign the computer science assessment plan.
5. **Wireless Sensor Networks - 2011** - Published a peer-reviewed paper on the structure and execution of this course.

Prior

1. **Wireless Sensor Networks** - Developed and delivered an undergraduate-accessible course on wireless sensor networks.
2. **Software Development** - Developed proposal for a sophomore-level software development course.
3. **Undergraduate Curriculum Redesign** - Was a key contributor in a major redesign of our undergraduate computer science curriculum.

RESEARCH STUDENTS ADVISED

Recent

1. Austin Bushree, Collecting Energy Data with the Raspberry Pi	Spring 2015
2. Kevin Porter, An Administrative Interface for Green Homes	Fall 2013
3. Lazeeb Choudhury, iPhone Support for Energy Annotation	Fall 2012
4. Yucheng Xiong, Home Automation Research	Summer 2012
5. Kevin Moran, Device Discovery Using Bluetooth	Spring 2010
6. Lauren Assour, Collaborative Computing on Android	Fall 2009
7. David Lachut (PhD Student at UMBC), Green Homes Research	2011 to 2013
8. Germaine Irwin (PhD Student at UMBC), Green Homes Research	ongoing
9. Matthew Law (BS Student at UMBC), Green Homes Research	ongoing

Prior

1. Colin Bean[5], Collaborative Computing on Android	Summer 2009
2. Kathryn Brisbin[5], Collaborative Computing on Android and Battery Awareness in P2P Networks	Summer 2009
3. Jeremiah Porten[5], Collaborative Computing on Android and Battery Awareness in P2P Networks	Summer 2009, Spring 2009
4. Riku Xie[5], Collaborative Computing on Android	Spring 2009
5. Cheryl Chang-Yit, Analyzing Predictability of Battery Usage	Spring 2008, Fall 2007 Summer 2007
6. Priyanka Daultani, A Tool to Collect Device Synchronization Information	Fall 2007
7. Serene Chong, Energy-Aware Podcast Download	Summer 2007

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[5]Co-supervised with Greg Benson

INDEPENDENT STUDIES SUPERVISED	**Recent**	
	1. Mitch Hally, Green Homes Server	Spring 2015
	2. Eric Fulton, An iPad App for Green Homes	Fall 2013
	3. John Kutay, Server Optimization Research	Fall 2013
	4. Simon Piel, Data Analysis and Visualization for Green Homes	Spring 2012
	5. Yucheng Xiong, Home Automation Research	Fall 2011, Spring 2012
	6. Kevin Moran, An iOS App for Home Automation	Spring 2011, Fall 2011, Spring 2012
	7. Sunli Guo, Performance Analysis for the Motel Platform	Spring 2010
	8. Frank Itthipalkul, Device Discovery Using Bluetooth	Spring 2010
	9. Haiyan Wu, Application Development for the Motel Platform	Fall 2009
	10. Jasper Roel, An iPhone Port of the Motel Platform	Fall 2009
	11. Kathryn Brisbin, An iPhone Port of the Motel Platform	Fall 2009
	12. Peter Kuang, A Debugging Tool for the Motel Platform	Fall 2009
	Prior	
	1. Jim Cortez, A Web Framework for Android	Summer 2009
	2. Lili Sun, Wireless Sensor Networks	Summer 2008
	3. Kai Hu, Improved UI and Security for MAsy	Summer 2008
	4. Cheryl Chang-Yit, MAsy: Mobile Asynchronous File Management	Spring 2008
	5. Yang Jiang, MAsy: Mobile Asynchronous File Management	Spring 2008
	6. Tushar Pednekar, Using Google Gears for Data Management	Fall 2007
	7. Nitin Ramamurthy, Llama: A Data Collection Tool for Laptops	Fall 2006

HIGHLIGHTED LEADERSHIP ROLES

1. **Chair - August 2013 to present** - Organized an open house event for 150 attendees. Coordinated a promotional video featuring clips from 17 Computer Science alumnae. Led the effort to redesign our Master's program. Led hire of term faculty member Olga Karpenko. Led hire of system administrator Julien Dubeau. Mentored several junior faculty through weekly meetings and classroom visits.
2. **Networking Networking Women Workshop Co-chair - Jan 2013 to present** - Organized 4th annual workshop featuring two keynote speakers, eight panelists, and expected 70 attendees. Helped to raise over $39,000 in funding for student travel grants.
3. **Networking Networking Women Fellowship Co-chair - 2010 to 2011** - Awarded 19 fellowships to enable female students to attend top computer networking conferences.
4. **Women in Computing Mentor** - Director of USF Summer Enrichment Program for high school girls 2010. Faculty advisor to Women in Computer Science club. Formal mentor to two female Computer Science faculty members. Informal mentor to two female Computer Science faculty members.
5. **Conference Organization** - Workshop co-chair MobiSys 2011. Student Travel Grants co-chair MobiCom/Hoc 2010. Student Travel Grants committee member MobiSys 2011.
6. **Mobile Computing Magazine Editorial Board Member - 2013 to present** - Editor of column on mobile computing in education.

SERVICE TO THE DEPARTMENT, COLLEGE, AND UNIVERSITY	**Recent**	
	1. Chair – Department of Computer Science	August 2013 to present
	2. Member – Faculty Search Committee	2014/2015
	3. Member – Promotion and Tenure Online Task Force	
	4. Organizer – Computer Science Night Open House (150 attendees)	Fall 2014, Fall 2013
	5. Lead – Committee to Redesign the CS Graduate Curriculum	2013 to 2014
	6. Member – Sustainability Task Force	Fall 2015, Fall 2011 to Fall 2012
	7. Member – UITC and Learning Technologies Subcommittee	December 2008 to Fall 2011
	8. Member – CS Graduate Admissions Committee	Spring 2014 to present
	9. Director – USF Summer Enrichment Program for High School Girls	2010
	10. Chair –Term Faculty Candidate Search (hired Olga Karpenko)	2013
	11. Chair – Lab Administrator Search (hired Julien Dubeau)	2013

12. Host – John O'Connell High School Student Visit	2013
13. Coordinator – USF Computer Science Alum Video	Fall 2013
https://www.youtube.com/watch?v=1lTpL1j8h-c	
14. Presenter – Lo Schiavo Opening Speaker Series	Spring 2014
15. Mentor - New Faculty Member Sophie Engle	2013 to 2014
16. Undergraduate Adviser – currently 25 advisees	ongoing
17. Founder and Faculty Advisor – Women in CS Group	ongoing
18. Contributor – Sciences Brochure (never published)	Spring 2013
19. External Reviewer – Tenure Case at Lafayette College	Summer 2012
20. Research Coverage Appeared in SF Business Times and Other Outlets	Fall 2011
21. Attendee – Google Executive Briefing for USF	Fall 2011
22. Contributor – Computer Science Assessment Plan	Fall 2011
23. University Scholars Mentor	Fall 2008 to Fall 2012
24. Advisor – Summer Advisor Track	Summer 2011
25. CS Representative –Admissions Day	Spring 2011
26. CS Representative – College Council	Fall 2010
27. *Star* – Computer Science Web Track Video	Fall 2010
28. Incoming Graduate Student Orientation and Advising	Fall 2010, Fall 2011
29. Mentor - New Faculty Member EJ Jung	2010 to 2011
30. Author – Graduate Placement Exam for MSCS Students	Summer 2010
31. *Star* – Meet the Scientist Video	Spring 2010
https://www.youtube.com/watch?v=5L5GikImmW0	
32. Member – Computer Science Faculty Search Committee	2009 to 2010
33. Participant - Western Conversations in Jesuit Higher Education Retreat	October 2009

Prior

1. Advising of undergraduate and graduate students	2008 to 2009
2. Collaborator – Luce Fellowship Application	Fall 2008
3. Member – UITC and Learning Technologies Subcommittee December 2008 to Fall 2011	
4. Phonathon Participant	Spring 2008
5. Collaborator – Motorola Proposal for Enrichment Program Funding	Fall/Spring 2008
6. Departmental Curriculum Development	Fall 2008
7. University Scholars Mentor	Fall 2008 to Fall 2012
8. College-wide New Student Orientation Lunch	Summer 2008
9. Collaborator – Proposal to NIST for the USF Center for Science and Innovation	2008
10. Research Presentation – Women in Science Dinner	2008
11. Research Presentation – CS Research Night	December 2007
12. Departmental Retreat and Program Review	Fall 2007 to Spring 2008
13. Director – USF Summer Enrichment Program for High School Girls	2009, 2008, 2007
14. Research Presentation – CS 110	Spring 2007
15. Founder and Faculty Advisor – Women in CS Group	2007 to 2012
16. Invited Mentor Attendee – 4.0 Dinner	2007
17. Research Presentation – Women in Science Luncheon	Spring 2007
18. Attendee – New Faculty Lunches hosted by Michael Bloch	2006 to 2008
19. Research Presentation – CS Special Lecture Series	Fall 2006
20. Participant – ITS Strategy Meetings for Wireless Technologies	Fall 2006
21. Guest Speaker – USF Summer Enrichment Program	Summer 2006

SERVICE TO THE PROFESSION

Recent

1. Editorial Board Member – Mobile Computing Magazine	2014 to present
2. Reviewer – PerCom Work-in-Progress	2015
3. Speaker – CRA-W Grad Cohort Workshop	2015
4. Co-chair – N2Women Workshop 2014	Summer 2013 to present
5. TPC Member – N2Women Workshop 2014	2014

6. Student Travel Grants Committee Member – N2Women Workshop	2014
7. Associate Program Chair – SIGCSE	2012
8. Fellowship Co-chair – N2Women	2010 to 2011
9. Workshop Co-chair – MobiSys	2011
10. Student Travel Grants Committee Member – MobiSys	2011
11. Mentor – MobiSys N2Women Meeting	2010
12. Student Travel Grant Co-chair – MobiCom/MobiHoc 2010	2010

Prior

1. PhD Forum Panelist – MobiSys — 2009
2. "Pitfalls and Possibilities at Teaching-Oriented Schools", UCSB — Fall 2008
3. "Users and Batteries: Interactions and Adaptive Energy Management in Mobile Systems" Presentation given at Sonoma State University — Fall 2008
4. Paper Referee – Transactions on Mobile Computing 2009, The Handbook of Computer Networks 2006, IEEE Distributed Systems Online 2006, ACM Symposium on Applied Computing -Special Track on Computer Networks 2004, Networking 2004, Usenix 2004
5. Editor – Peer-to-Peer area of IEEE Distributed Systems Online — Fall 2001 to 2007
6. Panelist – National Science Foundation Proposal Review — Spring 2006, Fall 2005
7. Contributor – Advice article "Paving the Road to Success" — 2007
8. Co-Web Chair – IFIP/IEEE International Conference on Management of Multimedia Networks and Services — 2002
9. Founder and organizer – UCSB Women in CS Lunch — Winter, Spring 2002
10. Graduate student representative - UCSB Graduate Admissions Committee — 2000 - 2001
11. Volunteer – Expanding Your Horizons in Science and Math Conference — Spring 1997
12. Student experiment volunteer – Workshop on Teaching and Learning Object Design in the First Academic Year — OOPSLA 1996

SERVICE TO THE COMMUNITY

Recent

1. Author – Youtube Eclipse and SVN Tutorials (over 39,000 and 23,000 views respectively)
2. Organizer – USF Summer Enrichment Program for High School Girls — 2010
   http://www.cs.usfca.edu/~sep2010
3. Volunteer – One Brick (SCRAP Warehouse and At the Crossroads) — 2012

Prior

1. Organizer – USF Summer Enrichment Program for High School Girls — 2009, 2008, 2007
2. Faculty Participant – Peru Immersion — Spring 2007

SELECTED ACTIVITIES AND SERVICE – MOUNT HOLYOKE COLLEGE 2003 TO 2006

1. Independent Study Courses:
   Maria Kazandjieva, Energy-Aware Mobile Systems Spring 2006, Fall 2005, Spring 2005
   Ashley Trimmer, Congestion Control Algorithms for Radar Data — Fall 2005
   Denitsa Tilkidjieva, Mobile Computing — Spring 2005
   Alexandra Nikolova, Computer Security — Spring 2005
   Nerissa Ranjitkar, Mobile Computing — Fall 2004, Spring 2003
   Maria Kazandjieva, Computer Security — Fall 2004
   Christina Villaruel, Computer Security Seminar Series — Fall 2004
   Heather Do, Computer Security Seminar Series — Fall 2004
2. Summer Students Advised:
   Denitsa Tilkidjieva, Predicting wireless network availability — Summer 2005
   Nerissa Ranjitkar, A Mobile Sports News Application — August 2004
3. Appeals Committee — Fall 2004 to Fall 2006
4. Term Faculty Position Search Committee — 2006
5. Departmental Self-Study and Review — 2005/2006
6. Howard Hughes Medical Institute Fellowship Review Committee — 2005

7. Thesis Committee Member – Desislava Petkova   2005
8. CS System Administrator Search Committee   2005

Curriculum Vitae

Eunjin (EJ) Jung
ejung@cs.usfca.edu

Educational and Professional History

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1. Higher Education

   Ph.D. in Computer Sciences   August 2006
   The University of Texas at Austin, Austin, TX
   Advisor: Mohamed G. Gouda

   M.S. in Computer Sciences   May 2002
   The University of Texas at Austin, Austin, TX

   B.S. in Computer Sciences   February 1999
   Seoul National University, Seoul, Korea
   Class Valedictorian

2. Professional and Academic Positions
   University of San Francisco, San Francisco, CA
   Associate Professor   Fall 2014 – Present
   Assistant Professor   Fall 2010 – Spring 2014
   Department of Computer Science

   The University of Iowa, Iowa City, IA
   Assistant Professor   Fall 2006 – Spring 2010
   Department of Computer Science

   The University of Texas at Austin, Austin, TX
   Graduate Teaching and Research Assistant   Fall 1999 – Spring 2006
   Department of Computer Science

Research

External Grant Funding - $154,765

1. **National Science Foundation (NSF)** Computer System Research "Non-invasive Detection

of Malicious Javascript at Web Browsers". Submitted as a single Principal Investigator (PI). Funded for $141,990. Sep. 2010 - Aug. 2013.

2. **Electronics and Telecommunications Research Institute (ETRI)** "Profiling Malicious Domain Behavior from Top-Level-Domain Data". Submitted as a co-PI with a PI Prof. Brent Kang at George Mason University. Approved for funding for $60,000 total, $12,775 for USF. Oct. 2010 - May 2011.

Internal Funding - $13,434

1. **Faculty Team Innovation Award:** "CRISP: Communicating Risk on Internet Security and Privacy". Submitted as a co-PI with Prof. Evelyn Ho in Communications Studies at USF. Funded for $5,000 total. June 2013 - May 2014.

2. **Faculty Development Fund for Research**

   - Spring 2015: support for undergraduate research assistants and professional transcription service in "Communicating Risk in Internet Security and Privacy." Funded for $4,158

   - Fall 2012: support for undergraduate research assistants in "Interdisciplinary Approach to Malicious Websites." Funded for $1,773.

   - Fall 2010: support for digital library subscription. Funded for $362.

3. **Faculty Development Fund for Travel**

   - Spring 2015: travel support to present at CHI 2015. Funded for $1,826.

   - Fall 2014: travel support to participate at IEEE Symposium on Security and Privacy. Funded for $1,103.

   - Spring 2014: travel support to present at 17th Annual Continuums of Service Conference. Funded for $2,045.

   - Summer 2013: travel support to present at ADFSL 2013. Funded for $1,001.

   - Summer 2011: travel support to present at POLICY 2011. Funded for $2,696.

   - Fall 2010: travel support to present at ICCCN 2010. Funded for $2,329.

Publications

- Peer-Reviewed Journal Publications

   1. Insoon Jo, Eunjin (EJ) Jung, and Heon Y. Yeom. "Interactive Website Filter for Safe Web Browsing". Journal of Information Science and Engineering, Vol. 29, No. 1, January 2013. (The preliminary version of this paper has appeared in the proceedings of ICCCN 2010.)

   2. Insoon Jo, Eunjin (EJ) Jung, and Heon Y. Yeom. "Safe & Efficient Privacy-policy Enforcement on Hadoop". Information - an International Interdisciplinary Journal, Vol. 15, No. 5, May 2012. (The preliminary version of this paper has appeared in the proceedings of ICCCT 2011.)

3. Hyeong S. Kim, Eunjin (EJ) Jung, and Heon Y. Yeom. "ELiSyR: Efficient, Lightweight and Sybil-Resilient File Search in P2P Networks". Korean Society For Internet Information (KSII) Transactions on Internet and Information Systems, Vol. 4, No. 6, December 2010. (The preliminary version of this paper has appeared in the proceedings of OPODIS '08.)

4. Heung Seok Jeon, Eunjin Jung, Hyunkyu Kang, and Sam H. Noh. "An Efficient Coverage Algorithm for Intelligent Robots with Deadline". Korea Information Processing Society (KIPS) Transactions, February 2009.

5. Im Y. Jung, Eunjin Jung, and Heon Y. Yeom. "An integrated access control for sharing of e-Science Grid resource". Information Science Society: Systems and Theories, the KISS transactions, 35(10), October 2008.

6. Im Y. Jung and Eunjin Jung. "A Light-weight, adaptive, reliable processing integrity audit for e-Science grid." Journal of the Korea Institute of Information Security and Cryptology, Vol. 18, No. 5, October 2008.

7. Eunjin Jung, Ehab S. Elmallah, and Mohamed G. Gouda. "Optimal Dispersal of Certificate Chains". IEEE Transactions on Parallel and Distributed Systems (IEEE TPDS) Vol. 18, No. 4, April 2007. (The preliminary version of this paper has appeared in the proceedings of DISC '04.)

8. Mohamed G. Gouda and Eunjin Jung. "Stabilizing Certificate Dispersal". Journal of Aerospace Computing, Information, and Communication (JACIC), Vol. 3, No. 10, October 2006. (The preliminary version of this paper has appeared in the proceedings of SSS 2005.)

9. Eunjin Jung and Mohamed G. Gouda. "Vulnerability Analysis of Certificate Graphs". International Journal of Security and Networks (IJSN) Vol. 1, No. 1/2, August 2006.

10. Eunjin Jung, Alex X. Liu, and Mohamed G. Gouda. "Key Bundles and Parcels: Secure Communication in Many Groups". Computer Networks by Elsevier, Vol. 50, No. 11, August 2006. (The preliminary version of this paper has appeared in the proceedings of NGC 2003.)

11. Deuk-Whee Kwak, SeungJoo Lee, JongWon Kim, and Eunjin Jung. "An Efficient LKH Tree Balancing Algorithm for Group Key Management". IEEE Communications Letters, Vol. 10, No. 3, March 2006. (The preliminary version of this paper has appeared in the proceedings of ICOIN 2006.)

- Peer-Reviewed Conference Publications

1. Insoon Jo, Eunjin (EJ) Jung, Faiz Currim, and Heon Y. Yeom. "Safe & Efficient Privacy-policy Enforcement on Hadoop". The International Conference on Computer Convergence Technology (ICCCT 2011), October 2011.

2. Fatih Turkmenm, Eunjin (EJ) Jung, and Bruno Crispo. "Towards Run-time Verification in Access Control". The 12th IEEE International Symposium on Policies for Distributed Systems and Networks (POLICY 2011), June 2011.

3. Insoon Jo, Eunjin (EJ) Jung, and Heon Y. Yeom. "You're not who you claim to be: website identity check for phishing detection". The 19th International Conference on Computer Communication Networks (ICCCN 2010), August 2010.

4. Eunjin (EJ) Jung, Sukhyun Ahn, and Seung-won Hwang. "k-ARQ: k-anonymous ranking queries". In the 15th Database Systems for Advanced Applications (DASFAA 2010), April 2010.

5. Peter Likarish, Eunjin (EJ) Jung, and Insoon Jo. "Obfuscated Malicious Javascript Detection using Classification Technique". The 4th International Malicious and Unwanted Software (Malware 2009), October 2009.

6. Eunjin (EJ) Jung, Bruno Crispo, and Lasantha Ranaweera. "An Efficient and Scalable Algorithm for Policy Compatibility in Service Virtualization". The 10th IEEE/ACM International Conference on Grid Computing (Grid 2009), October 2009.

7. Xin Xiao, Eunjin (EJ) Jung, and Faiz Currim. "Quips, MD: QUery Information Privacy and Security, for Medical Data". In the proceedings of the 18th Workshop on Information Technologies and Systems (WITS), December 2008.

8. Peter Likarish, Eunjin Jung, Thomas E. Hansen, Don Dunbar, and Juan Pablo Hourcade. "B-APT: Bayesian Anti-Phishing Toolbar". In the proceedings of The 2008 IEEE International Conference on Communications (ICC 2008), May 2008.

9. Eunjin (EJ) Jung and Mohamed G. Gouda. "Rating Certificates". In the proceedings of the 15th International Conference on Computer Communications and Networks (ICCCN 06), October 2006.

10. Deuk-Whee Kwak, SeungJoo Lee, JongWon Kim, and Eunjin Jung. "An Efficient Key Tree Management Algorithm for LKH Group Key Management". In the proceedings of 2006 The International Conference on Information Networking (ICOIN 2006), January 2006.

11. Mohamed G. Gouda and Eunjin Jung. "Stabilizing Certificate Dispersal". In the proceedings of 2005 Symposium on Self Stabilizing Systems (SSS 2005), LNCS 3764, October 2005.

12. Eunjin Jung, Ehab S. Elmallah, and Mohamed G. Gouda. "Optimal Dispersal of Special Certificate Graphs". In the proceedings of IEEE Global Telecommunications Conference (Globecom '04), December 2004.

13. Eunjin Jung, Ehab S. Elmallah, and Mohamed G. Gouda. "Optimal Dispersal of Certificate Chains". In the proceedings of the 18th International Symposium on Distributed Computing (DISC '04), LNCS 3274, October 2004.

14. Mohamed G. Gouda and Eunjin Jung. "Certificate Dispersal in Ad-Hoc Networks". In the proceedings of the 24th IEEE International Conference on Distributed Computing Systems (ICDCS '04), March 2004.

15. Eunjin Jung, Alex X. Liu, and Mohamed G. Gouda. "Key Bundles and Parcels: Secure Communication in Many Groups". In the proceedings of the 5th International Workshop on Networked Group Communications (NGC 2003), LNCS 2816, September 2003.

- Peer-Reviewed Short Papers

  1. Peter Likarish and Eunjin (EJ) Jung. "A Targeted Web Crawling for Building Malicious Javascript Collection" In the proceedings of the 1st ACM International Workshop on Data-intensive Software Management and Mining (DSMM), November 2009.

  2. Faiz Currim, Eunjin (EJ) Jung, Xin Xiao, and Insoon Jo. "Privacy policy enforcement for health information data access". In the proceedings of the 1st ACM International Workshop on Medical-grade Wireless Networks (WiMD 2009), May 2009.

  3. Hyeong S. Kim, Eunjin (EJ) Jung, and Heon Y. Yeom. "Load-balanced and Sybil-resilient file search in peer-to-peer networks". The 12th International Conference On Principles Of DIstributed Systems (OPODIS), December 2008.

- Peer-reviewed Poster Presentations

  1. Eunjin (EJ) Jung, Evelyn Ho, and Mark Sinclair. "Perceived Risk and Self-Efficacy Regarding Internet Security in a Marginalized Community." At Computer Human Interactions (CHI) 2015.

  2. Eunjin (EJ) Jung, Evelyn Ho, and Megan Trotter. "Interdisciplinary Research Service Learning: Communicating Risk in Internet Security and Privacy (CRISP) Project." At the 17th Annual Continuums of Service Conference, April 2014.

  3. Eunjin (EJ) Jung and Seungwon Hwang. "Database privacy enforcement for any data distribution". At the US-Korea Conference on Science, Technology, and Entrepreneurship (UKC) 2010, August 2010.

  4. Peter Likarish and Eunjin (EJ) Jung. "Leveraging Google SafeBrowsing to Characterize Web-based Attacks". In the proceedings of ACM Conference on Computer and Communications Security (CCS 2009), November 2009.

  5. Peter Likarish, Don Dunbar, Juan Pablo Hourcade, and Eunjin (EJ) Jung. "BayeShield: Conversational Anti-Phishing User Interface". In the proceedings of the 5th Symposium on Usable Privacy and Security (SOUPS), July 2009.

- Technical Reports

  1. Eunjin (EJ) Jung, Sukhyun Ahn, and Seung-won Hwang. "k-ARQ: k-Anonymous Ranking Queries. The University of Iowa, Department of Computer Science. Technical Report TR-09-04. September 2009.

  2. Peter Likarish, Eunjin Jung, Thomas E. Hansen, Don Dunbar, and Juan Pablo Hourcade. "B-APT: Bayesian Anti-Phishing Toolbar". The University of Iowa, Department of Computer Science. Technical Report TR-07-03. September 2007.

  3. Eunjin (EJ) Jung and Mohamed G. Gouda. "Rating Certificates." The University of Iowa, Department of Computer Science. Technical Report TR-06-03. July 2006.

  4. Mohamed G. Gouda and Eunjin Jung. "Vulnerability Analysis of Certificate Graphs." The University of Texas at Austin, Department of Computer Sciences. Technical Report TR-05-13. April 2005.

  5. Eunjin Jung, Ehab Elmallah, and Mohamed G. Gouda. "Optimal Dispersal of Special Certificate Graphs." The University of Texas at Austin, Department of Computer Sciences. Technical Report TR-04-37. September 2004.

  6. Eunjin Jung, Xiang-Yang Alex Liu, and Mohamed G. Gouda. "Key Bundles and Parcels: Secure Communication in Many Groups." The University of Texas at Austin, Department of Computer Sciences. Technical Report TR-03-21. June 2003.

  7. Mohamed G. Gouda and Eunjin Jung. "Certificate Dispersal in Ad Hoc Networks." The University of Texas at Austin, Department of Computer Sciences. Technical Report TR-03-52. December 2003.

PATENTS

1. Eunjin Jung and Amal A. Shaheen. "Controlling Broadcast Encryption of Content for a Network Cluster from a Content Server Outside the Cluster", US Docket No. 10/815207, filed by IBM in March, 2004

2. Eunjin Jung and Amal A. Shaheen. "Controlling with Rights Objects Delivery of Broadcast Encryption Content for a Network Cluster from a Content Server outside the Cluster". US Docket No. 10/926599, filed by IBM in August, 2004

3. Eunjin Jung and Amal A. Shaheen. "Controlling with Rights Objects Delivery of Broadcast Encryption Content for a Network Cluster from a Content Server outside the Cluster". US Docket No. 10/926600, filed by IBM in August, 2004

Honors and Awards in Research

Professional Development Award, The University of Texas at Austin, 2004
- Travel support to present at Globecom 2004.
Professional Development Award, The University of Texas at Austin, 2003
- Travel support to present at NGC 2003.

Invited Talks

1. "Non-invasive Malicious Javascript Detection", March 10, 2011, at Sonoma State University.

2. "Fighting Phishing - What and How", October 5, 2010, as part of Special Lecture Series in Computer Science, University of San Francisco.

3. "A Comprehensive Approach for Malicious Javascript Detection", December 18, 2009, at the KOCSEA Symposium 2009, Las Vegas, Nevada.

4. "Privacy Policy Enforcement for Health Information Data Access", August 4, 2009, at the Department of Computer Science, University of Trento, Trento, Italy.

5. "Privacy Policy Enforcement for Health Information Data Access", June 5, 2009, at the School of Computer Science and Engineering, Seoul National University, Seoul, Korea.

6. "Privacy Policy Enforcement for Health Information Data Access", June 4, 2009, at the Department of Electrical Engineering, KAIST, Daejon, Korea.

7. "Privacy Policy Enforcement for Health Information Data Access", May 27, 2009, at the Department of Computer Science and Engineering, POSTECH, Pohang, Korea.

8. "Bayeshield: Bayesian Anti-Phishing Toolbar", November 11, 2008, at the Dept. of Informatics, Indiana University, Bloomington, Indiana.

9. "Bayeshield: Bayesian Anti-Phishing Toolbar", November 10, 2008, at the Dept. of Computer Science, Purdue University, West Lafayette, Indiana.

10. "Q-RICE: Query Rewriting and policy Integration for access Control and Enforcement", September 18, 2008, at the DIMACS/DyDAn Workshop on Internet Privacy: Facilitating Seamless Data Movement with Appropriate Controls, New Brunswick, New Jersey. 5

11. "Load-Balanced Sybil-Resilient P2P file search", August 13, 2008, at the Dept. of Computer Science, Vrije University, Amsterdam, the Netherlands.

12. "Bayshield: Bayesian Anti-Phishing Toolbar", March 7, 2008, at the Dept. of Computer Science & Engineering, University of Connecticut. Storrs, Connecticut.

13. "Bayesian Filtering, Anti-Phishing Toolbar Benefits", February 15, 2008, at the Korean Science and Engineering Association Seminar. University of Iowa.

14. "Bayesian Filtering, Anti-Phishing Toolbar Benefits", December 4, 2007, at the Security Day 2007. University of Iowa.

15. "B-APT: Bayesian Anti-Phishing Toolbar", October 6, 2007, at the Midwest Security Workshop (MSW). Chicago, Illinois.

TEACHING

COURSES TAUGHT AND DEVELOPED

CS 112 Intro to Computer Science II - Fall '10, Spring '11, Fall '12, Spring '13, Spring '15
  Adopted new pedagogical tools such as peer programming and code review.
CS 112 Intro to Computer Science II (Flipped/Hybrid) - Spring '13
  Developed the flipped/hybrid classroom model using video lectures and online tutorials.
CS 333 Intro to Database Systems - Spring '11, Fall '13, Spring '15
  Developed a new undergraduate database course.
CS 480 Computers and Society - Fall '11, Spring '14
  Organized service learning activities for CS students.
CS 621 Network Programming - Spring '14
  Revised the course to reflect timely topics such as Software-Defined Network.
CS 683 Computer Security & Privacy - Fall '10, Fall '11, Fall '12, Fall '13
  Created and developed a new graduate course in computer security.
CS 686 Special Topics in Database Systems - Spring '15
  Developed additional materials to create a cross-listed graduate-level database course.

STUDENT RESEARCH PROJECTS PUBLICATION

- Simon Piel and Eunjin (EJ) Jung. "Identifying Peer-to-Peer Traffic in Shared Wireless Networks ". In the proceedings of the 2013 Annual Conference on Digital Forensics, Security and Law (ADFSL) in June, 2013.

SERVICE LEARNING PUBLICATION

- Eunjin (EJ) Jung and Evelyn Ho. "Interdisciplinary Research Service Learning: Communicating Risk in Internet Security and Privacy (CRISP) Project". In the 17th Annual Continuums of Service Conference (COS 2014) in April, 2014.

Student Research Projects Supervised

Communications Research in Internet Security.
  Mark Sinclair (undergraduate), Spring 2015
Developing the conversational user interface for warning of malicious websites.
  Ramya Gadiyaram (graduate), Spring and Summer 2013
Developing the statistical language model (SLM) for malicious JavaScript detection.
  Christopher Boyce (graduate), Fall 2012 and Spring 2013
Identifying peer-to-peer file sharing traffic in shared wireless networks.
  Simon Piel (undergraduate), Fall 2011
Survey on Advanced Persistent Threats.
  Chang Hoon Park (visiting scholar), Fall 2011
Developing the Firefox add-on for malicious JavaScript detection.
  Chris Casey (graduate), Spring and Summer 2011
Using data mining techniques for malicious JavaScript detection.
  Krichaporn Srisupapak (graduate), Summer 2011
Extracting Abstract Syntax Tree and selecting features for malicious JavaScript detection.
  Tilman Dingler (graduate), Summer 2011

Honors and Awards in Teaching

Incubator Award, University of San Francisco, 2012
- $4,000 for adopting the flipped classroom model in the introductory programming class.
William S. Livingston Outstanding Graduate Student Employee Award,
The University of Texas at Austin, 2006
- $4,000 and a plaque for the best graduate teaching assistant of the year at UT Austin.
Outstanding Teaching Assistant Excellence Award, The University of Texas at Austin, 2005
- $500 and a plaque for the best teaching assistant of the year in the CS department.

External Grant Funding Efforts

- **AAC&U Teaching to Increase Diversity and Equity in STEM (TIDES)** Applied for $300,000 with Prof. Christen Yeh in School of Education and Associate Dean of College of Arts and Sciences Chris Brooks. The proposal is titled "UP-ED, Urban Programming for Equity and Diversity" and proposed to use Service Learning for community-engaged and culturally relevant learning in the intro level Computer Science courses. Unfortunately the proposal was not funded, but the reviews were mostly positive. Prof. Yeh and I will revise the proposal and resubmit in AY 2014-2015.

Teaching Development Activities

- Center for Teaching Excellence (CTE)

  - "Flipped Classroom" Faculty Learning Community. Participant in Fall 2013 – Spring 2014.
  - Winter Teaching Intensive: Inclusive Classroom. Participant in Spring 2014.
  - Open Classroom. Visited 5 classrooms and hosted 4 visitors in Fall 2012 – Spring 2013.

- Summer Book Club. Participant in Summer 2013 and Summer 2014.
- Winter Teaching Intensive: Reinventing Rigor. Participant in Spring 2013.
- Peer Consultation. Participant in Fall 2012 and Spring 2013.
- Teaching Cafes. Participant in 5 teaching cafes in Fall 2012 and Spring 2013.
- New Faculty Lunch Workshop. Participant in Fall 2012.

- Center for Instruction and Technology (CIT)

  - CIT Tech Intensive. Participant in Summer 2013
  - Workshops: flipped classroom, ECHO 360, Screenflow, iMovie, Canvas Jumpstart
  - Attendance: teaching online, Blackboard exemplary presentation

- Activities hosted by other USF organizations

  - First year faculty teaching workshops by Associate Dean Michael Bloch
  - Round table participation: Expanding Diversity in Every USF Classroom
  - Faculty Development Lunch: "Working with Multilingual Student"

SERVICE

SERVICE FOR THE DEPARTMENT OF COMPUTER SCIENCE

- **Teaching computer science to female, ethnically diverse, and underprivileged women.** I organized the community outreach program that teaches young women Computer Science (CS) in Summer 2011 (Summer Enrichment Program), Fall 2011 (Computer Science for San Francisco: CS4SF), and Summer 2013 and Summer 2014 (CS4SF Youth). Women are historically underrepresented in CS and the CS department has been offering this program annually since 2006. After I took over in Summer 2011, I made extra efforts to include diverse population, especially from underserved youth and ethnic minorities. In Summer 2011, half of the participants were from Upward Bound Math and Science Program. Most of them were ethnic minorities, and also going to be the first college graduates. These efforts were appreciated by the local community and featured in KNTV-TV (NBC affiliate) and KCBS radio. In Summer 2013 and Summer 2014, I worked with community organizations such as Magic Zone, Breakthrough SF, and Booker T. Washington Community Center and the majority of participants came from underserved youth of San Francisco.

  Funding: $11,200 I have received the Jesuit Foundation Grant ($1,200) for SEP in Summer 2011, private funding ($5,000) for CS4SF in Fall 2011, and another private funding ($10,000) for CS4SF Youth in Summer 2013 and 2014.

  Peer-reviewed publication The learning outcomes are shared with the community under the title "Changing Young Women's Perceptions of CS via Outreach" at the 18th Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE '13) in July, 2013. Co-authored with Prof. Xornam Apedoe in School of Education.

  Public outreach I have helped raising awareness of gender and ethnicity gap in computer science by participating in KPIX (CBS affiliate) interview and KQED (NPR affiliate) Forum.

- **Visa workshop** In Spring 2011, I gave 1-hour workshop on internship and employment visa for international students. 27 students (more than half of international students in CS graduate program) attended and gave highly positive feedback.

- **Graduate School Application Workshop** In Spring 2011, I gave 1-hour workshop on deciding and applying to our own 4+1 program, our own Master's program and also other school's programs.

- **Faculty Search Committee** In Spring 2013, I was one of the five member committee searching for a tenure track faculty among over 160 applications.

- **Special Lecture Series in Computer Science (SLS/CS)** In Fall 2011, I organized 13 talks from Bay Area professionals and academics from all around the world from academia and industry, covering a wide range of topics from how Yelp works to the cloud computing research at Microsoft Research Silicon Valley.

- **CS Night** In Fall 2010, Fall 2011, Fall 2012 and Fall 2013, I presented research findings, service learning outcomes, and student projects at CS Night. Some of these posters were featured in USF Magazine and also USF Connect websites.

- **Women in Computer Science** Since Fall 2010, I have participated in Women in Computer Science meetings and mentored female students.

- **Graduate Orientation** In Fall 2010 and Spring 2011, I welcomed the incoming graduate students and helped with placement test grading and registration.

- **Undergraduate Orientation** In Fall 2012 and Fall 2013, I welcomed the incoming undergraduate students and presented my research.

- **Talk at SLS/CS** In Fall 2011, I presented my phishing website detection research.

- **Major/Minor Fair** In Fall 2010, I represented CS department.

SERVICE FOR THE COLLEGE OF ARTS AND SCIENCE

- **Diversity Task Force** Fall 2011 – present. I contributed to the communications initiative on how to share diversity-related issues, events, and efforts with USF community.

- **Critical Diversity Studies Forum** Fall 2012 – present. I helped with the annual Critical Diversity Forum in 2012 and continue to help in 2013. I was one of the three co-chairs in Fall 2014.

- **Students in Sciences Poster Night** In Spring 2011, I have helped organizing a celebration of students' research in science majors as one of three organizing committee members. We had 14 poster presentations and around 100 participants.

- **Dean's Scholar Committee** In Spring 2011, I have helped establishing the guidelines for the Dean's Scholars Program.

- **Undergraduate Orientation** In Spring 2011, I represented the Computer Science major in the college freshman orientation.

Service for the University

- **Center for Teaching Excellence, Steering Committee and Diversity Intensive Subcommittee** Fall 2012 – Spring 2014. I represent the Sciences discipline and also serve in the Diversity Intensive Subcommittee, helping developing a day-long workshop on Inclusive Classroom.

- **University IT Committee, Learning Technologies Subcommittee** Fall 2011 – present. I attended monthly meeting discussing changes and adoptions of new learning technologies, such as Learning Management Systems, Teleconferencing tools, and flipped classroom technologies. item**University Scholars Program** In Spring 2011, Fall 2012, and Spring 2013, I have attended several events run by Scholars Connect Program. In Fall 2011, I have organized a field trip to Computer History Museum for University Scholars.

- **Online Education Initiative** In Fall 2011, I attended all four demonstrations of online education vendors and provided feedback.

- **Freshman Welcome Weekend** In Fall 2011, I helped organizing a service learning event during the Freshman welcome weekend at St. Anthony's Tenderloin Technology Lab.

- **Major/Minor Fair** In Fall 2010, I represented the Computer Science department.

Service for the Community

- **Collaboration with Tenderloin Technology Lab** Since Fall 2010, I have worked with St. Anthony's Tenderloin Technology Lab to provide service opportunities for USF CS students. I have volunteered myself to teach and help with computer set up, and also have organized students' volunteer activities. I have provided teaching materials, prepared students, organized the schedule, and also provided reflection opportunities for students.

Service for the Profession

- **Korean Computer Scientists and Engineers Association in America (KOCSEA)** Summer 2010 - Fall 2011. KOCSEA is a national organization of more than 1000 members, fostering networking and collaboration. In 2010, I raised funds from Google to sponsor a banquet at the annual technical symposium, and also organized women in computer science and engineering panel session. In 2011, I organized the annual technical symposium in San Jose as a local chair.

- **Program Committee Member for fourteen conferences and workshops**

  - The 3rd IEEE Workshop on Issues and Challenges in Social Computing (WICSOC 2013)
  - The 8th and 9th International Conference on Networking and Services (ICNS 2012 and 2013)
  - The International Conference on Computing, Networking and Communications (ICNC 2012)
  - The 10th International Workshop on Assurance in Distributed Systems and Networks (ADSN 2011)

- The 12th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS 2010)
- The 16th, 17th, 18th, and 19th International Conference on Computer and Communication Networks (ICCCN 2007, 2008, 2009 and 2010)
- The 11th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS-09)
- The IEEE First International Workshop on Network Security and Privacy (NSP 2008)
- The 27th International Conference on Distributed Computing Systems (ICDCS 2007)
- The 15th International Conference on Network Protocols (ICNP 2007)

- **Peer Reviewer for Seventeen Journals and Conferences**

  - Journal of Internet Services and Applications (JISA) - Springer
  - Interacting with Computers (IwC) - Elsevier
  - Computer Communications - Elsevier
  - Journal of Parallel and Distributed Computing - Elsevier
  - Performance Evaluation (PEVA) - Elsevier
  - IEEE Transactions on Dependable and Secure Computing
  - IEEE Transactions on Parallel and Distributed Systems
  - IEEE Transactions on Mobile Computing
  - IEEE Communication Letters
  - ACM/IEEE Transactions on Networking
  - IEEE Global Communications Conference (Globecom) 2007
  - IEEE/IFIP International Conference on Dependable Systems and Networks (DSN) 2004, 2005, 2006
  - ACM Conference on Embedded Networked Sensor Systems (SenSys) 2004
  - IEEE Conference on Computers, Software, and Applications (COMPSAC) 2004
  - International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS) 2003

- **Reviewer for a Book Chapter**

  - Green IT Technologies and Applications, Chapter 16: Sustainable Science in the Green Cloud via Environmentally Opportunistic Computing, Springer, 2011
  - Handbook of Information Security, Key Management Protocols, Wiley, 2004

Sophie J. Engle

sjengle@cs.usfca.edu · http://sjengle.cs.usfca.edu/

Current Position ASSISTANT PROFESSOR
Department of Computer Science, University of San Francisco, 2010 – Present.

Education PH.D. IN COMPUTER SCIENCE
University of California, Davis, March 2010.

Dissertation: A Policy-Based Vulnerability Analysis Framework, Advisor: Matt Bishop, Co-Advisor: Sean Peisert, Primary Emphasis: Computer Security, Secondary Emphasis: Information Visualization

B.S. IN COMPUTER SCIENCE
University of Nebraska at Omaha, May 2002.

Graduated summa cum laude, Major: Computer Science, Minor: Mathematics

Peer-Reviewed Publications Carrie Gates and Sophie Engle, "Reflecting on Visualization for Cyber Security," in *Proceedings of the 2013 IEEE International Conference on Intelligence and Security Informatics (ISI)*, p275–277, June 2013.

Sophie Engle and Sami Rollins, "Expert Code Review and Mastery Learning in a Software Development Course," in *Journal of Computing Sciences in Colleges (CSC)*, volume 28, number 4, p139–147, April 2013.

Sophie Engle and Sean Whalen, "Visualizing Distributed Memory Computations with Hive Plots," in *Proceedings of the 9th International Symposium on Visualization for Cyber Security (VizSec)*, October 2012.

Sean Whalen, Sophie Engle, Sean Peisert, and Matt Bishop, "Network-Theoretic Classification of Parallel Computation Patterns," in *International Journal of High Performance Computing Applications (IJHPCA)*, volume 26, number 2, p159–169, 2012.

Matt Bishop, Sophie Engle, Sean Whalen, and Damien Howard, "A Taxonomy of Buffer Overflow Characteristics," in *IEEE Transactions on Dependable and Secure Computing (TDSC)*, volume 9, issue 3, p305–317, June 2012.

Borislava I. Simidchieva, Sophie Engle, Michael Clifford, Alicia Clay Jones, Sean Peisert, Matt Bishop, Lori A. Clarke, and Leon J. Osterweil, "Modeling and Analyzing Faults to Improve Election Process Robustness," in *Proceedings of the 2010 USENIX Electronic Voting Technology Workshop/Workshop on Trustworthy Elections (EVT/WOTE)*, August 2010.

Matt Bishop, Sophie Engle, Sean Peisert, Sean Whalen, and Carrie Gates, "Case Studies of an Insider Framework," in *Proceedings of the 42nd Hawaii International Conference on System Sciences (HICSS)*, p1–10, 2009.

Matt Bishop, Sophie Engle, Sean Peisert, Sean Whalen, and Carrie Gates, "We Have Met the Enemy and He is Us," in *Proceedings of the 2008 New Security Paradigms Workshop (NSPW)*, p1–12, 2008.

Matt Bishop and Sophie Engle, "The Software Assurance CBK and University Curricula," in *Proceedings from the Tenth Colloquium on Information Systems Security Education (CISSE)*, p14–21, 2006.

Book Chapters Matt Bishop, Sophie Engle, Deborah A. Frincke, Carrie Gates, Frank L. Greitzer, Sean Peisert, and Sean Whalen, "A Risk Management Approach to Insider Threat," in *Insider Threats in Cybersecurity,* volume 49 of the series *Advances in Information Security,* Springer Verlag, Berlin, 2010.

Other Papers (Unrefereed) Matt Blaze, Arel Cordero, Sophie Engle, Chris Karlof, Naveen Sastry, Micah Sherr, Till Stegers, and Ka-Ping Yee, "Source Code Review of the Sequoia Voting System," for the *California Secretary of State's Top-to-Bottom Review of California Voting Systems*, June 2007.

Sophie J. Engle

sjengle@cs.usfca.edu · http://sjengle.cs.usfca.edu/

Other Papers (Unrefereed)	Sophie Engle, James Shearer, Michael Ogawa, Steve Haroz, and Kwan-Liu Ma, "Free Your Data! Cenimation: Visualization for Constrained Displays," in *IEEE InfoVis Visualization Contest*, 2006.
	Sean Whalen, Sophie Engle, and Matt Bishop, "Protocol Vulnerability Analysis," Technical Report CSE-2005-04, Department of Computer Science, University of California, Davis, 2005.
External Grants	"Workshop on Visualization for Cyber Security," Principle Investigator, Conferences, Workshops, Special Situations Grant, *NSA Mathematical Sciences Program*, $2,500 over 1 year, September 2014. (Funded)
External Grants (Unfunded)	"Developing and Using Precise Vulnerability Errors to Reduce False Positives in Static Analysis," Co-Principle Investigator, Medium Collaborative Proposal with U.C. Davis, *NSF Secure and Trustworthy Cyberspace (NSF 14-599)*, $72,230 over 4 years, November 2014. (Declined)
	"Integrating Interactive Code Review and Cyberlearning to Transform Advanced Programming Curricula," Principle Investigator, Type 1 Project Proposal, *NSF Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics (TUES) (NSF 10-544)*, $163,667 over 2 years, January 2012. (Declined)
	"Collaborative: Developing and Evaluating Sustainable Defenses Against Insider Threats," Co-Principle Investigator, Small Collaborative Proposal with U.C. Davis, *NSF Secure and Trustworthy Cyberspace (NSF 12-503)*, $62,768 over 3 years, January 2012. (Declined)
Internal Grants and Awards	USF FACULTY DEVELOPMENT FUND VizSec, $4,116 Travel Award, July 2015. VizSec, $4,300 Travel Award, November 2014. IEEE S&P, $1,926 Travel Award, March 2014. VizSec, $2,520 Travel Award, November 2013. Evaluating Cybersecurity Visualizations Workshop, $967 Travel Award, July 2013. CCSC-SW, $973 Travel Award, March 2013. IEEE S&P, $1,011 Travel Award, March 2013. VizSec, $1,532 Travel Award, November 2012. R Development Master Class, $972 Travel Award, July 2012. Organizational Processes for Supporting Sustainable Security, $1,471 Travel Award, March 2012. NSPW, $1,967 Travel Award, July 2011
	USF STRATEGY THINK TANK INCUBATOR "Integrating Advances from MOOCs into CS 212 Software Development," $4, 000, October 2012.
Invited Talks	"How Good People Make Bad Graphs: Unintentional Fibbing with Visualization," at the *Big Data Visualization – South Bay Meetup*, Santa Clara, California, May 2014.
	"Reflecting on Visualization for Cyber Security," at the *SRI International CSL Seminar*, Menlo Park, California, September 2013.
	"Understanding the Insider Threat," at the *Computer Science Colloquium*, Sonoma State, California, April 2012.
	"Measuring Access, Knowledge, and Trust: A Discussion," co-presented with Sean Whalen at the *Seminar on Organizational Processes for Supporting Sustainable Security*, Schloss Dagstuhl, Germany, December 2012.
	"Modeling and Classifying Security Vulnerabilities," at the *Seminar on Countering Insider Threats*, Schloss Dagstuhl, Germany, July 2008.
Paper Presentations	"Reflecting on Visualization for Cyber Security," at the *Evaluating Cybersecurity Visualizations Workshop*, Seattle, Washington, June 2013.

Sophie J. Engle

sjengle@cs.usfca.edu · http://sjengle.cs.usfca.edu/

Paper Presentations	"Expert Code Review and Mastery Learning in a Software Development Course," at the *Consortium for Computing Sciences in Colleges Southwest Region Conference*, San Marcos, California, April 2013.
	"Visualizing Distributed Memory Computations with Hive Plots," at the *Symposium on Visualization for Cyber Security (VizSec)*, VizWeek 2012, Seattle, Washington, October 2012.
	"We Have Met the Enemy and He is Us," at the *New Security Paradigms Workshop*, Lake Tahoe, California, September 2008.
Public Speaking	"Deconstructing VizSec with Lane Harrison and Sophie Engle," Data Driven Security Podcast, Episode 13, December 2014.
	"How to Lie with Data Visualization," *Public Lecture*, Department of Computer Science, University of San Francisco, February 2013.
	"A Policy-Based Vulnerability Analysis Framework," *Exit Seminar*, Department of Computer Science, University of California, Davis, April 2010.
	"Modeling Vulnerabilities: From Buffer Overflows to Insider Threat," at the *NSF I/UCRP Center for Information Protection Meeting*, Department of Computer Science, University of California, Davis, June 2008.
Teaching Experience	DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF SAN FRANCISCO
	Software Development, Fall 2010 – Fall 2015.
	Senior Team Project, Fall 2010 and Fall 2013 (Cross-Listed).
	Data Visualization, Fall 2010, Spring 2013 (Cross-Listed), Spring 2016.
	Introduction to Computer Science I, Spring 2012.
	Computing, Mobile Apps, and the Web, Spring 2011 (2 Sections) and Spring 2012.
	Data Structures, Spring 2011.
	Operating Systems, Fall 2011
	MASTERS IN COMPUTER SCIENCE PROGRAM, UNIVERSITY OF SAN FRANCISCO
	Directed Reading and Research, Spring 2014.
	Practicum Study, Fall 2014 – Spring 2014.
	Master's Project, Fall 2010, Fall 2013 (Cross-Listed).
	Data Visualization, Spring 2013 (Cross-Listed).
	MASTERS IN ANALYTICS PROGRAM, UNIVERSITY OF SAN FRANCISCO
	Information Visualization, Spring 2013, Spring 2014, Spring 2015.
	Computational Intensive, Fall 2012.
	DEPARTMENT OF COMPUTER SCIENCE, UNIVERSITY OF CALIFORNIA, DAVIS
	Intro to the Theory of Computation (Teacher Assistant), Fall 2006 and Fall 2007.
	Discrete Mathematics (Teacher Assistant), Spring 2007.
	Operating Systems (Teacher Assistant), Fall 2003 and Winter 2004.
	COLLEGE OF INFORMATION SCIENCE AND TECHNOLOGY, UNIVERSITY OF NEBRASKA AT OMAHA
	Introduction to Computer Programming (Student Instructor), Spring 2002.
	Communication Networks (Teacher Assistant), Spring 2001 and Fall 2001.
Research Experience	UNIVERSITY OF CALIFORNIA, DAVIS
	Postdoctoral Researcher, Computer Security Lab, 2010.
	Research Assistant, Computer Security Lab, 2004 to 2010.
	NEBRASKA UNIVERSITY CENTER FOR INFORMATION ASSURANCE (NUCIA)
	Researcher, Omaha, Nebraska, 2007.

Sophie J. Engle

sjengle@cs.usfca.edu · http://sjengle.cs.usfca.edu/

Research Experience	UNIVERSITY OF CALIFORNIA, BERKELEY Senior Public Administration Analyst, Berkeley, California, 2007.
Academic Service	COLLEGE OF ARTS AND SCIENCES Co-Organizer, Data Visualization Speaker Series, 2013 to Present. Faculty Search Committee, Department of Computer Science, 2015. Open Classroom Host, Educational Technology Focus, Center for Teaching Excellence, 2014. Faculty Search Committee, Department of Mathematics, 2014. Member, Data Science Undergraduate Program Proposal, 2012. Author, R Certificate Feasibility Report, 2012. MASTERS IN COMPUTER SCIENCE PROGRAM Graduate Director, MSCS Program, 2013 to Present. Graduate Adviser, MSCS Program, 2013 to Present. Co-Author, MSCS Program Revision Proposal, 2013 to 2014. DEPARTMENT OF COMPUTER SCIENCE Faculty Sponsor, CS Tutoring Center, 2013. Organizer, Student Data Visualization Contest, 2013. Organizer, CS Night Game Jam, 2012 to 2013.
Professional Service	WORKSHOP ON VISUALIZATION FOR CYBER SECURITY (VIZSEC) Publication Chair, Chicago, Illinois, 2015. Program Chair, Paris, France, 2014. Publication Chair, Atlanta, Georgia, 2013. Publicity Chair, Atlanta, Georgia, 2013. IEEE SYMPOSIUM ON SECURITY AND PRIVACY (IEEE S&P) Poster Chair and Co-Publications Chair, San Jose, California, 2015. Poster Chair, San Jose, California, 2014. Poster Chair, San Francisco, California, 2013. CYBER AND INFORMATION SECURITY RESEARCH (CISR) CONFERENCE Program Committee, Oak Ridge National Laboratory, 2015. GRACE HOPPER CELEBRATION OF WOMEN IN COMPUTING Program Committee, Security/Privacy Track, 2014. NATIONAL SCIENCE FOUNDATION (NSF) Proposal Review Panel, NSF Secure and Trustworthy Cyberspace (SaTC), 2013. INTERNATIONAL CONFERENCE ON COMPUTERS AND THEIR APPLICATIONS (CATA) Program Committee, Las Vegas, 2012. NEW SECURITY PARADIGMS WORKSHOP (NSPW) Local Chair, Marin County, California, 2011. CENTER OF ACADEMIC EXCELLENCE (CAE) WORKSHOP ON INSIDER THREAT (WIT) Program Committee, St. Louis, 2010.

Alark Joshi

Dept of Computer Science, University of San Francisco
2130 Fulton Street, HR 510I
San Francisco, CA 94117

Voice: (415) 422-4916
E-mail: apjoshi@usfca.edu
Website: cs.usfca.edu/∼apjoshi

Last updated: July 29, 2015

RESEARCH INTERESTS

Scientific Visualization, Image-guided Navigation for Neurosurgery, and Interfaces for Mobile data visualization.

EDUCATION

Yale University
Postdoctoral Associate   December 2010
"Novel visualization techniques for image-guided neurosurgical interventions"
Advisor: Dr. Xenophon Papademetris

University of Maryland Baltimore County
Ph.D. Computer Science   November 2007
"Art-inspired techniques for visualizing time-varying data"
Advisor: Dr. Penny Rheingans

University of Minnesota
M.S. Computer Science   July 2001
"Interactive Visualization of Models of Hyperbolic Geometry"
Advisor: Dr. Douglas Dunham

University of Pune, India
B.E. Computer Science   June 1999

EMPLOYMENT HISTORY

Assistant Professor   08/13 - Present
Department of Computer Science, University of San Francisco
- Tenure-track faculty position teaching undergraduate and graduate courses
- Develop novel visualization techniques for neurosurgical planning and navigation
- Participating in service and outreach activities at University of San Francisco.

Assistant Professor   01/11 - 06/13
Department of Computer Science, Boise State University
- Tenure-track faculty position teaching undergraduate and graduate courses
- Conducting research on novel data visualization techniques

Postdoctoral Associate   02/08 - 12/10
Department of Diagnostic Radiology, Yale University
- Worked on identifying visualization techniques for visualizing vascular data
- Developed novel interaction techniques for neurosurgical planning and navigation
- Developed visualization tools for BioImage Suite, an open source image analysis software

Graduate Research Assistant   01/04-12/07
Department of Computer Science, University of Maryland Baltimore County
- Developed novel illustration-inspired techniques for visualizing time-varying datasets
- Identified novel visualization techniques for atmospheric physics in collaboration
- Conducted expert evaluations to identify effective visualizations for hurricane exploration

GRANTS (awarded)

Alark Joshi, *GirlTechPower - A workshop for high-school girls in San Francisco*, AT&T, May 2015 - $20,000.

Alark Joshi and Dave Wolber, *CS4HS - Building a sustained community of practice using Mobile CSP*, Google Computer Science for High School Initiative, April 2015 - $34,000.

Alark Joshi, Amit Jain, Louis Nadelson, Tim Anderson, Jyh-haw Yeh, CS 10K: IDoCode: A Sustainable Model for Computer Science in Idaho High Schools, NSF Computing Education for the 21st Century, May 2013 - $992,067

Lisa Dawley, Chris Haskell, **Alark Joshi**, Andy Hung, *Badges for Personalized Science Learning in 3D GameLab*, HASTAC/MacArthur Foundation, May 2012 - $150,000.

Alark Joshi, *Computational Thinking: An Introduction to Programming and Data Analysis*, Google Computer Science for High School Initiative, March 2013 - $10,000.

Alark Joshi, *Computational Thinking:An Introduction to Programming and Data Analysis*, Google Computer Science for High School Initiative, April 2012 - $14,500.

Alark Joshi, *Context-providing techniques for visualization of scientific simulations*, Idaho National Labs Faculty Staff Exchange Initiative, April 2012 - $20,075.

Alark Joshi, *Evaluating Team-Based Learning in a Sophomore Level Programming Class*, Center for Teaching and Learning, Boise State University, March 2012 - $3,500.

Alark Joshi, *Developing Novel Vision Techniques for Recognizing Sensor Pedestals in 3D photogrammetry*, Electrical Geodesics Inc., June 2011 - $8033.

Alark Joshi, *Instant Gratification: Interactive Learning Tools to Engage Students through Computer Science*, Google Computer Science for High School Initiative, March 2011 - $15,000.

GRANTS (under review)

Alark Joshi, Xornam Apedoe, Dave Wolber, *Towards Inclusive Excellence in Computer Science: Developing Mobile apps with Underrepresented Middle School Students*, National Science Foundation (STEM + Computing partnerships), April 2015 - $598,000.

BOOKS

Xenophon Papademetris and Alark Joshi, *Introduction to Programming for Image Analysis with VTK*, 2nd Edition, 283 pages, November 2009.

Alark Joshi, *Art-inspired Techniques for Visualizing Time-varying Data*, VDM Verlag, 228 pages, 2008.

PEER-REVIEWED PUBLICATIONS

Matt Law, Sami Rollins, Nilanjan Banerjee, **Alark Joshi**, "Visualization-assisted Insights into Home Energy Usage," Proceedings of the European Conference on Visualization (EuroVis), 2015.

Peter Games, **Alark Joshi**. "Evaluation-guided metrics for visualization on mobile devices," **Best Paper Award**, SPIE Conference on Visualization and Data Analysis, 2015.

Brady Cannon, Minoti Hiremath, Cheryl Jorcyk, **Alark Joshi**. "CoVE: A Colony Visualization System for Animal Pedigrees," Proceedings of the ACM 7th International Symposium on Visual Information Communication and Interaction, 2014.

Peter Games, **Alark Joshi**. "Visualization of off-screen data on tablets using context-providing bar graphs and scatter plots", **Best Paper Award**, SPIE Conference on Visualization and Data Analysis, 2014.

Frederik Wiehr, Vidya Setlur, **Alark Joshi**. "DriveSense: Contextual Handling of Large-scale Route Map Data for the Automobile ", IEEE workshop on Big Data Visualization, 2013.

Jared Shenson and **Alark Joshi**. "Visualizing Disease Incidence in the Context of Socioeconomic Factors", Pro-

ceedings of the 2012 International Symposium on Visual Information Communication and Interaction, 2012.

Frederik Wiehr, Vidya Setlur, **Alark Joshi**. "Auto(mobile): Mobile Visual Interfaces for the Road". In ACM SIG-GRAPH 2012 Mobile (SIGGRAPH '12).

Vanessa Gertman, Peter Olsoy, Nancy Glenn, **Alark Joshi**. "RSVP: Remote Sensing Visualization Platform for Data Fusion", IEEE Virtual Reality (VR) 2012 workshop on Immersive Visualization, March 2012.

Alark Joshi, Dustin Scheinost, R. Globinsky, Kenneth P. Vives, Dennis D. Spencer, Lawrence H. Staib, Xenophon Papademetris. "Augmented inline-based navigation for stereotactic image guided neurosurgery". In Proceedings of the IEEE International Symposium on Biomedical Imaging (ISBI) pp.1869–1872, 2011.

Alark Joshi, Dustin Scheinost, Hirohito Okuda, Dominique Belhachemi, Isabella Murphy, Lawrence H. Staib, Xenophon Papademetris, "Unified framework for development, deployment and robust testing of neuroimaging algorithms," Journal of Neuroinformatics, February 2011.

Alark Joshi, Alexander Papanastassiou, Kenneth P. Vives, Dennis D. Spencer, Lawrence H. Staib, Xenophon Papademetris, "Light-Sensitive Visualization of Multimodal Data for Neurosurgical Applications," IEEE International Symposium on Biomedical Imaging (ISBI), 2010.

Alark Joshi, Jesus Caban, Penny Rheingans, Lynn Sparling, "Case Study on Visualizing Hurricanes Using Illustration-Inspired Techniques," IEEE Transactions on Visualization and Computer Graphics, vol. 15, no. 5, pp. 709-718, Sep./Oct. 2009.

Alark Joshi, Dustin Scheinost, Hirohito Okuda, Isabella Murphy, Lawrence H. Staib, Xenophon Papademetris, "Unified framework for development, deployment and testing of image analysis algorithms", 2009 MICCAI Workshop on Systems and Architectures for Computer Assisted Interventions, September 2009.

Alark Joshi, Dustin Scheinost, Marisa Spann, Xenophon Papademetris, "Evaluation of Multi-viewport based visualization for Electrode Navigation during Stereotactic Image Guided Neurosurgery", (Oral presentation), International Brain Mapping and Interoperative Surgical Planning Society's 6th World Congress for Brain Mapping and Image Guided Therapy, August 2009.

Alark Joshi, Dustin Scheinost, Kenneth P. Vives, Dennis D. Spencer, Lawrence H. Staib and Xenophon Papademetris, "Novel interaction techniques for neurosurgical planning and stereotactic navigation," IEEE Transactions on Visualization and Computer Graphics, vol.14, no.6, pp.1587-1594, Nov.-Dec. 2008.

Alark Joshi, Xiaoning Qian, Donald P. Dione, Ketan R. Bulsara, Christopher K. Breuer, Albert J. Sinusas and Xenophon Papademetris, "Effective visualization of complex vascular structures using a non-parametric vessel detection method," IEEE Transactions on Visualization and Computer Graphics, vol.14, no.6, pp.1603-1610, Nov.-Dec. 2008.

Alark Joshi and Penny Rheingans, "Evaluation of illustration-inspired techniques for time-varying data visualization," In Proceedings of the Eurographics/IEEE TCVG Symposium on Visualization (Eindhoven, Netherlands, May 26-28, 2008), EuroVis 2008.

Jesus Caban, **Alark Joshi** and Penny Rheingans, "Texture-Based feature tracking for effective time-varying data visualization," IEEE Transactions on Visualization and Computer Graphics, (Vol. 13, No. 6), pp. 1472-1479, 2007.

Jesus Caban, **Alark Joshi** and Paul Nagy, "Rapid Development of Medical Imaging Tools with Open Source Libraries," Journal of Digital Imaging 20(1), pp. 83-93, 2007.

Alark Joshi and Penny Rheingans, "Illustration-inspired techniques for visualizing time-varying data," Proceedings of the IEEE Visualization 2005, pp. 679-686.

Alark Joshi and Douglas Dunham, "Interactive Visualization of Models of Hyperbolic Geometry," Master's Thesis, Computer Science Department, University of Minnesota Duluth, June 2001.

PEER-REVIEWED PUBLICATIONS (under preparation)

Steven Shofner, Jenn Lewis, Phan Luu, Don Tucker, **Alark Joshi**, "Semi-automated Geodesic Photogrammetry for Dense-array EEG Electrode Localization."

Joshua Anghel, Kristin Potter, **Alark Joshi**, "Interactive Focus+Context Glyph and Streamline Vector Visualization."

(under review)

Sophie Engle, Sean Whalen, **Alark Joshi**, Katherine Pollard, "Improved Exploration of Correlation using Bubble Sets."

Aaron Wells, **Alark Joshi**, Thomas Wuerzer, Susan Mason, Don Holley, Amit Jain, "Discovering the Tipping Point: An explorative study on collaborative decision making."

Peter Games, Gabrielle Corbett, **Alark Joshi**. "Visualization of off-screen data on tablets using context-providing bar graphs and scatter plots."

Alark Joshi, Minoti Hiremath, Marissa Schmidt, Shane Panter, Amit Jain, "Evaluating the benefits of Team-Based Learning in a Systems Programming Class."

Anthony Hafez, Ryan Squires, Amber Pedracini, **Alark Joshi**, Robert Seegmiller. "Collagen `<alpha>1(XI)` regulates bone microarchitecture, " Bone Journal, 2014 (under review)

Alark Joshi, John Onofrey, Alexander Papanastassiou, Lawrence H. Staib, Xenophon Papademetris, "Virtual Craniotomy Planner for Image-guided Surgery. "

NON PEER-REVIEWED PUBLICATIONS

Susan Mason, Don Holley, Aaron Wells, **Alark Joshi**, Amit Jain, Thomas Wuerzer. "Social Network Analysis: A Means to Discovering the Tipping Point in Gaining Cooperation?". In Urban Affairs Association 44th Annual Meeting, March 19-22, 2014.

Peter Olsoy, Vanessa Gertman, Nancy Glenn, Jessica Mitchell, Eric Whiting, Rupesh Shrestha, Lucas Spaete and **Alark Joshi**, "Interactive Exploration and Data Fusion of Multimodal Remote Sensing Data," American Society for Photogrammetry and Remote Sensing, 2012.

Carol A Moore, Vanessa Gertman, Peter Olsoy, Jessica Mitchell, Nancy F Glenn, **Alark Joshi**, Derek Norpchen, Rupesh Shrestha, Michael Pernice, Lucas Spaete, Shane Grover, Eric Whiting and Randy Lee, "Discovering new methods of data fusion, visualization and analysis in 3D immersive environments for hyperspectral and laser altimetry data," American Geophysical Union, December 2011.

Alexander Papanastassiou, Ronen Globinsky, **Alark Joshi**, Kenneth P. Vives, Xenophon Papademetris, Dennis D. Spencer, "Application of BioImage Suite for planning and neuronavigation in epilepsy surgery," American Society for Stereotactic and Functional Neurosurgery (ASSFN), 2010.

Alark Joshi and Xenophon Papademetris, "Visualization-based feedback for Image-Guided Neurosurgery, " 3rd Annual Image-Guided Therapy Workshop, National Center for Image-Guided Therapy (NCIGT), March 2010.

Levent Alpoge, **Alark Joshi**, Dustin Scheinost, John Onofrey, Xiaoning Qian, Xenophon Papademetris, "A VTK-based CUDA-optimized Non-Parametric Vessel Detection Method," The VTK Journal, January 2010.

INVITED TALKS

Smart Interfaces for Mobile Devices, Big Data Visualization meetup, CA Technologies Lab, San Jose, Feb 2015.

Visualization Tools for Interactive Data Analysis, GIS Applications and Visualization Techniques in Planning course (CRP 510), Department of Community and Regional Planning, Boise State University, February 2013.

Help Students SEE it! Using Online Visualization Tools for Interactive Data Analysis at the Center for Teaching & Learning at Boise State University - September 2012.

Data Visualization for Nonprofits at the Idaho Statewide NonProfit Conference - September 2012.

Effective visualization of complex vascular structures using a non-parametric vessel detection method at the Scientific Computing Institute at the University of Utah - December 2011.

Biomedical Visualization: Neurosurgical Applications and Beyond in the Department of Biology at Boise State University - November 2011.

How Gamers Changed the World at the IEEE Boise Computer Society - September 2011.

Improved Multimodal Exploration through Scientific Visualization at the Second Annual CAES Workshop on Modeling, Simulation and Visualization - September 2011.

Immersive Scientific Visualization (Keynote speaker) at the Center for Advanced Energy Studies at the Idaho National Labs as part of the Immersive Visualization Applications workshop - July 2011.

Illustration-Inspired Visualization in the Department of Computer Science at Old Dominion University - Feb 2011.

Resources For Teaching In The Age Of The Internet in the Department of Psychology at Yale Univ - June 2010.

Resources For Teaching In The Age Of The Internet in the *Preparing Future Science Faculty* seminar series organized by the Graduate Teaching Center at Yale University - April 2010.

Enabling Insight and Exploration through Data Visualization in the College of Engineering at Boise State University - February 2010.

Introduction to GPU Computing in the Department of Cell Biology at Yale University - December 2009.

Enabling Insight and Exploration through Data Visualization at the Young Investigators Meet organized by the Translational Health Science and Technology Institute at MIT - September 2009.

Interdisciplinary Research through Visualization at Tufts University - August 2009.

Visualization Techniques for Neurosurgical Planning and ROI Connectivity at the Yale University fMRI Seminar Series - September 2008.

Illustration-inspired Visualization at the Johns Hopkins University Whiting School of Engineering - April 2007

Illustration-inspired Techniques for Time-varying Data Visualization at the IBM T. J. Watson Research Center - November 2006.

Illustration-inspired techniques for time-varying data visualization at the UMBC CSEE Department Student Speaker Colloquium - December 2005.

AWARDS

Distinguished Teaching Award at the University of San Francisco for 2014-2015.

Selected as one of ten **Peer Coaches** - Center for Teaching Excellence at University of San Francisco 2014-2015.

Selected as one of seven **Teaching Scholars** - Center for Teaching & Learning at Boise State University 2012-2013.

Best Panel Award at the IEEE Visualization 2010 conference for the panel "Perspectives on teaching data visualization". Co-Panelists were Tamara Munzner, Gordon Kindlmann, Daniel Keefe, Jason Dykes.

Best Panel Award at the IEEE Visualization 2009 conference for the panel "New faculty and postdoctoral fellows spill the beans". Co-Panelists were Jeffrey Heer, Gordon Kindlmann, Miriah Meyer.

Recipient of the **National Biomedical Computation Resource (NBCR) Summer Institute 2008 Scholarship**.

First place at UMBC's Annual Business Plan Competition for 2007.

Outstanding Graduate Teaching Assistant of the year, Department of Computer Science at the University of Minnesota, 2000-2001.

Best Senator of the Year for the Graduate Student Association for the 2005-06 academic year.

TEACHING EXPERIENCE - UNIVERSITY OF SAN FRANCISCO

Computing, Mobile Apps, and the Web	Fall 2013, Spring 2015
Introduction to Computer Science II	Fall 2013-Spring 2015
Graduate Computer Graphics	Spring 2014
Graduate Data Visualization	Fall 2014
Research Seminar in Computer Science	Fall 2014

OTHER TEACHING EXPERIENCE

Programming Languages   Fall 2012
Department of Computer Science, Boise State University

Visualization Techniques   Spring 2012
Department of Computer Science, Boise State University

Computer Graphics   Fall 2011
Department of Computer Science, Boise State University

Software Development in C   Spring 2011-13
Department of Computer Science, Boise State University

Understanding Effective Visual Representations   Spring 2010
Yale University

Programming for Image Analysis   Spring 2009
Department of Biomedical Engineering, Yale University

Computer Graphics - (via Video Conferencing)   Spring 2009
Department of Computer Science, University of Pune, India

BioImage Suite Users Training   Spring 2008
Department of Diagnostic Radiology, MRRC, Yale University

Introduction to Computer Graphics   Spring 2005
Department of Computer Science, University of Maryland, Baltimore County

STUDENTS SUPERVISED AT THE UNIVERSITY OF SAN FRANCISCO

- Han Xi, Master of Science in Computer Science (Research Assistant)
- Roderick Lisam, Master of Science in Computer Science (Master's Project and Directed Study)
- Sindhuja Sridharan, Master of Science in Computer Science (Master's Project)
- Fatima Zahra El Fallali, Master of Science in Computer Science (Directed Study)
- Chao Lu, Master of Science in Computer Science (Directed Study)
- Pirakorn Iamcharernying, Master of Science in Computer Science (Master's Project)
- Colin Clayton, Bachelor of Science in Computer Science (Directed Study)
- Gabrielle Corbett, Bachelor of Science in Mathematics (Research Assistant)
- Diana Ly, Bachelor of Science in Computer Science (Directed Study)
- William Chiang, Bachelor of Science in Computer Science (Directed Study)

OTHER STUDENTS SUPERVISED

- Brady Cannon, Master of Computer science - November 2012
- Peter Games, Master of Computer Science - May 2013
- Joshua Anghel, Master of Computer Science - October 2013
- Aaron Wells, Master of Computer Science (committee member)
- Matthew Tanner, Master of Computer Science (committee member)
- Andres Campos, Master of Computer Science (committee member)
- Archana Nanjundarao, Master of Computer Science (committee member)
- Sri Divya Deenadayalan, Master of Computer Science (committee member) - May 2012
- Nazia Sarang, Master of Electrical and Computer Engineering (committee member) - Dec 2011
- Steven Shofner, Bachelor of Computer Science - NSF LSAMP student 2012
- Carla Barrero, Bachelor of Computer Science - NSF LSAMP student 2011

- Jake Desarno, Bachelor of Computer Science - NSF STEP student 2012
- Autumn Warren, Bachelor of Computer Science - NSF STEP student 2011
- Grannsci Giraldo, Bachelor of Computer Science
- Nilab Mohammad Mousa, Bachelor of Computer Science
- Vanessa Gertman, Bachelor of Computer Science
- Stephen Mathie, Bachelor of Computer Science

UNIVERSITY SERVICE

- **Steering Committee**, Center for Teaching Excellence (CTE), University of San Francisco 2014-2015
- Co-founder of the Data Visualization Speaker Series at USF (with Sophie Engle and Scott Murray) - `http://bit.ly/USFdvss`
- Computer Science Graduate Admissions committee - 2013-current
- Computer Science Faculty Search committee - 2014-2015
- Computer Science Graduate curriculum revision committee - 2013-2014
- Graduate Recruitment visit to India - 2014
- University Information Technology Committee (UITC) member - 2013-current
- Co-organizer of the CS4SF 2014 workshop for middle-school girls in computing

PROFESSIONAL COMMUNITY SERVICE

- **Conference co-chair** for SPIE Visualization and Data Analysis Conference 2015
- **Program Committee** for EuroVis 2013-2015
- **Program Committee** for Eurographics Workshop on Visual Computing for Biology and Medicine 2012
- **Program Committee** for SPIE Visualization and Data Analysis Conference 2012-2015
- **Program Committee** for IEEE Symposium on Biological Data Visualization 2011-2014
- **Program Committee** for IEEE Workshop on Visual Analytics for Health Care 2011
- **NIH Reviewer** for the Insight Toolkit - Algorithms, Adapters, and Data Distribution 2010
- **International Program Committee** for the International Symposium on Visual Computing 2009-2012
- **Posters Chair** for IEEE Visualization conference - 2009, 2010
- Book Reviewer for Morgan Kaufmann publishers
- Book reviewer for Elsevier publishing company
- Reviewer for the **DOE**'s Nuclear Energy University Programs (NEUP) - 2011, 2012
- Reviewer for ACM SIGCHI Conference on Human Factors in Computing Systems (CHI) - 2011, 2012
- Reviewer for the IEEE Transactions on Visualization and Computer Graphics (TVCG)
- Reviewer for IEEE VisWeek conference 2004-13
- Reviewer for the Computer Graphics Forum 2007-13
- Reviewer for PacificVis 2009-2014
- Reviewer for ACM SIGCHI Symposium on Engineering Interactive Computing Systems - 2012
- Reviewer for IEEE Transactions on Information Technology in Biomedicine
- Reviewer for the Symposium on Interactive 3D Graphics and Games conference - 2006
- Reviewer for the Computer Supported Cooperative Work (CSCW) conference - 2008
- Reviewer for the Eurographics workshop on Visual Computing for Biomedicine - 2008
- Reviewer for BMC Journal on Bioinformatics

OTHER COMMUNITY SERVICE

- Volunteer instructor for the Girls Who Code club in Burlingame, CA (2013-14) and Foster City, CA (2014-15)
- Reviewer for the Girls Who Code summer immersion program - 2014
- Scholarship Application Committee Member for the Grace Hopper Celebration - 2014, 2015
- Co-Organizer for the National Center for Women & Information Technology (**NCWIT**) awards in Idaho - 2012
- **Steering Committee** for NSF Louis Stokes Alliances for Minority Participation (LSAMP) Program at Boise State University

- Advisor to the **NASA Microgravity team** from Boise State University - 2012
- Vice President for the Graduate Student Association - 2006-07

AFFILIATIONS

- Association for Computing Machinery (ACM).
- Institute of Electrical and Electronics Engineers (IEEE).

REFERENCES

Penny Rheingans, Ph.D.
Professor
Department of Computer Science and Electrical Engg
University of Maryland Baltimore County
1000 Hilltop Circle
Baltimore, MD 21250
(410) 455-3554
rheingan@cs.umbc.edu

Xenophon Papademetris, Ph.D.
Professor
Department of Biomedical Engineering
Yale University
300 Cedar Street
New Haven, CT 06520
(203) 785-6148
xenophon.papademetris@yale.edu

Don Tucker, Ph.D.
Chief Executive Officer
Electrical Geodesics
Riverfront Research Park
1600 Millrace Drive, Suite 200
Eugene, OR 97403
(541) 687-7962
dtucker@egi.com

Jennifer Frederick, Ph.D.
Co-Director
Center for Scientific Teaching
Yale University
219 Prospect Street, KBT 950
New Haven, CT 06520
(203) 432-3515
jennifer.frederick@yale.edu

Olga A. Karpenko

Phone: (510) 859-5490
oakarpenko@gmail.com

765 Taft Ave #C
Albany, CA 94706

Education

PhD	Brown University, Computer Science, Providence RI Dissertation: Algorithms and Interfaces for Sketch-based 3D Modeling Committee: John Hughes, Gabriel Taubin, Ramesh Raskar	May 2007
MS	Brown University, Computer Science, Providence RI Thesis: Interactively Generating 3D Models from Contour Drawings Advisor: John Hughes	May 2001
BS	Moscow State University, Applied Mathematics, Moscow, Russia	May 1998

Teaching Experience

University of San Francisco, San Francisco CA   present
Visiting Assistant Professor, Department of Computer Science

- CS212: Software Development in Java   Fall 2015
- CS490/CS690: Senior/Masters Projects Class

- CS112: Introduction to Computer Science II   Spring 2015
- CS490/CS690: Senior/Masters Projects Class

- CS110: Software Development in Java   Fall 2014

- CS245: Data Structures and Algorithms   Spring 2014
- CS112: Introduction to Computer Science II
- CS490/CS690: Senior/Masters Projects Class

University of San Francisco, San Francisco CA
Adjunct Faculty, Department of Computer Science   Fall 2013

- CS212: Software Development in Java

University of California, Berkeley CA   Spring 2008
Postdoctoral Researcher, Department of Computer Science

- Sketch-based Interfaces
Designed course syllabus; prepared and delivered lectures.
Mentored students on the final projects.

Brown University, Providence RI
Teaching Assistant, Department of Computer Science

- Introduction to Scientific Computing and Problem Solving with MATLAB   Spring 2006
Taught several lectures; prepared assignments and conducted labs.

- Interactive Computer Graphics   Spring 2004
Conducted paper reading sections and help sessions.
Graded programming assignments.

Research Experience

University of California, Berkeley, CA   2008-2009
Postdoctoral Researcher, Department of Computer Science

- Developed and implemented algorithms for generating exploded view diagrams

   of mathematical surfaces.

University of California, Berkeley, CA   2007-2008
Visiting Researcher, Department of Computer Science

- Worked on a system for part-based 2D sketch decomposition and manipulation.

Brown University, Providence, RI   2000-2007
Research Assistant, Department of Computer Science,

- Built a system for interactively generating 3D free-form shapes from complex contour
   drawings.
- Designed and implemented a system for multi-view sketching of generalized

   cylinders using epipolar constraints.

- Developed multi-touch interface for sculpting generalized cylinders.

MERL, Cambridge, MA   Summer 2002
Research Intern

- Developed a system for free-form shape modeling from gestural input, using variational
   implicit surfaces in a modeling hierarchy.

Honors and Awards

AAUW American Postdoctoral fellowship	2008
Pixar Fellowship	2005-2006
Brown Fellowship	1999-2000
Diploma with Honors, Moscow State University	1998
Moscow Mayor's fellowship	1996-1997

Publications

Book Chapter

Olga Karpenko and John F. Hughes, "Inferring 3D free-form shapes from complex contour drawings", in Sketch-Based Interfaces and Modeling, Joaquim Jorge and Faramarz Samavati (editors), Springer, 2010.

Conference papers and posters

- Olga Karpenko, Wilmot Li, Niloy J. Mitra, Maneesh Agrawala, "Exploded View Diagrams of Mathematical Surfaces", IEEE Visualization, 2010, pp. 1311-1318.

- Olga Karpenko, "Algorithms and Interfaces for Sketch-based 3D Modeling", Ph.D. Dissertation, Brown University, May 2007.

- Olga Karpenko, and John F. Hughes. "SmoothSketch: 3D Free-form Shapes from Complex Sketches," ACM Transactions on Graphics (Proceedings of SIGGRAPH 2006).

- Olga Karpenko, and John F. Hughes. "Implementation Sketch for SmoothSketch: 3D Free-Form Shapes From Complex Sketches," ACM SIGGRAPH 2006 Sketches.

- Olga Karpenko, and John F. Hughes. "Inferring 3D Free-Form Shapes from Contour Drawings," ACM SIGGRAPH 2005 Sketches.

- Tomer Moscovich, and Olga Karpenko. "Multi-Fingered Interface for Sculpting of Generalized Cylinders," Symposium on Interactive 3D Graphics and Games 2005 Posters.

- Olga Karpenko, John F. Hughes, and Ramesh Raskar, "Epipolar Methods for Multi- view Sketching," Eurographics Workshop on Sketch-Based Interfaces 2004.

- Olga Karpenko, John F. Hughes, and Ramesh Raskar, "Free-form Sketching with Variational Implicit Surfaces," Eurographics 2002.

- V. L. Volevich, E. A. Kopylov, A. B. Khodulev, and Olga Karpenko, "An Approach to Cloth Synthesis and Visualization," The Seventh International Conference on Computer Graphics and Scientific Visualization Graphicon 1997.

Patents

Ramesh Raskar, Olga Karpenko, John F. Hughes, "Free-form modeling of objects with variational implicit surfaces", Unites States Patent, No. US6795069, 2004.

Invited Talks

- "Bringing sketches to life", AAUW Marin County, May 2009
- "Bringing sketches to life", AAUW Novato, September 2009
- "SmoothSketch: 3D free-form shapes from complex sketches", Brown CS Retreat 2007

Professional Service

- Program Committee, Sketch-Based Interfaces and Modeling 2012
- Program Committee, Sketch-Based Interfaces and Modeling 2011
- Reviewer for Computers & Graphics, Special Issue on Sketch-Based Interfaces and Modeling, 2010
- Reviewer for Transactions on Visualization and Computer Graphics, 2009
- Reviewer for Eurographics, 2008
- International Program Committee, Pacific Graphics, 2007
- Reviewer for ACM Transactions on Graphics, 2007
- Reviewer for ACM Transactions on Graphics, 2006
- Reviewer for IEEE CG&A Issue on Sketching, 2006
- Reviewer for Computer Graphics Forum, 2003

Skills

Programming Languages: Java, Python, C, C++, Lisp, SQL
Graphics Libraries: Java3D, OpenGL
Web Development: Flask, Jetty/servlets
Computing Tools: MATLAB, Mathematica

Software Tools: Eclipse, JUnit
Operating Systems: Unix, Linux, Mac OS X

Languages

English (fluent), Russian (fluent)

Gwoing Tina Yu

CONTACT
INFORMATION

1624 Fell Street
San Francisco CA 94117
USA

Tel: (925) 301-9886
E-mail: gwoingyu@gmail.com
WWW: www.cs.mun.ca/~tinayu/Home.html

EDUCATION

Ph.D., Computer Science

University College London, London, UK, 1999

M.Sc, Computer Science

Northeastern University, Boston, MA USA, 1989

B.Sc, Computer Science

Lamar University, TX, USA 1986

PROFESSIONAL
EXPERIENCE

Previous Permanent Positions:

Associate Professor (Tenured in 2008)   October 2005 - July 2014
Department of Computer Science
Memorial University of Newfoundland
St. John's NL, A1B 3X5
Canada

Consultant   August 1999 - September 2005
Mathematical Modeling Team
Chevron Energy Technology Company
San Ramon CA, 92568
USA

Member of Technical Staff   July 1990 - December 1995
Expert Systems Laboratory
Verizon (NYNEX) Science and Technology Inc.
White Plains, NY, USA

Visiting and Temporary Positions:

Visiting Associate Professor
Department of Computer Science   August 2015 - current
University of San Francisco
San Francisco, CA 94117
U.S.A.

Visiting Scholar
Department of Mathematics   August 2014 - April 2015
University of California, San Diego
La Jolla, CA 92093
U.S.A.

Visiting Professor
Department of Computer Science   August - December 2013
San Jose State University
San Jose, CA 95192-0249
U.S.A.

Visiting Scientist
Institute of Physics   April 2012 - May 2012
Institute of Statistical Science   May 2011 - June 2011
Academia Sinica
Taipei, Taiwan

Visiting Professor   September 2010 - October 2010
Department of Economics   January 2008 - February 2008
National Chengchi University   December 2003 - February 2004
Taipei, Taiwan

Visiting Scientist   March 2004 - May 2004
Center for the Study of Complex Systems
University of Michigan
Ann Arbor MI, USA

Teaching Assistant   September 1997 - December 1997
University College London   September 1996 - December 1996
Department of Computer Science
London, UK

Software Quality Assurance Engineer   October 1989 - February 1990
Ontos Inc.
Burlington, MA USA

Teaching Assistant   January 1988- April 1988
College of Computer Science
Northeastern University
Boston, MA USA

PROFESSIONAL   Member, Editorial Board, *Genetic Programming and Evolvable Machines*, a journal published by
POSITIONS   Springer, 2009–.

               Member, Editorial Board, *Neural Computing & Applications*, a journal published by Springer, 2012–.

               Member, Editorial Board, *Evolutionary Computation*, a journal published by MIT Press, 2009–2014.

PATENTS   D. Wilkinson, T. Yu, *System and Method for Interpretation of Well Data*, US Patent US8090538
               Issued on January 3, 2012; European Patent 2,271,954 issued on January 12, 2011.

               D. Wilkinson, T. Yu and A. Castellini, *Method for Forecasting the Production of a Petroleum Reservoir Utilizing Genetic Programming*, US Patent US7657494 Issued on February 2, 2010; European
               Patent 2,064,630 issued on June 3, 2009.

PUBLICATIONS   **Edited Books**

               1. T. Yu, L. Davis, C. Baydar and R. Roy (2008) *Evolutionary Computation in Practice.* Springer.
               2. T. Yu, R. Riolo and B. Worzel (2006) *Genetic Programming, Theory and Practice III.* Springer.
               3. U-M O'Reilly, T. Yu, R. Riolo and B. Worzel (2004) *Genetic Programming, Theory and Practice II*, Springer.

Journal Articles

1. T. Yu (2015) "Analyzing Internal Migration Patterns using Aggregated Cell Phone Data", *in preparation.*

2. T. Yu, R. Ben-Av (2015) "Analysis of Quantum Particle Automata for Solving the Density Classification Problem", *Quantum Information Processing*, Volume 14, Issue 4, Page 1227-1247, Springer.

3. T. Yu, R. Ben-Av (2013) "Evolutionarily Stable Sets in Quantum Penny Flip Games", *Quantum Information Processing*, Volume 12, Issue 6, pages 2143-2165, Springer.

4. Y-P Huang, S-H Chen, M-C Hung, T. Yu (2012) "Liquidity Cost of Market Orders in the Taiwan Stock Market: A Study based on An Order-Driven Agent-Based Artificial Stock Market", *International Review of Financial Analysis*, Volume 23, pages 72–80, Elsevier.

5. T. Yu, D. Wilkinson, J. Clark and M. Sullivan (2011) "Computational Intelligence for Deepwater Reservoir Depositional Environments Interpretation", *Journal of Natural Gas Science & Engineering*, Volume 3, Issue 6, pages 716-728, Elsevier.

6. S-H Chen and T. Yu (2011) "Agents Learned, but Do We? Knowledge Discovery Using the Agent-Based Double Auction Markets", *Frontiers of Electrical and Electronic Engineering in China*, Volume 6, Number 1, pages 159–170, Springer.

7. T. Yu, D. Wilkinson and A. Castellini (2008) "Constructing Reservoir Flow Simulator Proxies using Genetic Programming for History Matching and Production Forecast Uncertainty Analysis", *Journal of Artificial Evolution and Applications*, Vol. 2008, Article ID 263108.

8. T. Yu and J. F. Miller (2006) "Through the Interaction of Neutral and Adaptive Mutations, Evolutionary Search Finds a Way", *Artificial Life*, Vol. 12, No. 4 : 525-551, MIT Press.

9. X. Wen, S. Lee and T. Yu (2006) "Simultaneous Integration of Pressure, Water Cut, and 4-D Seismic Data in Geostatistical Reservoir Modeling", *Mathematical Geology*, Vol. 38, No. 3, pages 301–325, Springer.

10. T. Yu, S-H Chen and T-W Kuo (2004) "A Genetic Programming Approach to Model International Short-Term Capital Flow", *Applications of Artificial Intelligence in Finance and Economics, Advances in Econometrics*, Vol. 19, pages 45-70, Elsevier.

11. T. Yu and P. Johnson (2003) "Tour Jet, Pirouette: Dance Choreographing by Computers," *YLEM Journal*, Vol. 23, No. 6, pages 8-10.

12. T. Yu (2001) "Hierarchical Processing for Evolving Recursive and Modular Programs using Higher-order Functions and Lambda Abstraction", *Genetic Programming and Evolvable Machines*, Vol. 2 No. 4: 345-380, Springer.

Book Chapters

1. Y-P Huang, S-H Chen, M-C Hung, T. Yu (2011) "An Order-Driven Agent-Based Artificial Stock Market to Analyze Liquidity Costs of Market Orders in Taiwan Stock Market," *Natural Computing in Computational Finance, Volume IV*, A. Brabazon, M. O'Neill, D. Maringer and N.S. Thomaidis (editors), pages 163–179, Springer.

2. S-H Chen, R-J Zeng, T. Yu and S. G. Wang (2010) "Bounded Rationality and Market Micro-Behaviors: Case Studies Based on Agent-Based Double Auction Markets," *Multi-Agent Applications for Evolutionary Computation and Biologically Inspired Technologies: Intelligent Techniques for Ubiquity and Optimization*, S-H Chen, Y. Kambayashi and H. Sato (editors), pages 78–94, IGI Global.

3. S-H Chen, P-T Chih, H-F Fan and T. Yu (2009) "Income Distribution and Lottery Sales: An Analysis Based on Agent-Based Simulation," *Natural Computing in Computational Finance, Volume II*, A. Brabazon , M. O'Neill (editors), pages 207–223, Springer.

4. S-H Chen, R-J Zeng and T. Yu (2008) "Co-Evolving Trading Strategies to Analyze Bounded Rationality in Double Auction Markets," *Genetic Programming, Theory and Practice VI*, R. Riolo, T. Soule and B. Worzel (editors), pages 195–213, Springer.

5. T. Yu and L. Davis (2008) "An Introduction to Evolutionary Computation in Practice", *Evolutionary Computation in Practice*, T. Yu, L. Davis, C. Baydar and R. Roy (editors), pages 1–8, Springer.

6. G. Hornby and T. Yu (2008) "Results of the First Survey of Practitioners of Evolutionary Computation," *Evolutionary Computation in Practice*, T. Yu, L. Davis, C. Baydar and R. Roy (editors), pages 283–298, Springer.

7. T. Yu and D. Wilkinson (2008) "A Co-evolutionary Fuzzy System for Reservoir Well Logs Interpretation," *Evolutionary Computation in Practice*, T. Yu, L. Davis, C. Baydar and R. Roy (editors), pages 199–218, Springer.

8. T. Yu and D. Wilkinson (2008) "A Fuzzy Symbolic Representation for Intelligent Reservoir Well Logs Interpretation", *Soft Computing for Hybrid Systems* , O. Castillo, P. Melin, J. Kacprzyk and W. Pedrycz (editors), pages 417–426, Springer Verlag.

9. T. Yu, D. Wilkinson and A. Castellini (2006) "Applying Genetic Programming to Reservoir History Matching Problems," *Genetic Programming, Theory and Practice IV*, R. Riolo, T. Soule and B. Worzel (editors), pages 187–201, Springer.

10. T. Yu, R. Riolo and B. Worzel (2005) "Genetic Programming, Theory and Practice: An Introduction to Volume III", *Genetic Programming, Theory and Practice III*, T. Yu, R. Riolo and B. Worzel (editors), pages 1–14, Springer.

11. T. Yu (2005) "A Higher-Order Function Approach to Evolve Recursive Programs", *Genetic Programming, Theory and Practice III*, T. Yu, R. Riolo and B. Worzel (editors), pages 93–108, Springer.

12. U-M. O'Reilly, T. Yu, R. Riolo and B. Worzel (2004) "Genetic Programming Theory and Practice: An Introduction to Volume II", *Genetic Programming, Theory and Practice II*, U-M. O'Reilly, T. Yu, R. Riolo and B. Worzel (editors), pages 1-10, Springer.

13. T. Yu, S-H Chen and T-W Kuo (2004) "Discovering Financial Technical Trading Rules Using Genetic Programming with Lambda Abstraction", *Genetic Programming Theory and Practice II*, U-M, O'Reilly, T. Yu, R. Riolo and B. Worzel (editors), pages 11-30, Springer.

14. T. Yu, D. Wilkinson and D. Xie (2003) "A Hybrid GP-Fuzzy Approach for Reservoir Characterization," *Genetic Programming Theory and Practice*, R. Riolo and B. Worzel (editors), pages 271-290, Kluwer.

Peer Reviewed Conference and Workshop Papers

1. M. Hatcher, W. Banzhaf and T. Yu (2011) "Bondable Cellular Automata", In *Proceedings of the 13th European Conference on Artificial Life*, Springer.

2. T. Yu (2010) "Modeling Occupancy Behavior for Energy Efficiency and Occupants Comfort Management in Intelligent Buildings", In *Proceedings of the Ninth International Conference on Machine Learning and Applications.* pages 726–731, IEEE.

3. T. Yu (2010) "Active Learning Support Vector Machines to Classify Imbalanced Reservoir Simulation Data", In *Proceedings of IEEE International Joint Conference on Neural Networks*, pages 568–576, IEEE.

4. T. Yu, T-H Chiu, J. van den Wijngaard, T-T Hsieh, B. E. Westerhof, E. Tseng (2009) "Timing the Delivery of Preterm Fetus: A Case Study Based on Computer Simulation," In *AAAI Fall Symposium Technical Report FS-09-03*, pages 131–139, AAAI.

5. S-H Chen, R-J Zeng and T. Yu (2009) "Analysis of Micro-Behavior and Bounded Rationality in Double Auction Markets Using Co-evolutionray GP," In *Proceedings of the World Summit on Genetic and Evolutionary Computation*, pages 807–810, ACM.

6. T. Yu, D. Wilkinson (2009) "Coevolution of Simulator Proxies and Sampling Strategies for Petroleum Reservoir Modeling", In *Proceedings of IEEE Congress on Evolutionary Computation*, pages 2677–2684, IEEE.

7. M. Fatemi, J. Millan, T. Yu, and S. O'Young (2009) "Toward A General Control Design Paradigm for Hybrid Systems: Ideas, Concepts, And Formulations", In *Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering*, pages 1158–1162, IEEE.

8. X. Jiang, Y. P. Chen and T. Yu (2008) "Dynamic Cooperative Coevolutionary Sensor Deployment via Localized Fitness Evaluation", In *Proceedings of the 10th International Conference on Parallel Problem Solving From Nature*, pages 225–235, Springer.

9. X. Jiang, Y. P. Chen and T. Yu (2008) "Localized Distributed Sensor Deployment via Coevolutionary Computation", In *Proceedings of the Third International Conference on Communications and Networking in China*, pages 785–789, IEEE.

10. T. Yu, D. Wilkinson, J. Clark and M. Sullivan (2008) "Evolving Finite State Transducers to Interpret Deepwater Reservoir Depositional Environments", In *Proceedings of IEEE Congress on Evolutionary Computation*, pages 3490 – 3497, IEEE.

11. M. Fatemi, J. Millan, J. Stevenson, T. Yu, and S. O'Young (2008) "Discrete Event Control of an Unmanned Aircraft", In *Proceedings of the 9th International Workshop on Discrete Event Systems*, pages 352–357, IEEE.

12. M. Uddin, T. Yu, and T. Wareham (2008) "A Cooperative Coevolutionary Algorithm for Haplotype Pattern Detection in Case-Control Data", In *Proceedings of the 3rd Annual Canadian Student Conference on Biomedical Computing*.

13. T. Yu (2007) "Program Evolvability under Environmental Variations and Neutrality", In *Proceedings of the 9th European Conference on Artificial Life*, pages 835–844, Springer.

14. T. Yu, X-W. Wen and S. Lee (2006) "A Hybrid of Sequential Self-Calibration and Genetic Algorithms Inversion Technique for Geostatistical Reservoir Modeling," in *Proceedings of Congress on Evolutionary Computation*, pages 3079–3085, IEEE Press.

15. D. Xie, D. Wilkinson, T. Yu (2005) "Permeability Estimation Using a Hybrid Genetic Programming and Fuzzy/Neural Inference Approach", Paper SPE 95167 presented at the SPE Annual Technical Conference and Exhibition, Dallas, Texas, USA, October 9-12.

16. T. Yu (2004) "Six Degrees of Separation in Boolean Function Network with Neutrality," In *Workshop Proceedings on Neutral Evolution in Evolutionary Computation* at the Genetic and Evolutionary Computation Conference.

17. X.-W. Wen, T. Yu and S. Lee (2004) "Coupling Sequential Self-Calibration and Genetic Algorithms to Integrate Dynamic Production Data in Geostatistical Modeling," In *Proceedings of the Seventh Geostatistics Congress*, O. Leuangthong and C. Deutsch (editors), pages 691-702.

18. T. Yu and P. Johnson (2003) "Tour Jet, Pirouette: Dance Choreographing by Computers," In *Proceedings of the 2003 Genetic and Evolutionary Computation Conference*, page 301.

19. T. Yu and S. Lee (2002) "Evolving Cellular Automata to Model Fluid Flow in Porous Media," In *Proceedings of the 2002 NASA/DoD Conference on Evolvable Hardware*, pages 210-218, IEEE.

20. T. Yu and J. Miller (2002) "Climbing Unimodal Landscapes with Neutrality: A Case Study of the OneMax Problem," In *Proceedings of the 2002 Genetic and Evolutionary Computation Conference*, page 704, Morgan Kaufmann.

21. T. Yu and J. Miller (2002) "Finding Needles in Haystacks is not Hard with Neutrality," In *Proceedings of the Fifth European Conference on Genetic Programming*, pages 13-25, Spring Verlag.

22. T. Yu and J. Rutherford (2001) "Modeling Sparse Engine Test Data using Genetic Programming," In *Proceedings of the Fourth Workshop on Mining Scientific Datasets* at KDD 2001, pages 9-15.

23. T. Yu and J. Miller (2001) "Neutrality and the Evolvability of Boolean Function Landscape," In *Proceedings of the Fourth European Conference on Genetic Programming*, pages 204-211, Springer Verlag.

24. T. Yu (2001) "Polymorphism and Genetic Programming," In *Proceedings of the Fourth European Conference on Genetic Programming*, pages 218-231, Springer Verlag,

25. T. Yu (1999) "Structure Abstraction and Genetic Programming " In *Proceedings of the 1999 Congress on Evolutionary Computation*, pages 652-659. IEEE.

26. T. Yu and P. Bentley (1998) "Methods to Evolve Legal Phenotypes " In *Proceedings of the Fifth International Conference on Parallel Problem Solving From Nature*, pages 280-291, Springer-Verlag.

27. T. Yu and C. Clack (1998) "Recursion, Lambda Abstractions and Genetic Programming," In *Genetic Programming 1998: Proceedings of the Third Annual Conference*, pages 422-431, Morgan Kaufmann.

28. T. Yu and C. Clack (1998) "PolyGP: A Polymorphic Genetic Programming System in Haskell," In *Genetic Programming 1998: Proceedings of the Third Annual Conference*, pages 416-427, Morgan Kaufmann.

29. C. Clack and T. Yu (1997) "Performance Enhanced Genetic Programming," In *Evolutionary Programming VI: Proceedings of the Sixth Annual Conference on Evolutionary Programming*, pages 87-100. Springer.

30. C. Clack, J. Farringdon, P. Lidwell and T. Yu (1997) "Autonomous Documents Classification for Business," In *Proceedings of The First International Conference on Autonomous Agents*, pages 201-208, ACM Press.

RESEARCH GRANTS   *USRA/NASA grant of time on D-Wave quantum computer*, with D. Meyer, 2015.

Chevron Energy Technology Company, US$25,000, 2008-2009.

Chevron Energy Technology Company, US$25,000, 2007-2008.

Individual Discovery Grant, NSERC of Canada, CAN$60,000, 2006-2009.

Chevron Energy Technology Company, US$30,000, 2006-2007.

Memorial University, Start-up grant, CAN$21,000, 2005-2006.

CONFERENCE
ORGANIZATION   *Co-Chair*, Genetic Programming track, the 14th Genetic and Evolutionary Computation Conference, Philadelphia, PA, July, 2012.

Co-Chair, Genetic Programming track, the 13th Genetic and Evolutionary Computation Conference, Dublin, Ireland, July 12-16, 2011.

Workshop Chair, the 9th Genetic and Evolutionary Computation Conference, London, England, July 7-11, 2007.

Co-Chair, Evolutionary Computation in Practice track, the 8th Genetic and Evolutionary Computation Conference, Seattle, WA, July 8-12, 2006.

Co-Chair, Evolutionary Computation in Practice track, the 7th Genetic and Evolutionary Computation Conference, Washington, DC, June 25-29, 2005.

Co-Chair, Petroleum Applications of Evolutionary Computation, as part of the Genetic and Evolutionary Computation Conference, London, England, July 7, 2007.

Co-Chair, Genetic Programming Theory and Practice III, Ann Arbor, MI, May 12-14, 2005.

Chair, Workshop on Neutral Evolution in Evolutionary Computation, as part of the Genetic and Evolutionary Computation Conference, Seattle, WA, June 27, 2004.

Co-Chair, Genetic Programming Theory and Practice II, Ann Arbor, MI, May 13-15, 2004.

Tutorials

- *Discovering Hidden Financial Patterns with Genetic Programming*, Financial Engineering and Applications, MIT, Cambridge, MA, USA, November 8-10, 2004.
- *Neutral Evolution in Evolutionary Computation*, Genetic and Evolutionary Computation Conference, Chicago, IL, USA, July 12-16, 2003.

Talks

- Quantum Information Seminar, Department of Mathematics, University of California, San Diego, CA, U.S.A. December 2, 2013.

- The Computer Science Colloquium, Department of Computer Science San Jose State University, San Jose CA, U.S.A. October 31, 2013.

- The Math Colloquium, Department of Mathematics, San Jose State University, San Jose CA, U.S.A. September 18, 2013.

- Department of Industrial and Systems Engineering, Auburn University, Auburn, AL, U.S.A. June 27, 2013.

- *National Center for Theoretical Science Workshop on Critical Phenomena and Complex Systems*, Institute of Physics, Academia Sinica, Taipei, Taiwan, April 16, 2012.

- *National Center for Theoretical Science Workshop on Critical Phenomena and Complex Systems*, Institute of Physics, Academia Sinica, Taipei, Taiwan, June 9-11, 2011.

- *Institute of Statistical Science, Academia Sinica*, Taipei, Taiwan, May 23, 2011.

- *Institute for Research in Construction, National Research Council*, Ottawa, ON, Canada, December 10, 2010.

- *Chang Gung Memorial Hospital*, Taipei, Taiwan, July 21, 2009.

- *International Conference on Economic Science with Heterogeneous Interacting Agent*, Beijing, China, June 18-20, 2009.

- *Honda Research Institute Europe GmbH*, Offenback/Main, Germany, September 19, 2008.

- *The 2008 International Workshop on Nature Inspired Computation and Applications*, Hefei, China, May 26-29, 2008.

- Department of Electrical Engineering and Computer Science, University of California, Merced, CA, USA, April 8, 2008.

- *Workshop on Evolution of Natural and Artificial Systems - Metaphors and Analogies in Single and Multi-Objective Problems* at the Genetic and Evolutionary Computation Conference, London, England, July 7, 2007.

- *What Will You Do With an EC Degree, Evolutionary Computation in Practice* track at the Genetic and Evolutionary Computation Conference, London, England, July 7–11, 2007.

- *Energy and Resource, Evolutionary Computation in Practice* track at the Genetic and Evolutionary Computation Conference, Seattle, WA, July 8–12, 2006.

- Department of Computer Science, Memorial University, Newfoundland, Canada, Nov. 6, 2005.
- Taipei Spring Workshop on Nonlinear and Complex Systems, National Taiwan University, Taipei, Taiwan, March 1, 2004.
- Taipei Winter Workshop on Nonlinear and Complex Systems, Academia Sinica, Taipei, Taiwan, January 12-13, 2004.
- National Chengchi University, AI-ECON Research Center, Taipei, Taiwan, November 2003.
- Memorial University of Newfoundland, St. John's, Canada, November 2003.
- ChevronTexaco Exploration and Production Technology Company, USA. June 2002.
- Stanford Center for Professional Development, Stanford University, USA. May 2002.
- Department of Petroleum Engineering, Stanford University, USA. April 2002.
- Jet Propulsion Laboratory/NASA Evolvable Systems Group, USA, January 2001.
- University of Birmingham, EEBIC Research Group, UK, March 1998.

Conference Program Committee

Genetic and Evolutionary Computation Conference, 2001, 2002, 2003, 2004, 2005, 2007, 2008, 2009, 2011, 2012, 2013, 2014, 2015.

International Conference on Parallel Problem Solving From Nature, 2008, 2010, 2012, 2014.

International Conference on Simulated Evolution and Learning, 2006, 2008, 2014.

Evolutionary Computation and Multi-Agent Systems and Simulation Workshop, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014.

Twenty-third International Joint Conferences on Artificial Intelligence (IJCAI), 2013.

International Conference on Fuzzy Computation, 2009, 2010, 2012.

AAAI Fall Symposium on Complex Adaptive Systems, 2010, 2011.

Congress on Evolutionary Computation, 2000, 2006, 2007, 2008, 2009, 2010, 2011.

European Conference on Genetic Programming, 2001,2002, 2007,2008, 2009, 2010.

European Workshop on Natural Inspired Methods for Environmental Issues, 2009, 2010.

International Conference on Evolvable Systems: From Biology to Hardware, 2008, 2010.

The 9th International Conference on Artificial Evolution, 2009.

World Summit on Genetic and Evolutionary Computation, 2009.

International Conference on Computational Intelligence in Economics and Finance, 2005, 2006, 2007, 2008.

International Conference on Bio-Inspired Models of Network, Information and Computing Systems, 2008.

IEEE International Conference on Cybernetics and Intelligent Systems, 2006, 2008.

International Conference on Intelligent Computing, 2006, 2008.

Asia-Pacific Workshop on Genetic Programming, 2006.

The First NASA/ESA Conference on Adaptive Hardware and Systems, 2006.

The NASA/DoD Conference on Evolvable Hardware, 2001, 2002, 2003, 2004, 2005.

International Conference on Functional Programming, 2004.

JOURNAL REVIEW   Quantum Information Processing

Journal of Petroleum Science and Engineering

Machine Learning Journal

Theoretical Computer Science

Natural Computing

IEEE Transactions on Evolutionary Computation

Evolutionary Computation Journal

International Journal of Systems Science

Knowledge-based and Intelligent Engineering Systems (KES) Journal

Applied Energy

Computers & Geosciences

HONORS AND
AWARDS

Dean's Teaching Remission Award, Faculty of Science, Memorial University of Newfoundland - 2011.

Outstanding Individual Performance Award, ChevronTexaco Exploration and Production Technology Company - 2003.

Outstanding Performance Award, ChevronTexaco Information Technology Company - 2002.

Best Presentation Award, The Fourth European Conference on Genetic Programming - 2001.

IEEE student travel grant Award, Congress on Evolutionary Computation 1999.

AAAI Student travel grant Award, Genetic Programming Conference 1997, 1998.

Ph.D. Student travel grant Award, University College London, EP97, GP97,GP98 and CEC99.

Teaching Assistantship Award, Northeastern University 1988.

Phi Kapa Phi, 1986.

Upsilon Pi Epsilon, 1985.

COURSES TAUGHT   **Graduate Course**

- CS-6776 Evolutionary Computation (Memorial University of Newfoundland):
  - Winter 2006, Winter 2007, Winter 2009, Winter 2010, Winter 2011, Winter 2014.

Undergraduate Courses

- CS-112 Introduction to Computer Science II (University of San Francisco):
  - Fall 2015.
- CS-211 C and Systems Programming (University of San Francisco):
  - Fall 2015.
- CS-4752 Introduction to Computational Intelligence (Memorial University of Newfoundland):

- Winter 2009, Fall 2011.

- CS-3710 Vocational Languages (Memorial University of Newfoundland):
  - Fall 2012.

- CS-2711 Introduction to Algorithms and Data Structures (Memorial University of Newfoundland):
  - Fall 2006, Fall 2008, Winter 2010.

- CS-2710 Object-Oriented Programming II (Memorial University of Newfoundland):
  - Fall 2007, Fall 2009, Winter 2011, Winter 2014.

- CS-1710 Object-Oriented Programming I (Memorial University of Newfoundland):
  - Spring 2010, Spring 2012, Winter 2013

- CS-49C Programming in C (San Jose State University):
  - Fall 2013.

GRADUATE STUDENTS SUPERVISION

Completed

- Seyed Mehdi Fatemi Booshehri, MSc in Computational Science, Memorial University, 2010.
  Co-supervisor: Prof. Jim Millan, Siu O'Young, Memorial University of Newfoundland, Canada.

- Xingyan Jiang, MSc in Computer Science, Memorial University, 2008.
  Co-supervisor: Prof. Peter Chen, Memorial University of Newfoundland, Canada.

- Mohammed Uddin, MSc in Computer Science, Memorial University, 2008.
  Co-supervisor: Prof. Todd Wareham, Memorial University of Newfoundland, Canada.

- Tzi-Wen Kuo, PhD. in Economics, National Chengchi University, 2005.
  Co-supervisor: Prof. Shu-Heng Chen, National Chengchi University, Taiwan.

SERVICES

Ph.D. Thesis External Examination

- Frank Binard, School of Information Technology and Engineering, University of Ottawa, Ottawa, Canada 2009.

MSc. Thesis External Examination

- Mohammad Oraei Gholami, Faculty of Mathematics and Science, Brock University, St. Catharine, Ontario, Canada 2013.

Ph.D. Thesis Internal Examination

- Rani Gnanaolivu, Faculty of Engineering and Applied Science, Memorial University of Newfoundland, Canada, 2013.
- Xiaonan Wu, Department of Computer Science, Memorial University of Newfoundland, Canada, 2012.

Faculty of Science, Memorial University of Newfoundland

- Faculty of Science Nominating Committee Member, 2008, 2009, 2011, 2012.

Faculty of Arts, Memorial University of Newfoundland

- Faculty Council of Arts Member, 2009, 2011, 2012

Department of Computer Science, Memorial University of Newfoundland

- Seminar Chair, 2006, 2007.
- Search Committee Member, 2005, 2006, 2007.
- Graduate Studies Committee Member, 2005, 2009.
- Social Committee Member, 2008.

TECHNICAL SKILLS   **Programming Languages:**

- Java, C/C++, Scala, JavaScript, Haskell, Scheme, Lisp, Awk, Shell Script, HTML, Matlab, Mathematica;

Modeling Methods:

- linear regression, decision trees, support vector machines, neural networks, genetic programming, agent-based modeling, fuzzy rules;

Optimization Methods:

- simulated annealing, genetic algorithms, particle swarm optimization, ant colony optimization, differential evolution;

Systems & Tools:

- Excel, LaTeX, gnuplot, Eclipse, xcode, Linux, X OS, Windows.

MEMBERSHIP   ACM SIGEVO (formerly the International Society for Genetic and Evolutionary Computation)

AAAI (Association for the Advancement of Artificial Intelligence)

IEEE (Institute of Electrical and Electronics Engineers, Inc)

REFERENCES   Professor Shu-Heng Chen
Director, AI-ECON Research Center
Department of Economics
National Chengchi University
Taipei, Taiwan 11623, ROC
E-Mail: chchen@nccu.edu.tw

Professor Lee Spector
Director, Institute for Computational Intelligence
Cognitive Science
Hampshire College
Amherst, MA 01002-3359 USA
E-Mail: lspector@hampshire.edu

Professor Darren Robinson
Chair in Building and Urban Physics,
Faculty of Engineering
University of Nottingham
Nottingham NG7 2RD, England
E-Mail: darren.robinson@nottingham.ac.uk

Maria Daltayanni

CONTACT
INFORMATION

190 E O'Keefe St, Apt 13
Menlo Park, CA 94025

mobile: +1 951 282 7259
e-mail: mariadal1@gmail.com
URL: http://cs.ucsc.edu/~mariadal

SUMMARY

PhD in Computer Science from UCSC in reputation systems. One year teaching experience as Assistant Professor at University of San Francisco in Computer Science and Master of Analytics program. Exposed to teaching though several teaching assistant appointments in undergraduate and graduate courses in UCSC. Obtained 2 years of industry experience during the PhD through long-term internships that resulted in research publications and new products. Looking for a teaching position where I can leverage both my teaching and hands-on engineering skills to prepare students for the software engineering job market.

Research Interests: reputation systems, labor marketplaces, advertising on the web, big data mining and machine learning, distributed systems

EDUCATION

UC Santa Cruz, Santa Cruz, CA, USA

Ph.D .in Computer Science **Sep 2010 − Mar 2015**

- Dissertation: "Reputation Systems in Labor and Advertising Marketplaces"
- Advisor: Professor Luca de Alfaro

M.Sc. in Computer Science **Sep 2008 − Jun 2010**
- Thesis: "Index Tuning in Parallel Database Systems"
- Advisor: Professor Neoklis Polyzotis

University of Athens (UoA), Athens, Greece

B.Sc. in Computer Science from Department of Informatics **Sep 2004 − Aug 2008**

- Thesis: "A Continuity-Based Approach to Clustering"
- Advisor: Professor Yannis Ioannidis
- GPA: 8.50/10.00 (summa cum laude), Ranked 2nd in class of 170

RESEARCH AND
WORKING
EXPERIENCE

Turn Inc, Redwood City, CA, USA

Applied Scientist Intern **Mar 2014 − Mar 2015**

Worked on systems and algorithms for audience selection recommendations in digital advertising. The major contribution of my work was a) the introduction of a HITS-based reputation system for online users and advertisers, and b) a decision tree-based algorithm for audience selection recommendations. My work will power the new audience selection recommendations product at Turn and has been submitted for publication. Implementation in Python, Pig, Java, SQL. Mentors: Professor Luca de Alfaro and Dr Ali Dasdan.

Turn Inc, Redwood City, CA, USA

Software/Data Engineer Intern **Jun 2013 − Sep 2013**

Designed and implemented a system that enables large-scale declarative predictive analytics in a data warehouse. The system allows the execution of machine learning models defined in PMML in a Hadoop environment via a SQL-like interface. Implementation in Java, Hadoop. Mentors: Dr Hazem Elmeleegy and Dr Ali Dasdan.

UCSC, Santa Cruz, CA, USA

Research Assistant **Sep 2012 − Mar 2015**

Worked on algorithms and applications of reputation systems in various contexts. Invented and implemented several iterations of WorkerRank, an implicit reputation system for labor marketplaces, in collaboration with scientists from oDesk.com (currently Upwork.com). Ported the WorkerRank implementation to support online games via a public API that is available in Mashape. Implementation in Python, SQL. Mentors: Professor Luca de Alfaro and Dr Panagiotis Papadimitriou.

Greenplum Inc, San Mateo, CA, USA

Software Engineer Intern **Jun 2012 − Sep 2012**

Worked on algorithms to improve the search strategy for query optimization in database query processing. Implementation in Java, PostgreSQL. Mentor: Dr Mohamed Soliman.

TEACHING EXPERIENCE

University of San Francisco (USF), San Francisco, CA, USA

Assistant Professor **Sep 2015 − Jun 2016**

On joint appointment between the Computer Science department and the Master of Analytics program. I taught courses: Introduction to computer science (python), Database systems, Distributed systems, Data acquisition, Elective in analytics. I provided one-on-one mentoring to students for their participation in Practicums I & II with collaborating companies, integrating topics taught in the courses. Also, I introduced new peer grading schemes. I partially updated selected course curriculums to adapt with state-of-the-art technologies in Big data and machine learning.

UCSC, Santa Cruz, CA, USA

Teaching Assistant **Sep 2012 − Dec 2012**

Course CMPS 183: "Hypermedia and the Web" taught by Luca de Alfaro.

UCSC, Santa Cruz, CA, USA

Teaching Assistant **Jan 2010 − Mar 2010**

Course CMPS 182: "Introduction to Database Management Systems" taught by Wang-Chiew Tan.

UCSC, Santa Cruz, CA, USA

Teaching Assistant **Sep 2009 − Dec 2009**

Course CMPS 80J: "Technology Targeted at Social Issues" taught by James Davis.

UCSC, Santa Cruz, CA, USA

Teaching Assistant **Jan 2009 − Mar 2009**

Course CMPS 002: "Computer Literacy" taught by Paulo Franca.

HONORS AND AWARDS

Fellowship for graduate studies, Gerondellis Foundation, 2012.

Fellowship for graduate studies, UC Regents, University of California, Santa Cruz, 2009, 2011.

Award of Excellence in undergraduate studies, Department of Informatics (DIT), University of Athens (UoA), 2008

Innovation and Business dexterity award, University of Athens, 2006–2007.

Silver Medal for ranking 2nd among the '08 class graduates of Department of Informatics, UoA, 2008.

Awards of Excellence (6) and Distinguished Progress (6), Greek Ministry of Education, 1998–2004.

Awarded membership in Hellenic Parliament of Teenagers, Hellenic Parliament, 2002.

1st prize among students of Attica Prefecture at the Essay Writing Competition, Athens Rotary Club, 2002.

PROGRAMMING

C, Java, Python, C++, SQL, Matlab, R, Hadoop, Pig, Awk, Bash Shell Scripting

ADDITIONAL INFORMATION

Service: External Reviewer for CIKM 2011, ICDE 2012.

Languages: Greek (native speaker), English (excellent), German (good).

Hobbies: avid folk dancer with international performances, traveling, sports (volleyball), cooking.

REFERENCES

Professor Luca de Alfaro, Professor @ UCSC, `luca@ucsc.edu`

Dr Ali Dasdan, SVP Engineering @ Turn Inc, `Ali.Dasdan@turn.com`

Professor Yannis Ioannidis, Professor @ University of Athens, `yannis@di.uoa.gr`

Dr Panagiotis Papadimitriou, Senior Director of Data Science @ Upwork Inc, `papadimitriou@upwork.com`

PUBLICATIONS   M. Daltayanni, H.Elmeleegy, A. Dasdan. "Smart Cheetah: Seamlessly Enabling Declarative Predictive Analytics for Online Advertising". Submitted.

M. Daltayanni, A. Dasdan, L. de Alfaro. "Auto-Segmentation: A reputation-based algorithm for audience selection recommendations'. Submitted.

M. Daltayanni, L. de Alfaro, P. Papadimitriou. "WorkerRank: Using Employer Implicit Judgements To Infer Worker Reputation". *WSDM 2015*.

M. Daltayanni, L. de Alfaro, P. Papadimitriou. "WorkerRank: Employer Implicit Judgements For Worker Reputation". *NIPS 2014: Crowdsourcing and Machine Learning*.

M. Daltayanni, L. de Alfaro. "Recommending Workers in the Labor Marketplace". *WSDM 2014: Data Design for Personalization*.

M. Daltayanni, L. de Alfaro, P. Papadimitriou, P. Tsaparas. "On Assigning Implicit Reputation Scores in an Online Labor Marketplace". *EDBT 2014*.

M. Daltayanni, C. Wang, R. Akella. "A Fast Interactive Search System for Healthcare Services". *SRII Global Conference 2012*.

Andrew Segal

2586 15th Ave
San Francisco, CA 94127
650-533-7501
andy.segal@acsrd.com

Work Experience

University of San Francisco, San Francisco, CA

> Dr. Segal is an Adjunct Professor of Computer Science teaching Computer Architecture and Operating Systems since the fall of 2014 to the present.

SRI International (formerly Stanford Research Institute), Menlo Park, CA

> Dr. Segal is currently a Research Engineer at SRI working on several projects related to signal and image processing for radar applications primarily for government applications. He is also active in the IEEE 1451.0 smart sensors and actuators standard committee and 1451.5 wireless sensor networking standards committees.

University of California at Santa Cruz, Santa Cruz, CA

> Dr. Segal is in instructor in the Electrical Engineering Department and taught an undergraduate course on antenna theory in the spring quarter, 2006, the spring quarter 2007, the spring quarter 2008 and the spring quarter 2009.

California PATH Program, University of California at Berkeley, Richmond, CA

> Dr. Segal worked for five years at on the California PATH program as a Associate Research Engineer. The primary area of his research is the development of an AVCS (Advanced Vehicle Control System) system for the Automated Highway System (AHS). Projects included work on a radar distance sensor, development of sensor and sensor signal processing algorithms, development of testing, validation and verification techniques for the AVCS algorithms and sensors, authoring and co-authoring several papers/reports and interacting with industrial partners, professors and graduate students. He also taught 2 online courses through the UC-Extension program.

ESL Inc., Sunnyvale, CA

> Dr. Segal worked three years at ESL on a variety of research and development projects. These projects include developing system concepts for an ATIS system in Ontario, CA, assisting in proposal efforts for the Advanced Highway System (AHS) at TRW and ATIS/ATMS/ATMIS systems and developing software safety and testing methodologies for the University of California/Berkeley PATH AVCS vehicles including publishing in the area of system and software testing. Dr. Segal has also been involved in sensor development for detecting cars at traffic lights and audio and video sensors for law enforcement applications.

University of Illinois-Chicago and Argonne National Laboratory

> Dr. Segal worked at the University of Illinois-Chicago as an Assistant Professor in the Electrical Engineering and Computer Science Department (EECS) and as a STA (Short Term Appointment) at Argonne National Labs for 4 years. During this time he performed research and published papers in Sensor System testing, Image and Signal Processing Algorithms for a variety of sensor types, and advanced computer architectures. Dr. Segal also taught undergraduate courses in Computer Vision, Image Processing, Computer Architecture and Operating Systems and graduate courses in Signal Processing, supervised and graduated 12 Masters students and one Ph.D. Student. Dr. Segal also received almost $100,000 in grants during this period.

Education

Ph.D., Electrical Engineering, University of Illinois, Urbana, 1986.
M.S., Electrical Engineering, University of Illinois, Urbana, 1982.
B.S., Electrical Engineering, Rensselaer Polytechnic Institute, 1980 (magna cum laude).

Publications

Segal, A. C., Michael, J. B., Performance Assessment and Testing of Sensors for Lateral Control of Vehicles, California PATH Conference, 1995.

Michael, J. B., Segal, A. C, Satyajit Patwardhan. Validation of Software Testing Results for Real-time Vehicle Control Software, Future Transportation Technology Conference, Costa Mesa, CA, 1995.

Michael, J. B., Segal, A. C.,   Formal System Specification and Testing of Critical Real-Time Vehicle Control Software, Proceeding of the First World Congress on Applications of Advanced Transport Telematics and Intelligent Transportation Systems, Artech House Books, London, 1994.

Boerner, W., Walther, M, Segal, A. C., The Concept of the Polarimetric Matched Signal and Image Filters: Application to Radar Target versus Clutter Optimal Discrimination in Microwave Imaging and Sensing, International Journal on Advances in Remote Sensing (IJARS), Boulogne-Billancourt, France, Vol. 3, No. 4, April 1993.

Matthias Walther, Segal, A. C., and W-M. Boerner, Speckle Reduction in the Development of the Polarimetric Matched Image Filter (PMIF) for the optimization of Image DIscriminants in POL-SAR Image Analysis, in "Direct and Inverse Methods in Radar Polarimetry", edited by W-M Boerner et al., Kluwer Academic Press, 1992, pp. 1497-1552.

Segal, A. C., M. Walther and W-M. Boerner, Development of Polarimetric Contrast Enhancement Optimization (OPEC-FILTERS) Procedures and its Application to Sea Surface Scatter in POL-SAR Image Analysis, PIERS '93, CAL-TECH/JPL, Pasadena, CA, July 12, 1993.

Segal, A. C., Matthias Walther, W-M Boerner and H. J. Eom, Application of the Polarimetric Matched image Filter to the Enhancement of Characteristic Features in POL-SAR Imagery, IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP-93, April, 1993, Minneapolis, MN.

Segal, A. C., R. Kero, G. Chisholm, R. Greene, J. Quintas, Formal System specification and testing of Image Processing/Computer Vision Algorithms, IEEE International Conference on Advance Science and Technology (ICAST), March, 1993, Schaumburg, IL.

Cambell, P., R. Kero, R. Sutter and A. C. Segal, A Reuse-based Object-oriented Methodology for Dynamically Controlling and Constructing Interoperable Computer Models and Simulations, IEEE International Conference on Advance Science and Technology (ICAST), March, 1993, Schaumburg, IL.

Segal, A. C., Zmola, C., Lovewell, B. and Nash, C., Adaptive texture filtering for defect inspection in ultrasound images, IS&T SPIE, February 1993, San Jose, CA.

Segal, A. C., R. Kero, G. Chisholm, R. Greene, J. Quintas, Formal System specification and testing of Image Processing/Computer Vision Algorithms, IS&T SPIE, February, 1993, San Jose, CA.

Segal, A. C., R. Kero, G. Chisholm, R. Greene, J. Quintas, Reliability testing and validation of Image Processing/Computer Vision Algorithms, Applied Imagery and Pattern Recognition, AIPR-92, October, 1992, Washington, DC.

Segal, A. C., R. Kero, G. Chisholm, R. Greene, J. Quintas, Algorithm Performance Evaluation, International Symposium on Energy, Environment and Information Systems, Sept. 1992, Lemont, IL.

W-M. Boerner, H-J. Eom, Y. Yamaguchi, M. Walther and A. C. Segal, The Polarimetric Matched Image Filter in POL-SAR Image Enhancement versus Speckle Reduction, ISAP '92, Sapporo, Hokkaido, Japan, Sept. 1992.

W-M. Boerner, M. Walther and A. C. Segal, The Concept of the Polarimetric Matched Signal and Image Filters: Application to Radar Versus Clutter Optimal Discrimination in Microwave Sensing and Imaging, JIPR-2, Normandie, France, Sept. 1992.

Segal, A. C., M. Walther, H-J. Eom, and W-M. Boerner, The Polarimetric Matched Image Filter in POL-SAR Image Enhancement, 1992 SPIE International Symposium on OE/OESE, San Diego, CA, July, 1992.

W-M. Boerner, M. Walther, A. C. Segal, H-J. Eom, M. Tanaka and Y. Yamaguchi, Characteristic Features in POL-SAR Imagery, URSI, International Commission F, Microwave Signatures Conference, IGLS - Innsbruck, Austria, July, 1992.

Segal, A. C. R. Greene, R. Kero and D. Steuer, Imagery Test Suites and Their Implication on the Testability of Computer Vision Algorithms, invited paper to IEEE, ICARSS, Houston, Tx, May 1992.

W-M. Boerner, Segal, A. C., and Matthias Walther, Analysis of the Polarimetric Matched Signal and Image Filters: Application to Radar Target versus Clutter Optimal Discrimination in Process, IEEE ICARSS, Houston, Tx, May 1992.

Segal, A. C., Matthias Walther, Hyo E. Eom and W-M. Boerner, The Polarimetric Matched Filter: Application to Speckle Reduction and Optimal Background Clutter Discrimination in Microwave Sensing and Imaging, IEEE Antennas and Propagation Society International Symposium July, 1992.

Zmola, C, Segal, A. C., B. Lovewell, Y. Mahdavieh, J. Ross, C. Nash, Material Characterization and Defect Inspection in Ultrasound Images, Optical Engineering Midwest, Chicago, IL 19 March 1992.

Segal, A. C. and T. Mak, A Visualization and Computer Vision Solution to the Traveling Salesman Problem, Second Annual MRC Symposium, Oct. 23, 1991, Chicago, IL.

Boerner, W., Walther, M, Segal, A. C. The Concept of the Polarimetric Matched Signal and Image Filters: Application to Radar Target versus Clutter Optimal Discrimination in Microwave Imaging and Sensing, invited paper EARSel Workshop, Alpbach, Austria.

Segal, A. C., "An Analysis of Non-Stationary Gravity Waves in the Mesospheric Sodium Layer from Sodium Lidar Data," AGU-MSA Spring Meeting, May 28, Baltimore, MD.

Segal, A. C. and R. Zhang, A Computer Vision Solution to the Traveling Salesman Problem, First Annual MRC Symposium, Oct. 16, 1990, Urbana, IL.

Segal, A. C., Heterogeneous Parallel Processor for a Model-Based Vision System, SPIE's Optical Engineering Midwest Regional Technical Meeting, Sept. 27-28, 1990, Rosemont, IL.

Segal, Andrew C., Real Time Stereo Vision on the WARP Computer and Mosaic System, 1988, WARP Users Group Meeting, Cherry Hill, New Jersey.

Segal, Andrew C., Real Time Stereo Vision on the WARP Computer and Mosaic System, 1988, WARP Users Group Meeting, Cherry Hill, New Jersey.

Segal, Andrew C., D. Voelz, C.S. Gardner, C. F. Sechrist, 1984, Airborne Lidar observations of the Mesospheric Sodium Layer, presented at International Laser Radar Conference.

Voelz, D, Segal, Andrew C., C.S. Gardner, C. F. Sechrist, 1984, Nighttime Variability of the Mesospheric Sodium Layer, presented at International Laser Radar Conference.

Gardner, C.S., D. Voelz, C. F. Sechrist, Andrew C. Segal, Lidar Studies of the Nighttime Sodium Layer over Urbana, Illinois. Journal of Geophysical Research, 91, A12, 1986.

Grants and Contracts (while at the University of Illinois)

Agency: UIC Campus Research Board
Project Period: 1/1/90-12/31/90
Total Funding: $8,000

Agency: University of Illinois Manufacturing Research Center
Project Period: 9/1/90-9/1/91
Total Funding: $17,000

Agency: General Electric Corp.
Project Period: 7/1/91-7/1/92
Total Funding: $16,000

Agency: General Electric Corp.
Project Period: 7/1/92-7/1/93
Total Funding: $22,500

Agency: National Science Foundation
Project Period: 6/1/92-6/1/93
Total Funding: $30,000

Professional and Honorary Societies

Member of IEEE Standards committee:

1451.3 – 2000-2003 (completed) IEEE Standard for a Smart Transducer Interface for Sensors

1451.0 – 2003-present Smart Transducer Interface for Sensors

1451.5 – 2003-present Smart Transducer Interface for Wireless Sensors

Executive Committee Member for the

SPIE-Applied Imagery and Pattern Recognition Conference, Washington, DC, Oct., 1992, Oct., 1993, Oct., 1994 and Oct 1995.

Program committee for IEEE ISCAS (International Symposium on Circuits and Systems) '93 in Chicago, IL.

Institute of Electrical and Electronics Engineers

Computer

Acoustics Speech and Signal Processing

Pattern Analysis and Machine Intelligence

Association of Computer Machinery

SPIE

American Geophysical Union

Tau Beta Pi, Eta Kappa Nu, Phi Kappa Phi

RCA Scholarship, New Jersey State Scholarship, Harvey M. Bryan Scholarship

David Moses

(281) 685-9130
David.Moses@ucsf.edu
dmoses@berkeley.edu

Sandler Neurosciences Center
675 Nelson Rising Lane, Room 535
San Francisco, CA 94158

Education

University of California at Berkeley and San Francisco   **Fall 2012 – Present**
Joint Ph.D. program in Bioengineering
3.796 Cumulative GPA, 28 credit hours
Major in Neural Engineering, Minor in Technology Management

Rice University   **Fall 2008 – Spring 2012**
B.S. in Bioengineering with a Minor in Business
3.95 Cumulative GPA, 127 credit hours

University of Waikato   **Spring 2011**
Semester abroad
8.5 GPA (on a 9 scale), equivalent of 15 credit hours

Research Experience

University of California at Berkeley and San Francisco
Researcher with Dr. Edward Chang (UCSF)   Spring 2013 – Present
- Applying machine learning techniques to decode phonemes using human ECoG data recorded during speech perception
- Working on online algorithms for real-time processing and decoding of neural data during speech tasks

Rotation student with Dr. Jack Gallant (UC Berkeley)   Winter 2013
- Evaluated language models for use in linguistic fMRI experiments

Rotation student with Dr. Michel Maharbiz (UC Berkeley)   Fall 2012
- Analyzed results of a rat neural plasticity experiment intended to inform design parameters for ECoG grid fabrication

Rice University
Undergraduate researcher with Dr. Marcia O'Malley   Fall 2011
- Performed background research on haptic feedback actuators for an advanced prosthetic hand
- Designed hardware and software circuits for collection and processing of EMG signals for use in a prosthetic hand

Undergraduate researcher with Dr. James Tour   Summer 2009
- Performed various tissue culture experiments to assess the cytotoxicity of grapheme nanoribbons
- Used loaded grapheme nanoribbons to kill cancer cells *in vitro* via targeted delivery of paclitaxel

Massachusetts Institute of Technology
　　　　Undergraduate researcher with Dr. Jongyoon Han　　　　　　Summer 2010
- Performed terminal frog surgery for testing of a neural prosthetic application
- Showed that electrochemical stimulation, which involves modulation of ion concentrations around a nerve to control its excitability, can be more effective than current stimulation methods

Publications and Presentations

- Ledochowitsch, P., Koralek, A., **Moses, D.**, Carmena, J., and Maharbiz, M. (2013). Sub-mm functional decoupling of electrocortical signals through closed-loop BMI learning. *Engineering in Medicine and Biology Society (EMBC), 2013 35th Annual International Conference of the IEEE*, pgs. 5622–5625.
- Song, Y., Melik, R., Rabie, A., Ibrahim, A., **Moses, D.**, Tan, A., Han, J., and Lin, S. (2011). Electrochemical activation and inhibition of neuromuscular systems through modulation of ion concentrations with ion-selective membranes. *Nature Materials*, 10(12):980-986.

Professional Experience

University of California at San Francisco　　　　　　**Spring 2013 – Present**
- Programming extensively in Python and occasionally in MATLAB
- Managing two Linux-based lab servers

LumaDyne, LLC.　　　　　　　　　　　　**Summer 2011 – Summer 2012**
- Created a relational database for work requests using FileMaker Pro
- Designed and developed a GUI for an FPGA-controlled acousto-optic modulator using NI LabView

Honors and Awards

Graduate Research Fellowship – National Science Foundation　　　2012 – 2017
Chancellor's Fellowship – UC Berkeley Graduate Division　　　　2012 – 2014
President's Honor Roll – Rice University　　　　　　　　　　2008 – 2011
Nomination for Goldwater Scholarship – Rice University　　　　　　　2011

ELIAS HUSARY

2130 Fulton St, San Francisco, CA 94117 | 415-422-4103 | husary@usfca.edu

EDUCATION

University of San Francisco
B.S.B.A. with emphasis in Accounting   **1999**

TEACHING EXPERIENCE

University of San Francisco
Lecturer   **1999 to Present**
Courses taught include:

Introduction to Spreadsheets with Microsoft Excel

Introduction to Website Design and Development (Dreamweaver)

Introduction to Word Processing (Microsoft Word)

Introduction to Presentations (Microsoft PowerPoint)

RELATED EXPERIENCE

University of San Francisco, San Francisco, CA
Computer Science Systems Administrator   **January 2015 – Present**
Manage Computer Science Department computer labs, provide software and
hardware support to Faculty and Staff, manage external vendors for Computer
Science lab hardware, A/V and switching equipment

Independent Consultant, San Francisco, CA
IT Consultant   **August 2007 – January
2015**
Provide hardware, software and end user support, installation and problem
resolution for small to medium sized businesses, Windows Server support, wired
and wireless Internet connections, support for mobile devices (iPad, tablets) and
mobile phones.

City of South San Francisco, South San Francisco, CA
Information Systems Technician   **January 2001 – August
2007**
Provide end user support, software and hardware installation and
troubleshooting to various City departments, including specialized applications
for Fire Department, Police Department, Building Inspection and Code
Enforcement

LANGUAGES

English – Native Language
Spanish – speak, read and write with basic competence

Teri Donat
4706 Bel Roma Road
Livermore, CA 94551
510-889-0707   **Ez4UComputers@yahoo.com**

Employment

Academic

University of San Francisco – 2011 to present
Las Positas Community College – 1997 to present
Contra Costa Community College – 1988 to 2009

Adjunct Faculty – Teach instructor-led and online classes in business skills, computer applications, retail and merchandising. Develop and teach staff development workshops. Curriculum Committee Member. Coordinate high school course articulation process.

Course	Location
Introduction to Computers and Information Technology	Las Positas College, Ohlone College
Operating Systems	Las Positas College
Spreadsheets: Microsoft Excel	University of San Francisco, Las Positas College
Database: Microsoft Access	University of San Francisco, Las Positas College
Keyboarding	Las Positas College
Word Processing: Microsoft Word	University of San Francisco, Las Positas College
Adobe Flash	Las Positas College
Integrating Office Applications	Las Positas College, Diablo Valley College
Office Procedures & Technology	Las Positas College
Retail Management	Las Positas College, Diablo Valley College

Industry

- *Ez4U Computers* – 1983 to present
  Consultant –Work with management and subject matter experts analyzing business tasks to design custom computer applications and develop computer training classes, and manage a small business
- *Lawrence Livermore National Laboratory* – June 2005 to January 2006
  Intern – Design and develop web class using Macromedia Flash.
- *Koret of North America* – 1979 to 1983
  System Analyst and Customer Service
- *The Limited* – 1978 to 1979
  Assistant Store Manager
- *Emporium* – 1974 to 1978
  Department Manager and Assistant Buyer

Education and Certificates

- *M.A. Education, Instructional Technology*, San Francisco State University
- *B.S. Home Economics, Fashion Merchandising*, University of Minnesota
- *Online Teaching Certificate*, California State University, Hayward
- *California Community College Instructor Credential*
- Adult Education classes U.C. Berkeley Extension
- Graduate business classes Golden Gate University

Recognitions

2007 Award "Excellence for Teaching" from Chabot-Las Positas Contract Education

Conference Presentation

Online Teaching Conference

2007 – "Roadmap to Developing an Online Class" and "Enhancing Student Success and Retention with Interactive Discussions"

2009 – Co-presenter "Increase Student Success by Retaining Learners' Interest, Interaction and Enthusiasm"

2012 – "Evolution of Teaching Technology: From Step-by-Step to Problem Solving"

Merlot International Conference

2009 – "Job Relevance: Education that Prepares Students for the Workforce"

Course Technology Conference

2014 – "Get Students Involved: Flip the Classroom to Teach Microsoft Office"

Skills & Experience

Teaching

Community college instructor
Corporate workshop trainer
Instructional Designer

Curriculum Development

Instructor-led and web-based academic courses in computers and business skills

Project Manager

Programming custom databases
Organize and assist high schools with course articulation and career pathways

Industry knowledge

Retail, credit card/banking, event planning, personnel, manufacturing, non-profit

Learning Management Systems

Blackboard, WebCT, Canvas

DANNY TANG

5758 Geary #120, San Francisco, CA 94121

415-867-1530 • tang@usfca.edu

IT AND FINANCE PROFESSIONAL

Results oriented financial professional with 10+ years experience in corporate and divisional financial planning and analysis. Background in IT, vendor management, asset management, process improvement, financial analysis, and reporting. Attention to detail, organizational and prioritization skills. Great communication, interpersonal and influencing skills; easily develops rapport with business partners and peers.

Areas of expertise include:

Software Entitlement Management • Asset Management • Contract Analysis • Business Case Analysis • Budget and Forecast Planning and Reporting • Project Financial Analysis • Outsourced Vendor Relations • Application Portfolio Management

PROFESSIONAL EXPERIENCE

GAP INC., San Francisco, CA

Senior Manager, Asset Management • 2013-Current
Manage and provide governance oversight of Gap Inc.'s Information Technology application portfolio, software license entitlements, and hardware asset management. Gather, document, and present application costs and lifecycle stage to enable holistic view of the application landscape and drive informed decisions to replace, retire, and maintain applications. Build mechanism and process to capture and document both software and hardware deployments and software entitlements to minimized audit risks for the organization. Manage infrastructure project charge out.

Key responsibilities:

Software Entitlement Management / Software Asset Management
- Changing VM policy for more cost efficient use of licenses, driving savings and reducing risk
- Managing deployment of agent based discovery tool
- Participating in software audits (Microsoft, Attachmate, Adobe, etc)
- Researching new solutions for software discovery
- Research entitlement management tool
- Maturing Gap IT SEM from an immature stage of SEM to a more mature level
- Connecting the dots between purchased entitlements and software deployments

Application Portfolio Management
- IT Application portfolio costing
- Application retirement tracking
- Communicating with VP's, Sr Directors, and Domain Architects to gather application information
- Tracking application adds and application retirements operating costs to figure out net operating budget impacts

Hardware Asset Management (Data Center)
- Managing data center inventories, driving savings and reducing risk
- Managing vendor support relationships
- Partnering with the infrastructure team to better track assets and drive cost efficiencies

Manager, Application Portfolio Management • 2013

Manage and provide governance oversight of Gap Inc.'s Information Technology application portfolio, software license entitlements, and outsourced vendor financial oversight. Gather, document, and present application costs and lifecycle stage to enable holistic view of the application landscape and drive informed decisions to replace, retire, and maintain applications. Build mechanism and process to capture and document software deployments and software entitlements to minimized audit risks for the organization. Manage outsourced vendor relationship from a financial standpoint.

Key responsibilities:

Software Entitlement Management / Software Asset Management
- Managing deployment of agent based workstation discovery tool
- Participating in 2 software audits (Microsoft and Attachmate)
- Researching new solutions for server/workstation software discovery
- Research entitlement management tool
- Maturing Gap IT SEM from an immature stage of SEM to a more mature level
- Connecting the dots between purchased entitlements and software deployments

Application Portfolio Management
- IT Application portfolio costing
- Application retirement tracking
- Communicating with VP's, Sr Directors, and Domain Architects to gather application information
- Tracking application adds and application retirements operating costs to figure out net operating budget impacts

Managing Vendor Management Senior Analyst (previous role)
- Managing budget
- Managing vendor relationships
- Partnering with IT to drive cost efficiencies

Senior Analyst II, Gap IT Portfolio Management • 2007-2012

Manage and provide governance oversight of Gap Inc.'s Information Technology outsourcing partners to drive results which support business objectives, customer satisfaction, cost efficiencies, metrics, and consistent service delivery. Responsible for $65M IT infrastructure support budget, while managing financial risks and opportunities.

Key Activities:
- Managed relationships that supported mainframe, server (AIX, Solaris, Intel), storage, telecom, network, and DBA services. Vendors include IBM, HCL, Infosys, Digital Realty Trust, Forsythe, Mettel, Level3, and Tangoe. This includes billing, inventory/SLA disputes, and adding new services.
- Oversee server, storage, end user, database, and data circuit inventories.
- Assisted in building business cases due to intimate knowledge of infrastructure costs.
- Participate in application total costing with server, storage, mainframe, network, database costs.
- Serve as an internal finance and procurement "one-stop shopping" resource - Track hardware spend requests, justify the purchase with a business case and ROI analysis, bid out the quote, choose the vendor, and finally issue the PO.
- Familiar with the AGILE and waterfall software development methodologies and capitalization treatment.
- Experience with interfacing with IT and Finance groups from analysts to Vice Presidents.
- Participated in both hardware (main frame, mid-range servers, SAN and NAS storage, network) and service (data center support, hardware maintenance, data circuits, telecom expense management, DBA, email hosting, instant messaging hosting) purchases.
- Manage telecom expense consolidation vendor and track phone line inventory.
- For budgets, prioritize IT infrastructure projects.

- Provide IT project staffing analysis, which tracks and benchmarks % of role costs/hours per project.
- Manage inventory charge out to projects for total project costing.
- Prepared many business case presentatations which incorporated detailed financial models (P&Ls and DCFs).

Key Achievements:
- Analyzed operating results and trends to to partner with IT infrastructure team to develop and implement improvements resulting in cost savings and operational efficiencies in power, telecom, and computing utilization
- Improved IT division's monthly project forecast process by developing a report that communicated infrastructure support costs
- Partnered with IT Business leaders to build business cases to justify capital spend
- Collaborated with functional area IT Directors to determine business issues, create strategic plans, and translate plans into budgets.
- Partnered with Finance and IT organization to develop IT applications total cost of ownership with goal to reduce total IT operating costs by 7% over 3 years.

Senior Financial Analyst, Corporate Finance • 2005-2007
Manage and provide governance oversight of Gap Inc.'s headquarter divisions (IT, Real Estate, Finance, Legal, HR, etc). Responsible for consolidating budgets, financial risks and opportunities. Responsible for developing annual project budget, and monthly forecast. Tracked project labor and capital spend. Provided monthly variance analysis to project Senior Executives and leaders.

Key Achievements:

- Improved quality and delivery time of monthly expense reports which resulted in time saving of 4 hours during the month-end reporting process and the annual budgeting.

CHARLES SCWAB, INC, San Francisco, CA

Financial Consultant, Financial Planning and Analysis (FP&A) • 2000-2005
Responsible for the overall financial planning, reporting and analysis activities for the Schwab.com, Executive, and Marketing divisions over the 5 year tenure.

Key Achievements:
- Prepared financial impact assessments on cost saving strategies including projects to increase revenue as well as reductions in force

UCSF, San Francisco, CA

Financial Analyst II – FP&A • 1999-2000
Supported the Lung Biology Center with monthly financial reports, grant submission, capital investment analysis, and long term planning. Responsible for managing 20-30 grants of $20 million.

Key Achievements:
- Improved accuracy of budgeting and forecasting efforts with the creation of various Excel models. These efforts led to a 40% reduction in the amount of time it took to develop and update operating plans. This allowed myself and other staff to manage more grants

USF, San Francisco, CA

Adjunct Faculty – Computer Science Department • 1999-Present
Teaching undergraduate level Excel, Powerpoint, and Prezi classes. Strived for engaging the class and making the content relevant to the classes.

 Key Achievements:
- Achieved a consistent approval rating of 4.5 out of 5 rating.

EDUCATION AND TRAINING

Bachelor of Science in Business Administration
University of San Francisco

TECHNICAL PROFICIENCIES

Excel • Word • Access • PowerPoint • Oracle Financials • Essbase • Prezi

CARYN LOUISE LESCHEN

415.260.8488   VIOLET@AUNTVIOLET.COM

PROFESSIONAL OBJECTIVE

I am seeking meaningful contract or part-time work in Art Direction, Graphic Design, Animation, Copywriting, Illustration, Comics and Presentations, using my many years of experience as a visual designer, illustrator and educator. I enjoy working in web, print or interactive media. I am available throughout the year, except while teaching at University of San Francisco two days a week as a "Preferred Hiring Pool" Adjunct Professor, Mondays and Thursdays during Fall and Spring undergraduate school semesters.

SKILLS

SOFTWARE

I am fluent in—and subscribe to—the Adobe Creative Cloud, and have an iMac and MacBook running OSX.10.10. I have an iPad Air and an iPhone6. I am an advanced professional in Adobe Photoshop, Illustrator, Flash, Muse, and InDesign, and I'm learning AfterEffects. I'm fluent in Apple Pages and Keynote, MS Word, and Powerpoint. I teach *Drawing on the iPad,* a class I personally wrote and developed for USF. I've designed websites in Muse, WordPress, Drupal and SquareSpace; can write a little css and html; and have had a lot of experience working with coders. I've also visually designed, illustrated and written five iPhone apps, three of them medical apps.

GRAPHIC ARTS & ANIMATION

As a traditional illustrator and cartoonist, I specialize in watercolor, pen and ink, sketching and pastel drawing. I have been studying drawing since I was 12 years old. I now use a combination of hand and iPad painting and drawing most of the time. I specialize in digital and traditional illustration, how-to and infographics, mobile apps, Flash and iPad animation, branding/logo design, front-end Web interfaces and promotional collateral for culinary, travel, social networking, business consulting, fashion and consumer catalogs.

COPYWRITING & EDITING

Web catalog copy and other content for food and beverage, tabletop, art, jewelry, home decor, travel, advice and relationships, real estate, matchmaking, alternative medicine, humorous poetry, PPT and Keynote presentations, iPhone apps, FAQs, newsletters, naming, animation, ecards, banner ads, packaging, comics and teenage markets.

PARTIAL CLIENT LIST

Two Ravens Group Web and branding designer, web copywriter and editor

Atomic Strategic Design Infographics, branding, iOS content and design

Boyd Hydrogen Branding, logo, print production

Metatheory.com Illustration, icons, design elements for iPhone and iPad Apps

Have Milk, Will Travel Graphic short story, "Cultured Milk," © Fall 2013

Puzzled Squirrel Publications *Ask Aunt Violet* Collection, due later this year.

Enemra, Inc |AsthmaPulse, GlucoPulse Interface design, icons, writing, editing.

iVitals Visual designer and interface copywriter for this expansive medical iPhone app.

U and I Health Consultations Keynote presentation writing & graphics.

Air Charter Masters Web designer and interface writer.

SheZoom Interface writer; developed content for this community website.

DDB Graphic design and illustration, food industry.

Gumps Catalog copywriter for high-end housewares catalog.

Stivaletti Biscotti Copywriter/art director, Italian cookie company.

Bay Media Arts Wrote TV ads, designed print content, video editing.

Bristol Publishing Edited and designed cookbooks; created 320 illos for 8 cookbooks.

Sun Microsystems Creative facilitator, corporate comics, storyboards.

Visa Corporation Brochure copy, design, photoretouching.

BJ Droubi, Harbor Bay Realtors, Destin Real Estate

Aquent Illustration, illustrated maps, ecards, icons, production art

PUBLICATIONS

The New York Times

The Wall Street Journal

The San Jose Mercury-News

The San Francisco Chronicle

Penguin Random House

Chronicle Books

Ten Speed Press

Salon.com

The SF Weekly

The East Bay Express

The SF Bay Guardian

The Chicago Reader

UCB California Magazine

Kitchen Sink

Last Gasp

Colossal Pictures

The Gutenberg Project

The Good Service Guide

eHow

IDG

EXHIBITIONS

I am featured in two films about comics, **Comic Book Confidential** (Canada) and **Funny Ladies** (USA, Pamela Briggs). Other shows: **SF Cartoon Art Museum**, **White Columns Gallery**, **Museum of Comic and Cartoon Art**, NYC; **La Luz de Jesus Gallery** in LA, **Kunstlerhaus** in Stuttgart, Germany; **The Secession Gallery** in Vienna, Austria; Kyoto, Japan; **Confessional Comics by Jewish Women** panel, SF Cartoon Art Museum, Fall 2010; **The Jewish Museum of New York/Jewish Daily Forward** Symposium at **Yeshiva University**, New York; **40 Years of Wimmin's Comix**, **San Francisco Public Library**, Main Branch, 2013.

WEBSITES
http://tworavensgroup.businesscatalyst.com/
http://www.clutterbugseniors.com/
http://www.auntviolet.com/aircharter/acm.html
http://www.auntviolet.com/Laura_Website/index.html
http://goldenchordsmen.businesscatalyst.com/index.html
https://greendeaninspections.wordpress.com/

AND MORE…
http://oldbags.blogspot.com/
http://www.auntviolet.com/Portfolio_BNI2-med.mov
http://www.auntviolet.com/branding_video.mov.html
http://www.auntviolet.com/iVitals2-med.mov
http://www.auntviolet.com/ASTHMA3.mov
http://itunes.apple.com/us/app/glucopulse/id441554963?mt=8
https://auntviolet.wordpress.com/

EDUCATION

CALIFORNIA COLLEGE OF ARTS & CRAFTS | OAKLAND, CA
BFA, 1987 in Illustration and Graphic Design, with a special interest in Animation.

UC BERKELEY EXTENSION | BERKELEY, CA
Took classes in Print Production, Figure Drawing, Printmaking, Scriptwriting, Ceramics, Comedy Improvisation, Children's Book Illustration, Pastel Drawing.

QUEENS COLLEGE | CITY UNIVERSITY OF NY
Studio Art major, Mass Communications minor.

EMPLOYMENT

ASK AUNT VIOLET
Created weekly advice comic for 20+ alternative weeklies. Featured in SF Weekly, Chicago Reader etc. Self-syndicated and marketed.

GREATENTERTAINING.COM
Senior copywriter, consumer and marketing, for online catalog of gifts, party items, jewelry, bath & body products, gourmet food, candles, lighting, cookbooks, decorating books, tabletop, objets d'art, toys, etc.

TAVOLO.COM
Lead copywriter for Williams-Sonoma style cookware, tabletop, gourmet food catalog online. Created banners, ads and other marketing copy.

BLUE MOUNTAIN ARTS
Art directed and created animated ecards, from concept to script, art, animation and audio.

PANETTI'S GIFTS
Design consultant, display stylist, assistant buyer and salesperson for eclectic Noe Valley crafts gallery/gift shop.

TEACHING

SPRING & FALL 2010, 2011, 2012, 2013, 2014, 2015
UNIVERSITY OF SAN FRANCISCO, PHP ADJUNCT PROFESSOR
Teaching Adobe Flash, Drawing on the iPad, Word Processing in MS Word/WordPress/Apple Pages & Keynote, Adobe Illustrator. I designed and wrote all my own syllabi, and created a permanent class from a workshop, Drawing on the iPad.

FALL 2008–SPRING 2010
FASHION INSTITUTE OF DESIGN AND MERCHANDISING
Taught Digital Imaging in Adobe Photoshop and Illustrator in the Visual Communications Department.

SUMMER 2001–FALL 2001
MACINTOSH COLLEGE, DOVER, NH, ADJUNCT PROFESSOR
Illustration and Drawing for Design; I also curated the graphic novel library; and was consulted in planning new Graphic Design Dep't.

FALL 1991–SPRING 1996
UC BERKELEY EXTENSION, SAN FRANCISCO, INSTRUCTOR
As part of the Graphic Design program; I taught Illustration and Comic Art. I wrote my own syllabi.