CALIFORNIA STATE UNIVERSITY, FULLERTON

Program Performance Review

Master of Science in Computer Science

Department of Computer Science

3/15/2013

This is a self-study report of the Master of Science in Computer Science for Program Performance Review

Program Performance Review

Master of Science in Computer Science, 2011 – 2012

I. Department/Program Mission, Goals and Environment

A. The mission of the MS in Computer Science Program is to enable each graduate to lay a solid foundation in the scientific, engineering, and other aspects of computing that prepare the graduate regardless of his/her background for a successful career that can advance the creation and application of computing technologies in the flat world.

The learning goals of the MS in computer science program are as follows:

1. Students will have a solid foundation necessary to function effectively in a responsible technical or management position in global development environment and/or to pursue a Ph.D. in related areas.

    - Ability to identify, formulate, and solve computer science related problems.
    - Ability to understand professional and ethical responsibility in computer science related fields.
    - Ability to understand major contemporary issues in Computer Science.
    - Ability to apply process thinking and statistical thinking in solving and analyzing a complex problem.

2. Students will learn the technical skills necessary to design, implement, verify, and validate solutions in computer systems and applications.

    - Ability to design, implement, and test a computer system, component, or algorithm to meet specified needs.
    - Ability to evaluate the performance of a computing solution.
    - Ability to use the techniques, skills, and modern tools necessary for computer science related practices.

3. Students will have the opportunity to deepen their theoretical and technical understanding in a chosen subject area by taking related technical electives.

    - Ability to solve non trivial problems in a focused area of computer science.
    - Ability to analyze the complexity of different solutions.
    - Ability to develop a software system that implements an optimal solution.

4. Students will have ample opportunities to learn how to work effectively in teams, how to communicate effectively in both written and oral form, and to develop an appreciation of professional ethics and social/cultural awareness needed to prepare graduates for achieving successful careers in their future professional efforts in the flat world.

- Ability to function effectively in multi-disciplinary teams.
- Ability to communicate effectively with wide range of relevant stakeholders when solving a problem in a global context.
- Ability to be able to engage in life-long learning after graduation.

The Computer Science Department strives to provide a positive and collaborative environment where faculty, staff and students are actively engaged in learning.

1. With the support of a highly competent technical staff, the Department provides modern computer laboratories with most current hardware and software support.
2. To keep up with the fast progressing computer science discipline, the faculty members actively participate in research and training in their areas of expertise.
3. The Department Committees frequently update the curriculum in response to advances in specific subject areas.
4. To accommodate students with different situations, the Department provides a variety of flexible class schedules, including evening classes and weekend classes.
5. With the support of a very professional and diligent office staff, the Department provides timely services in all aspects of a student learning environment.

The Program's mission and goals are completely aligned with the University mission, goals and strategies:

1. The Program provides students the best of current practice, theory and research and integrates professional studies with preparation in the computing field. (University Mission)
2. The Program prepares students for a highly completive and challenging computing profession to become a productive professional of the community. (University Mission)
3. Through course projects, the Program provides students opportunities for the development of values, professional ethics, and the teamwork, leadership and interpersonal skills. (University Goals and Strategies II)
4. Through restructuring of the prerequisite courses, the Program facilitates the admission process that enhances recruitment of qualified students from a diverse background. (University Goals and Strategies II and V)
5. The Program ensures that students of varying age, ethnicity, culture, academic experience and economic circumstances are well served. Mostly noticeably a large portion of our students are international students from all over the world. (University Goals and Strategies II)
6. The Program facilitates a timely graduation through class availability and effective retention, advisement, career counseling and mentoring. We offered classes in evenings, weekends and online sections. (University Goals and Strategies V)

B. There were an increasing number of students who apply to our graduate program from diverse backgrounds. In response to that we simplified the prerequisite requirements. Computer Science has advanced to a variety of applications. Employers often are

looking for people with a specific set of knowledge and skills. We reorganized the elective courses to 7 special tracks. There was a growing demand for professionals who were familiar with software development process. In addition to creating a Master of Science in Software Engineering online program, we also reformed the software engineering related courses for the MS in Computer Science Program. Web Database Development has become a highly sought after skill. We updated the course structures and materials in two database related courses. There was also a fast development in the area of bioinformatics. We developed an interdisciplinary course, titled Computational Bioinformatics, to introduce students to this new area. Mobile application development is another fast growing area. We develop a new course in iOS software development.

C. The Department has just voted to establish computer security as the next area of focus in the curriculum. We have successfully recruited a new faculty member in this area. We will add a computer security special track into the graduate curriculum.

II. Program Description and Analysis

A. There were six major changes to the curriculum:

1. The restructuring of the prerequisite courses. Due to the fast growth of opportunities in the Information Technology job market, a large number of our students apply to our program with undergraduate degrees in a variety of areas other than computer science. The requirement of prerequisite courses went through two major reforms. In the first reform a series of special courses were developed to bridge the gap between the student's background knowledge and the rigorous graduate courses. In the second reform the prerequisite courses were brought to align with a recent reform of the undergraduate curriculum. The number of computer science prerequisite courses was reduced in half.
2. The curriculum was grouped into 7 special tracks:
    1) Software Engineering;
    2) Database & Web Programming;
    3) Computer Networks & Security;
    4) Distributed Systems;
    5) Machine Intelligence;
    6) Bioinformatics;
    7) Computer Graphics & Multimedia.
3. The restructuring of the software engineering related courses. In response to fast advance in software engineering. The Department developed a highly successful online Master Degree in Software Engineering. The curriculum was completely upgraded. The faculty members who are involved in the online program strive to keep the course materials up to date. That also benefits the software engineering track of the MS in Computer Science Program.
4. The database related courses were updated. Thanks to the reform in the undergraduate curriculum, a database design course CPSC 431 was combined with a file structure course CPSC 231 to become CPSC332. Instead of removing CPSC 431 from the curriculum, we changed the course to a database and application class. The course is taught through a series of small projects and a big team project at the end

of the semester. Currently, the projects were developed using open source software. The main purpose of this course is to bridge the gap between the normal homework assignments and project development in a typical company setting. The students learn to utilize all the knowledge and skills they learned from the class to develop a term project that is very close to a real world project. CPSC 431 is taken by both undergraduate and graduate students and is offered every semester. About half of the class is graduate students. An Advanced Database System course CPSC 531 was updated to teach research project development. The students work in groups to develop a project mostly in the data mining area. Through the course, the students learn to 1) Choose a topic; 2) Learn the basics of the topic; 3) Choose an area of application; 4) Decide an environment for development; 5) Write a project proposal; 6) Design the project; 7) Implement the project; 8) Make presentation and demonstration; 9) Write a final project report. The topics that were chosen by students in this course were research algorithms in the last 15 years.

5. An interdisciplinary course CPSC 485 was developed in Computational Bioinformatics. This course introduces students to cutting edge development in a fast growing area. It covers computational approaches to biological problems. It is taken by both undergraduate and graduate students. About half of the class is graduate students.
6. A new course CPSC 411 Mobile Device Application Programming was developed. This course introduces students to cutting-edge iOS app development tools. It is taken by both undergraduate and graduate students. The course has attracted a high enrollment and student comments are highly positive.

B. The MS in Computer Science Program has a total of 30 units. There are four required courses:

1. CPSC 440 Computer System Architecture
2. CPSC 462 Software Design
3. CPSC 589 Seminar in Computer Science
4. CPSC 597 Project or CPSC 598 Thesis

One course from the following list

- CPSC 541 Systems and Software Standards and Requirements
- CPSC 542 Software Verification and Validation
- CPSC 543 Software Maintenance
- CPSC 544 Software Process Definition
- CPSC 545 Software Design and Architecture
- CPSC 546 Software Project Management
- CPSC 547 Software Measurement
- CPSC 548 Professional, Ethical, and Legal Issues for Software Engineers

There are five elective courses. These courses may be chosen from special tracks in the following areas:

Software Engineering

- CPSC 463 (Software Testing) or CPSC 464 (Software Architecture)
- CPSC 54x Software Engineering related courses

Databases & Web Programming

- CPSC 431 (Database and Applications) or CPSC 473 (Web Programming and Data Management)
- CPSC 531 (Design of Database Management Systems)

Computer Networks & Security

- CPSC 433 (Data Security and Encryption Techniques) or CPSC 471 (Computer Communications)
- CPSC 558 (Advanced Computer Networking)

Distributed Systems

- CPSC 474 (Distributed Computing using Web Service and .NET Remoting)
- CPSC 551 (Operating Systems Design)

Machine Intelligence

- CPSC 481 (Artificial Intelligence) or CPSC 483 (Data Mining and Pattern Recognition)
- CPSC 583 (Expert Systems Design Theory) or CPSC 585 (Artificial Neural Networks)

Bioinformatics

- CPSC 485 (Computational Bioinformatics)
- CPSC 583 (Expert Systems Design Theory) or CPSC 585 (Artificial Neural Networks)

Computer Graphics & Multimedia

- CPSC 484 (Principles of Computer Graphics)
- CPSC 566 (Advanced Computer Graphics)

The required courses CPSC 440 and CPSC 462 ensure the students have the fundamental knowledge in modern hardware and software design. The required course CPSC 589 introduces students to different areas for application and project development. CPSC 597 is a capstone course that trains students in all aspects of developing a project and documenting the process in a project report. The CPSC 54x courses provide students with different aspects of the software development process. Computer Science has advanced to more and more areas of applications. Each of these areas requires in depth knowledge in some specialty. We grouped the elective courses to 7 special tracks. Each of the special tracks is designed to cover knowledge in a popular area often listed in a job posting. Many of our students choose to take courses in two special tracks so that they are more competent and have more choices in the job market.

Here we briefly explain how the structure of the degree program supports student achievement of learning goals.

1. The Program aims to prepare our graduates for an employment in software project development or advance to a Ph.D. program. In order for the students to understand performance and complexity of modern software systems the students need to learn the fundamentals of modern hardware. The required course CPSC 440 is designed to support that. The required course CPSC 462 and one of the CPSC 54x strengthen student's understanding of modern software design and development. The special tracks provide students with knowledge in specific areas of applications. The seminar course CPSC 589 and the project course CPSC 597 ensure the students are able to develop a reasonable scale of working software system in a specific area of application. If the student chooses to advance his/her study in a Ph.D. program in an area that is aligned with one of the special tracks the knowledge that is covered in the courses of that track will help.
2. The 500 level courses include a project where students will learn the technical skills necessary to design, implement, verify, and validate solutions in computer systems and applications. Especially, CPSC 597/598 is a capstone course that requires the student to research, design and implement a project. The project will be demonstrated to the advisor and a reviewer. The student submits a final project report at the completion of the project.
3. Through the elective courses in a special track, students have the opportunity to deepen their theoretical and technical understanding in a chosen subject area.
4. The projects in the 500 level courses are group projects. The projects require demonstration, presentation and a project report. Through these activities the students have the opportunities to learn how to work effectively in teams, how to communicate effectively in both written and oral form.

C. The following chart illustrates the numbers of applications to the Program

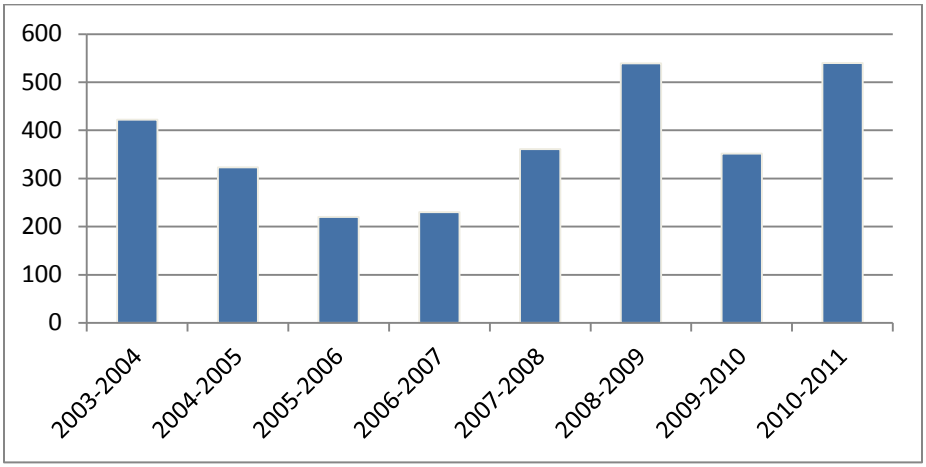


Figure 1 Number of Applications

After the downturn in the IT industries until 2006, the Program has enjoyed steady increase in the number of applications. In the 2009 – 2010 academic year, due to the budget cut and furlough we halted admission in the spring semester. Last academic year we received the maximal number of applications in the past eight years indicating high demand of our program.

The following chart illustrates the percentage of applicants that were admitted. Since we applied the same requirements for admission, these figures indicated that the quality of applicants did not change much. Again we can see a shift in the 2009 – 2010 academic year. Other than that the percentages of qualified applicants have been between 65% and 70%.

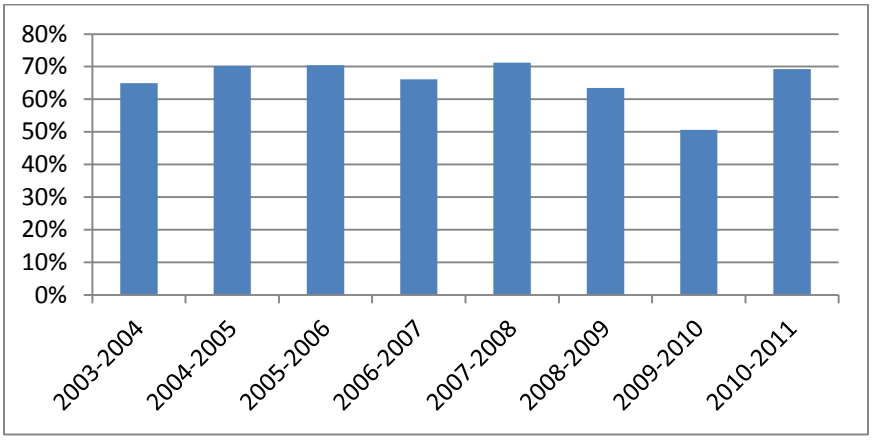


Figure 2 % of Applicants Admitted

The following chart illustrates the percentages of those admitted who enrolled. The reason that there was a drop in 2008 – 2009 was due to the fact that we had an increase number of international students and some of them could not get the visa on time for the semester they were admitted. The College of Engineering and Computer Science has set deadlines for international applications to make sure there is enough time for international students to come on time for classes.

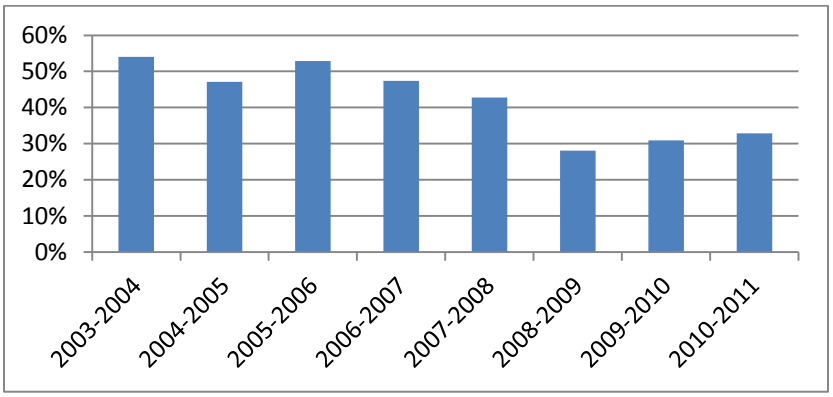


Figure 3 % of Admitted Who Enrolled

The following chart illustrates the number of new students who enrolled to our program. As we can see from the trend the drops can all be explained by the impact of external factors. The drops between 2004 and 2007 were due to the downturn in the IT industries and the drop in the 2009 – 2010 academic year was due to that we did not admit students in the spring semester. Overall the Program has attracted a steady number of enrollments.

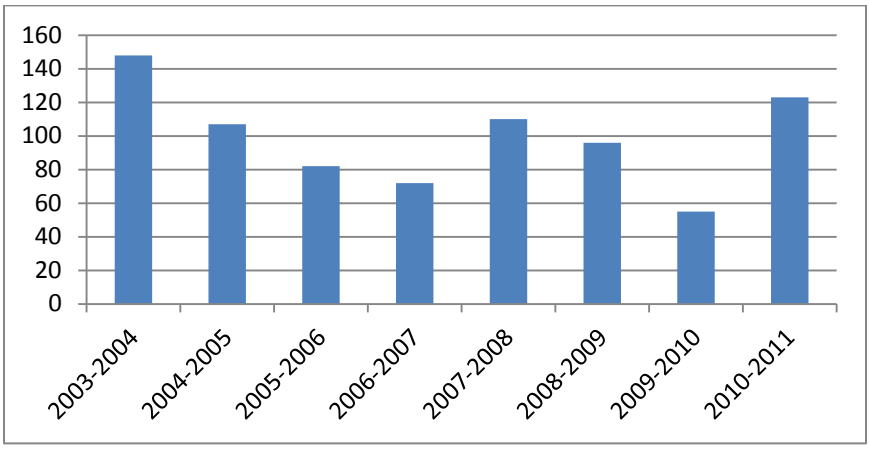


Figure 4 Number of Enrolled

The following chart illustrates the percentages of students who graduated from the program within six years. There were very few students who went over more than six years and still graduated. As we can see from the chart graduation rates were around

50%. There was a drop in the students who entered in program in fall 2009 likely due to the crash in the IT industries. There was a peak in graduate rate for the students who entered the Program in fall 1998. 26.4% of those students graduated in the 5th or 6th year. In other years, less than 10% of the students graduated in the 5th or 6th year.

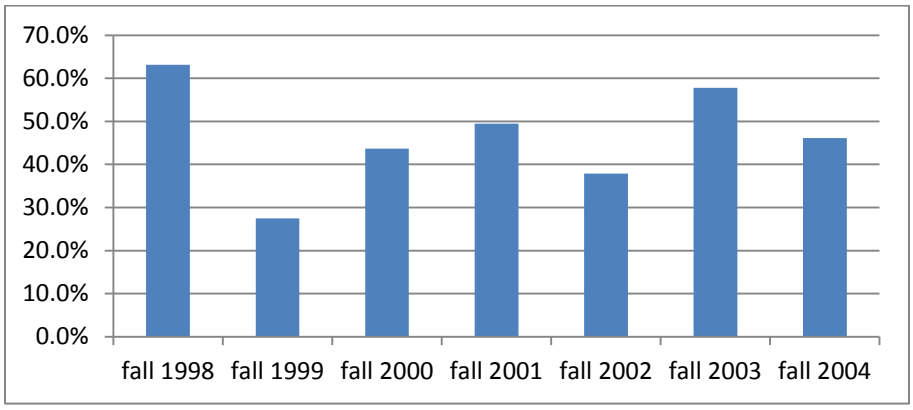


Figure 5 % of Students Who Graduated within Six Years

The following chart illustrates the trend in time to degree. Most of our students graduated in 3 to 4 years. Although there was a peak in graduation rate for the students who entered the program in fall 1998, the percentage of students who graduated within 4 years was smaller. There were three possible explanations for our students to take longer time to degree. The first reason was that many of our students were working. They only took two classes per semester. The second reason was that we did not offer enough sections or choices of graduate classes due to the budget constraints. The rigorous requirements of the project course CPSC 597 was another reason. Many students took more than one semester to complete their projects.

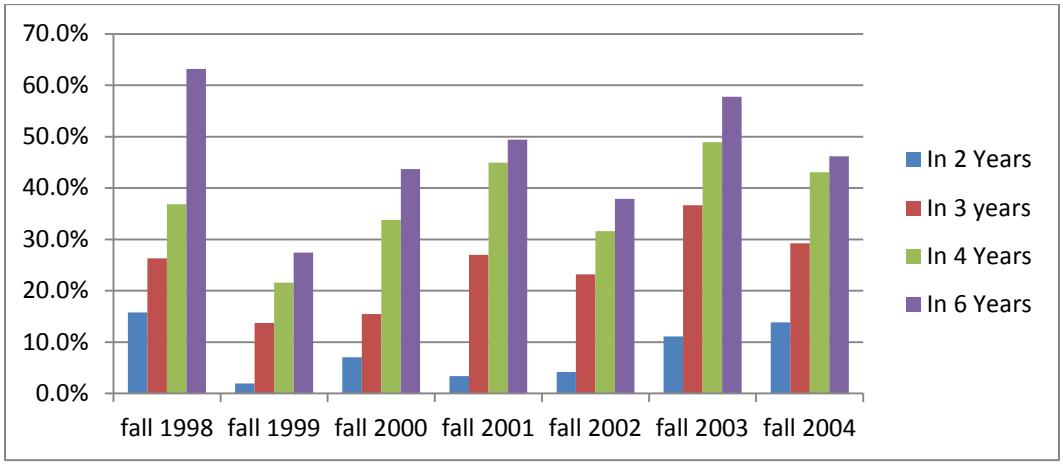


Figure 6 Time to Degree

D. The following chart illustrates the enrollment trends based on enrollment targets (FTES) and the actual FTES. It should be pointed out that the FTES is for both the undergraduate and graduate programs.

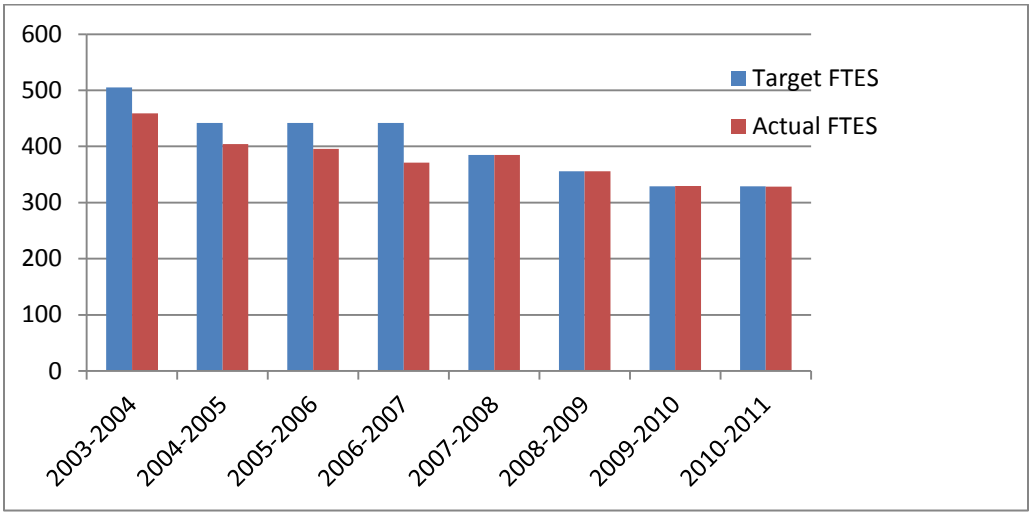


Figure 7 Enrollment Trends Based on FTES

The following chart illustrates faculty allocation based on FTES and the actual number of faculty members.

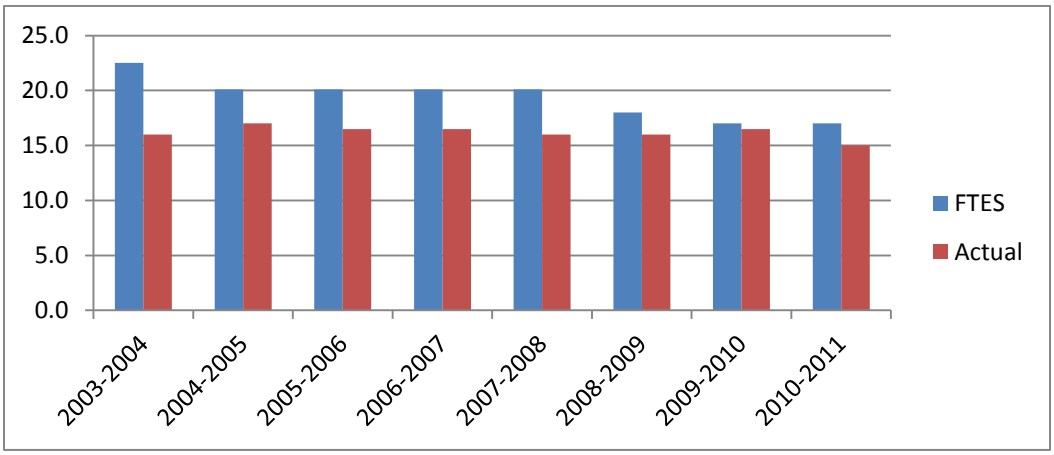


Figure 8 Faculty Allocation based on FTES vs. Actual Number

E. The Department has voted to establish computer security as the next area of focus in the curriculum. We have successfully recruited a new faculty member in this area. We will add a computer security special track into the graduate curriculum.

III. Documentation of Student Academic Achievement and Assessment of Student Learning Outcomes

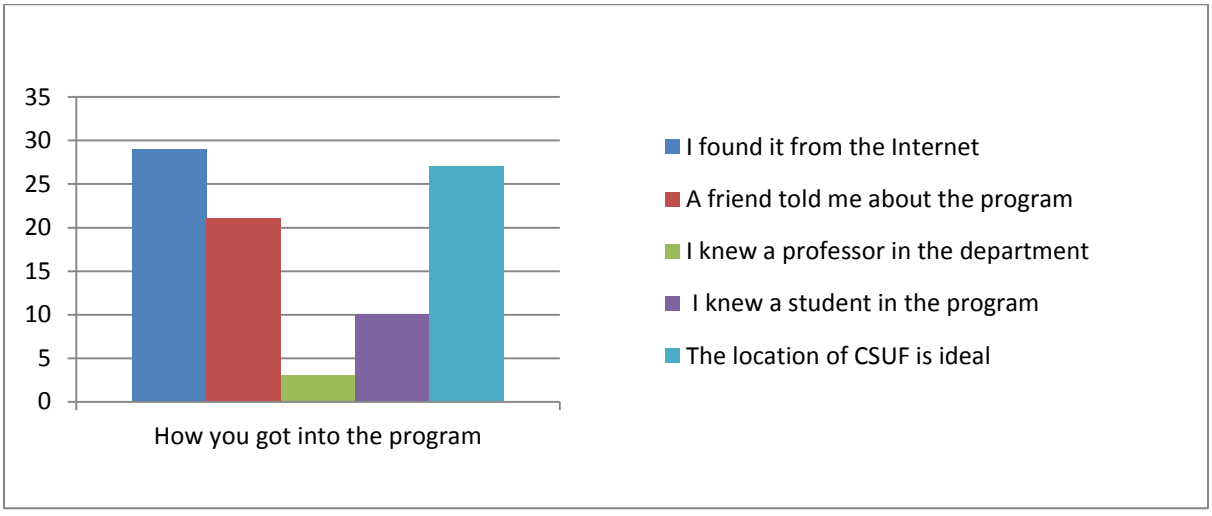
To assess satisfaction of the students about the program, we conducted a survey on October 25 and 27 in three classes, including two sections of CPSC589 Seminar in Computer Science and one section of CPSC544 Advanced Software Process. The seminar classes were chosen because it is a required course for every student and majority of the students in these classes have already taken several graduate courses. Sixty students took the survey. The survey questions are in four areas: 1. How you got into the program; 2. Your experiences in the program; 3. Your experiences with the professors; 4. The environment.

Summary of the survey results

Overall, the area that received the highest rating is the students' experiences with the professors. In particular, the students believed their professors are serious about student learning. Another question that received high rating is the course contents in the second area. The question that received the lowest rating is the availability of a variety of courses. Another question that received a low rating is "I know where to ask for help when I need help" in the area of the environment.

1. How you got into the program

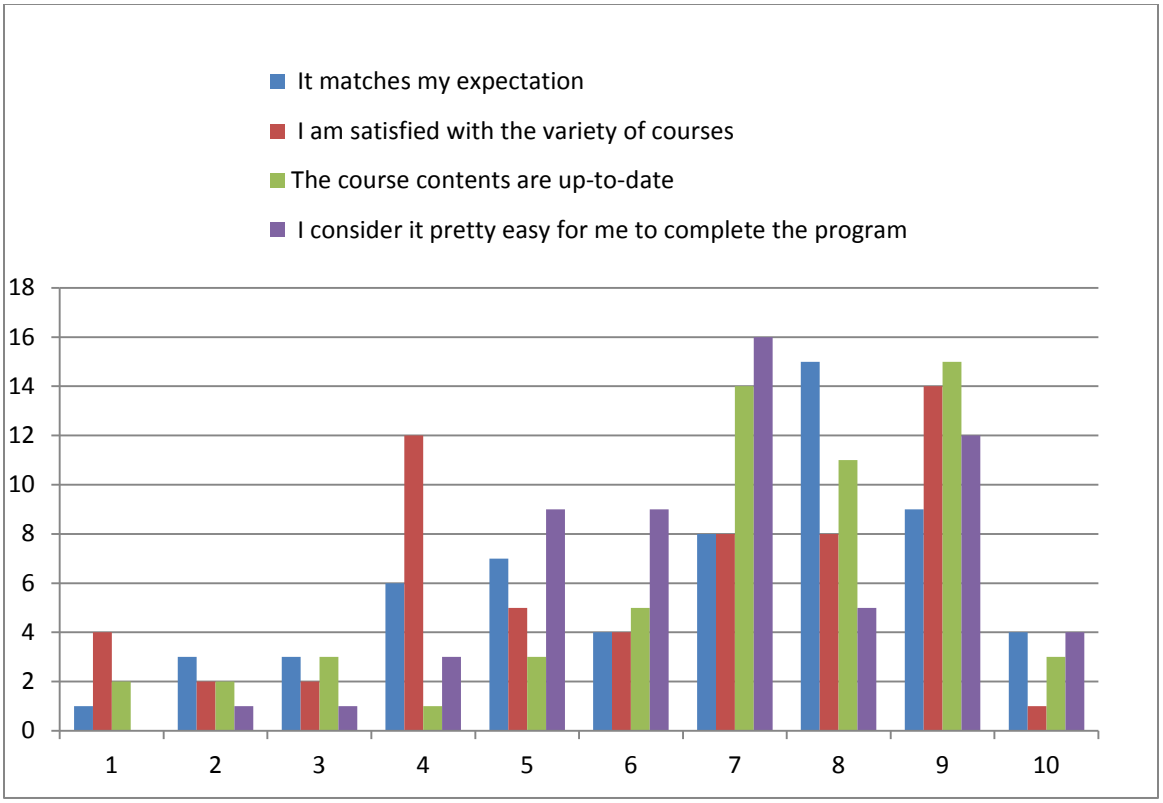
There were five statements and the participants were asked to select as many as they think are true. The following charts show the results. 48% of the students found us from the Internet. 45% like the location of CSUF.



2. Your experiences in the program

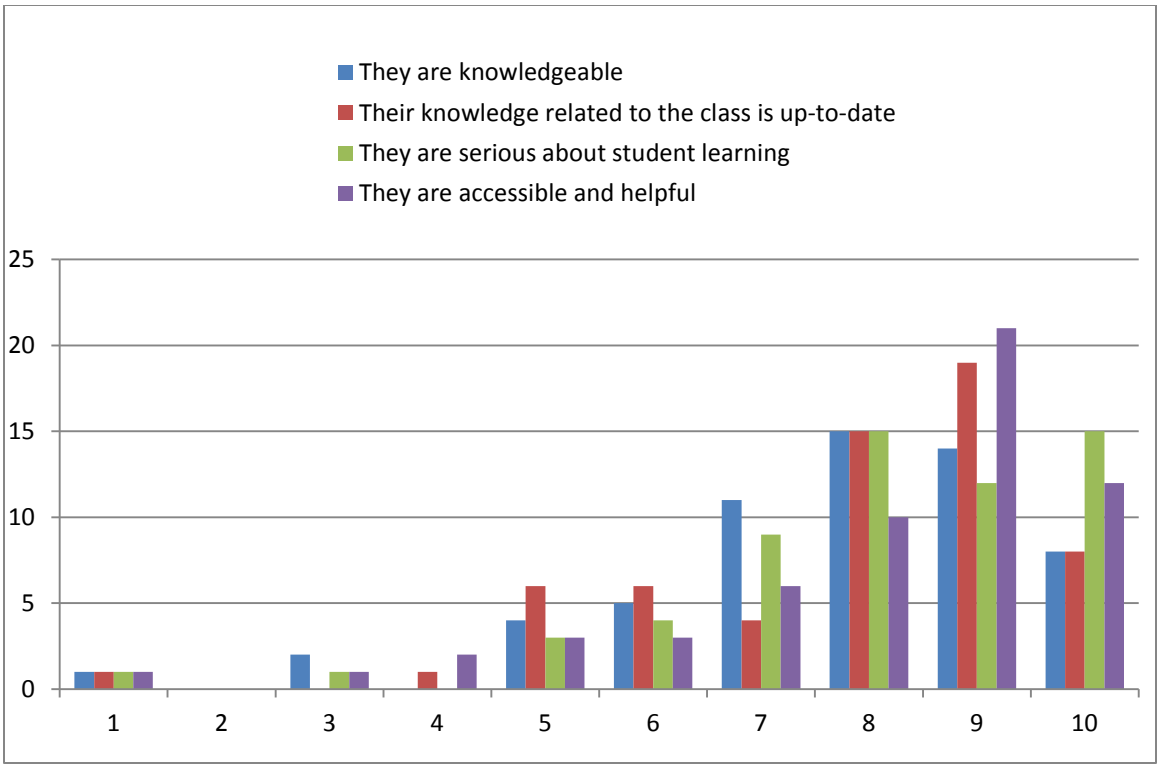
The participants were asked to give a score from 1 to 10 according to how much they agree with the statement. 1 means strongly disagree and 10 means strongly agree. The following

charts show the results. In this area the course contents received the highest rating. 80% of students gave a score of 6 or higher. The students were not satisfied with the number of different courses available to them. Only 58% of them gave a score of 6 or higher to this question.



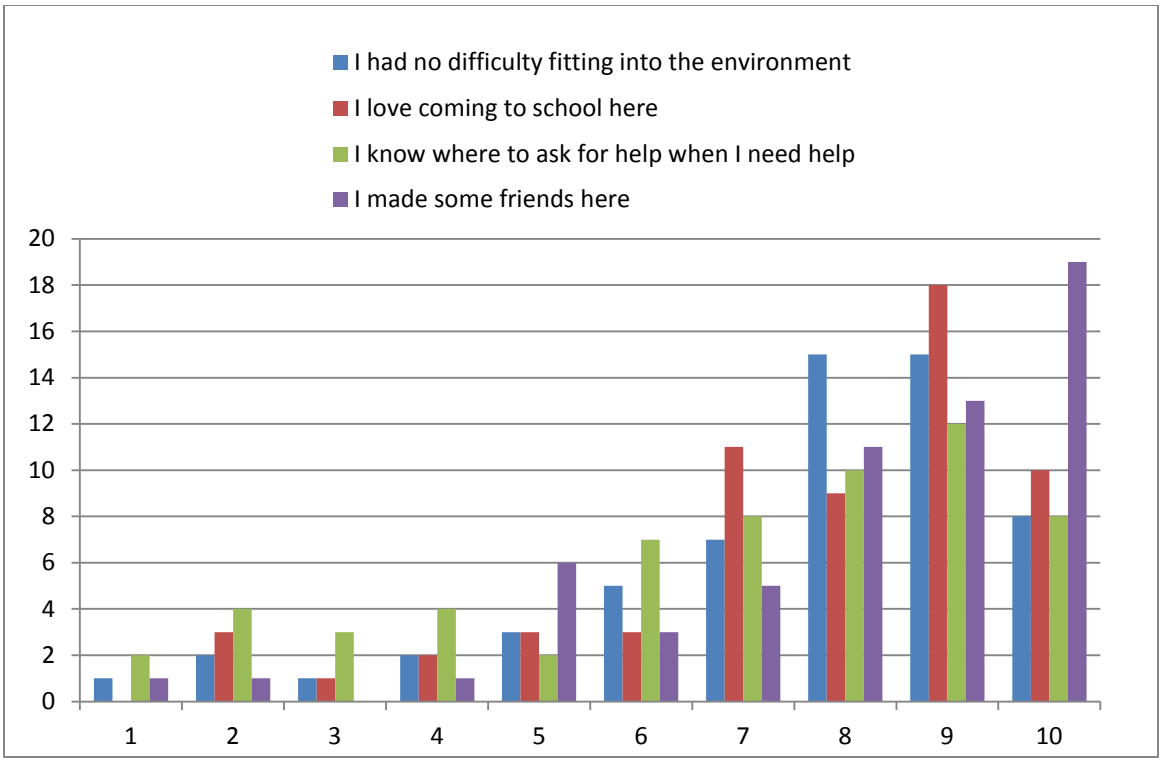
Your experiences with professors

Again the participants were asked to give a score from 1 to 10 according to how much they agree with the statements. The following charts show the results. Overall, questions in this area received the highest rating. The students were in general satisfied with their experiences with the professors. 88% gave a score 6 or higher, considering the professors are knowledgeable. 86.7% gave a score 6 or higher to the knowledge of the professors. 91.7% gave a score of 6 or higher, thinking that the professors are serious about student learning. 86.7% gave a score of 6 or higher for accessibility and helpfulness of the professors.



The environment

Likewise, the participants were asked to give a score from 1 to 10 according to how much they agree with the statements. The following charts show the results. 83% of the students gave a score of 6 or higher to the first question “I had no difficulty fitting into the environment”. 85% of them gave a score of 6 or higher for both the second question “I love coming to school here” and the fourth question “I made some friends here”. The third question “I know where to ask for help when I need help” received the lowest rating. Only 75% of the scores were 6 or higher.



A final note: one of the participants gave 1 to all questions in the second area "Your experiences in the program" and the third area "Your experiences with the professors", except for the question "I consider it pretty easy for me to complete the program".

IV. Faculty
   A. Compared with the numbers in 2003 we have the same number of 11 Tenured and Tenured Track faculty members, 2 faculty members on Faculty Early Retirement Program. The number of Lecturers reduced from 4 to 2. The number shows that we have 15 full time equivalent faculty members. However, one has recently left and 2 of our tenured faculty members have taken on administrative positions. We have actually only 12 full time equivalent faculty members teaching classes. Our full time equivalent faculty allocation based on FTES is 17. We need to hire more tenured track faculty members.
   B. We have just completed a search for a tenured track faculty member in the area of computer security. We are in the process of hiring one more tenured track faculty member. The area is high performance computing.
   C. We have in spring 2012 71.5 WTUs taught by part time faculty members. That is approximately 27.4% of the total WTUs. In fall 2012 we have 34.8% WTUs taught by part time faculty members. In spring 2013 45.6% WTUs were taught by part time faculty members.

V. Student Support and Advising
   A. All the graduate students are advised by either the Chair or the Graduate Adviser of the Department. Students make appointments with the department for advising.

VI. Resources and Facilities

A. Laboratories and computers, equipment, etc.

Room Number	Equipment	Specifications
CS 101	31 iMac	Mac OS X 10.6.8 / iMac / Intel Core i5 / 2.5 GHz / 4GB DDR3
	1 printer server	HP LaserJet 4100N w/ Dell Dimension 4500 / XP
	1 projector	Epson PowerLite 826W
CS 104	25 PCs	Dell Optiplex 740/Windows 7 / x64 / AMD Athlom 2.8GHz / 3GB
	1 printer server	Hewlett Packard LaserJet 4250n w/ Dell Dimension 4500 / XP
	3 projectors	Epson PowerLite 826W EIKI Still Picutre Projector (Trans) BUHL 2900 (Trans)
CS 200	32 PCs	Dell Precision T3500/Windows 7 Pro / x64 / 6GB / 500GB,320GB SATA 3.0Gb/s" Quad Core Intel Xeon W3550 3.0GHz, Dell Pro P2412H 24-inch Widescreen LED Flat Panel / AD (ACAD) Domain
	1 printer server	Hewlett Packard LaserJet P4015x/Dell XPS-T450: Windows XP Pro
	1 scanner	HP ScanJet
CS 202	29 PCs	Dell Optiplex 740/Optiplex: AMD Athlom 2.8GHz / 3GB/Linux (Ubuntu v11.04 x64)
	1 printer server	HP LaserJet P4015x/Dell Dimension 4500 / XP
CS 300	31 PCs	Dell Precision T1600/Windows 7 Pro / x64 / Quard Core Xeon E3-1225 / 8GB Memory / 500 GB 7200rpm SATA HD / 1.0GB NVIDIA Quadro 600 Dual MON Graphic Card / Dell 22" Monitor / AD (ACAD) Domain
	1 printer server	Hewlett Packard LaserJet 4250N/Dell Dimension 4500: Windows XP
	2 projectors	HITACHI CP-X444/EIKI-LCSVGA860
CS 401	6 PCs	Dell Precision 690s/Windows 7 Pro / x64 / 1GB / Intel Xeon 3.0 GHz / 160GB HD, Monitor: 17" Dell Flat Panel Display, DVD+/- RW, ZIP, 3.5 Inch FD
	1 printer	Hewlett Packard LaserJet 8150N
	2 cameras	Provideo VL-650IR/Ceiling mount video cameras

Room Number	Equipment	Specifications
CS 408	31 PCs	Dell OptiPlex 740/Windows 7 Pro / x64 / 3GB / AMD Athlon Dual-Core 5600 / Monitor: 19" Dell Flat Panel Display, Hard Drive: 80 GB 7.2k SATA, DVD+/- RW
	1 printer server	HP LaserJet 4100N/Dell Dimension 4500 / XP Pro
	1 projector	Epson PowerLite 826W/Projector, 3M 9100

VII. Long-term Plans

The department has decided to develop special tracks in two more areas: **computer security** and **high performance computing**. With the universal extension in the utilization of Internet security and privacy have become a critical issue in every organization. Security must be dealt with in every section of the computing infrastructure. This led to a range of specialties, including hardware security, system security, network security, information security, mobile device security, and security policies. We have hired a new faculty member in security. High performance computing is another emerging area. Over the years it has also developed into many specialties, including parallel computing, cluster computing, grid computing, and cloud computing. Due to the enormous amount of data accumulated everywhere, high performance computing systems are essential to get useful information from the data. We are in the process of hiring a new faculty member in this area.

Appendix: Faculty Vitae

CURRICULUM VITAE

Revised: September, 2012

NING CHEN

Professor
Department of Computer Science
California State University, Fullerton
Fullerton, CA 92834

Phone: 657-2783293

PROFESSIONAL INTERESTS

Software Testing, Software Architecture, Enterprise Computing (.NET/c#), Embedded Systems (PIC, MSP430, and ARM), Wireless Sensor Network (TinyOS), Microprocessor Applications, Motor Control Systems, Sensors and Robotics, Formulation, Integration and Supervision of Multi-disciplinary Research.

EDUCATION

Ph.D., Electrical Engineering, Colorado State University,
Fort Collins, Colorado, 1986.

M.S., Electrical Engineering, Colorado State University,
Fort Collins, Colorado, 1984.

B.S., Hydraulics Engineering, National Cheng Kung
University, Tainan, Taiwan, ROC, 1978.

PROFESSIONAL AND RESEARCH EXPERIENCE

2011- Present Program Coordinator/Adviser, Master of Science in Software Engineering (MSE) Program, Department of Computer Science, California State University, Fullerton, California.

1999- Present Professor, Department of Computer Science, California State University, Fullerton, California.

2000- 2003 Chair, Department of Computer Science, California State University, Fullerton, California.

1997- 1999 Associate Professor, Department of Computer Science, California State University, Fullerton, California.

1992- 1996 Associate Professor, Department of Electrical Engineering, California State University, Fullerton, California.

1987- 1992 Assistant Professor, Department of Electrical Engineering, California State University, Fullerton, California.

PUBLICATIONS
(Papers/Patents /Reports)

29. T. W. Caldwell and N. Chen, "Grip Pressure Sensor," US Patent#8,033,916, issue date: October 11, 2011
28. N. Chen and W. L. Cheung, "Bow-to-string pressure training device for bowed string music instruments," US Patent # 7605317, issue date: 10/20/2009

27. J.C. Chen, and N. Chen, "Method and System to Deliver Authentication Authority Web Service Using Non-reusable and Non-reversible One-time Identity Codes," patent application submitted to U.S. Patent and Trademark Office, 2003/4

26. Chen, N., "A Secure and One-Time-Password Based Computer Authentication System," The 2003 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'03: June 23-26, 2003, Las Vegas, NV, USA)

25. N. Chen, "A Case Study of the EJB Security: Combining Declarative, Role-Based Access Control with Programmatic Application-Specific Proxy Security," Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'02), June 2002.

24. G. Wang, B. Cong, and N. Chen, "Securing Bank Transactions using the Role-Based Access Control Model." To appear in Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications. Computer Science Research, Education, and Applications Press, June 2000.

23. N. Chen, "A Neural Network Assisted Navigation Tool in Teleoperation of Robot Arm Manipulator," presented at the 1999 International Conference on Parallel and Distributed Processing Techniques and Applications, PDPTA'99.

22. Theodore W. Caldwell and Ning Chen, "Golf Training Glove," United States Patent #5,733,201, Mar. 31, 1998.

21. N. Chen, "A Vision-Guided Autonomous Vehicle: An Alternative Micromouse Competition," IEEE Trans. Educ., vol. 40, no. 4, pp. 253-258, Nov. 1997.

20. Ning Chen, Hwang Chung and Young K. Kwon, "Integration of Micromouse Project with Undergraduate Curriculum: A Large-Scale Student Participation Approach." IEEE Transactions on Education, 1994

19. N. Chen and H. Chung, "Robot Path Planner: A Neural Networks Approach," IEEE/RSJ International Conference on Intelligent Robots and Systems, July 7-10, 1992, Raleigh, North Carolina

18. N. Chen and H. Chung. "A Neural Networks Based Robot Path Planner," ISMM Conference on Engineering and Industrial Applications of Microcomputers, December 16-18, 1991, Long Beach, California

17. N. Chen and H. Chung. "A Neural Network Based Real Time Robot Path Planner in Known Environment," International AMSE Conference on Neural Networks Methodologies and Applications, May 29-31, 1991, San Diego, California.

16. H. Chung, N. Chen and J. Park. "Time Domain Mixed Pulse Signal Recognition and Application," International AMSE Conference on Neural Networks Methodologies and Applications, May 29-31, 1991, San Diego, California.

15. N. Chen, L. Chertov. "A Neural Network Controller Design for Switched Reluctance Motors," International Society for Mini and Microcomputers, Reno, Nevada, Feb. 22-24, 1989.

14. N. Chen and Y. Chen. "Exact Terminal Control of Switched Reluctance Motors by Feedback Linearization with Saturating Inputs," ”International Society for Mini and Microcomputers, Honolulu, Hawaii, Feb.., 1-3, 1988.

13. Y. Chen and N. Chen. "Common Sense Control of Manipulators based on Qualitative Physics of Robot Dynamics and Experience Learning," ”International Society for Mini and Microcomputers, Honolulu, Hawaii, Feb.., 1-3, 1988.

12. N. Chen and T.A.W. Dwyer, III. "Real-Time Collision Avoidance Manipulator Transfer Movements," American Control Conference, Minneapolis, MN, June 10-12, 1987

11. N. Chen and T.A.W. Dwyer, III. "Single Step Optimization of Manipulator Maneuvers with Variable Structure Control" American Control Conference, Minneapolis, MN, June 10-12, 1987

10. N. Chen and T.A.W. Dwyer, III. "Real Time Implementation of Obstacle Avoidance Manipulator

Maneuvers with Bounded Inputs", ”IEEE International Symposium on Circuits and Systems ,Philadelphia, PA, May 4-7, 1987.

9. Ning Chen. "One Step Ahead Optimization of Collision-Avoidance Manipulator Maneuvers with Variable Structure Control of Parameter Variations", ”Technical Report AAE 86-9 (UILU ENG 86 0509), Aeronautical and Astronautical Engineering Department, University of Illinois

8. N. Chen and T.A.W. Dwyer, III. "Single Step Optimization of Feedback-Decoupled Collision Avoidance Manipulator Maneuvers", ”American Control Conference (Seattle, WA, June 18-20, 1986), V.3, pp. 1503-1508

7. G.K.F. Lee, N. Chen and N.M. Karim. "Robust Nonlinear Control of Robot Manipulators by the Method of Computed Torques", ”American Control Conference (Seattle, WA, June 18-20, 1986), V.3, pp. 1509-1514

6. T.A.W. Dwyer, III, M.S. Fadali and N. Chen "Single Step Optimization of Feed-back Decoupled Spacecraft Attitude Maneuvers", ”24th IEEE Conference on Decision and Control (Ft. Lauderdale, FL, Dec. 11-13, 1985), V.1, pp. 669-671

5. T.A.W. Dwyer, III, M.S. Fadali, N. Chen and G.K.F. Lee. "Manipulator Maneuvering by Feedback Linearization with Saturating Inputs", ”Proc. International Conference on Robotics and Automation, IEEE Council on Robotics and Automation (St. Louis, MO, March 25-28, 1985), pp. 947-953

4. T.A.W. Dwyer, III. G.K.F. Lee and N. Chen. "Nonlinear Interfaces for Acceleration Commands Control of Spacecraft and Manipulators", ”Proc. of the 4th International Conference on Applied Numerical Modeling, National Cheng Kung University, Tainan, Taiwan, ROC. Dec. 28-31, 1984, pp.517-522

3. T.A.W. Dwyer, III. G.K.F. Lee and N. Chen. "A Terminal Controller for a Robot Manipulator Arm with Corrections for Perturbations", ”Proc. of the 4th IASTED Symposium on Robotics and Automation (Amsterdam, Netherlands June 27, 1984), pp.47-51

2. T.A.W. Dwyer, III, N. Chen and G.K.F. Lee. "Time Optimal Control of Manipulators with Bounded Accelerations", ”Proc. of the 18th Conference on Information

Sciences and Systems (Princeton University, March 16, 1984), pp. 668-672

1. T.A.W. Dwyer, III and G.K.F. Lee and N. Chen. "Exact Nonlinear Model Followers for the Control of Industrial Robots", ”Proc. Robotics Intelligence and Productivity Conference (Wayne State University, Detroit, MI, Nov. 18-19, 1983), pp. 112-121

5. Ning Chen and Hwang Chung, "Robot Path Planner: A Neural Networks Approach," submitted to International Journal of MINI & MICROCOMPUTERS.

4. Ning Chen, Hwang Chung and Young K. Kwon, "Integration of Micromouse Project with Undergraduate Curriculum: A Large-Scale Student Participation Approach." IEEE Transactions on Education, 1994

3. T.A.W. Dwyer,III M.S. Fadali, N. Chen and G.K.F. Lee "Manipulator Maneuvering by Feedback Linearization with Saturating Inputs," ”International Journal of Robotics and Automation, Vol. 2, No. 3, 1987.

2. M.S. Fadali, Ning Chen and T.A.W. Dwyer, III "Comments on Suboptimal Control of Industrial Manipulators with a Minimum Time-Minimum Fuel Criterion", ”IEEE Trans. On Automatic Control, Vol. AC-32 March, 1987.

1. T.A.W. Dwyer, III, G.K.F. Lee and Ning Chen "A Terminal Controller for A Robot Manipulator Arm with Corrections for Perturbations", ”International Journal of Robotics and Automation, Vol 1. No. 1. 1986, pp.17-23

CONTRACTS, GRANTS, AWARDS AND FELLOWSHIPS

16. University Missions and Goals Initiative $14,000, 2002.

15. N. Chen, “Cyber Lab,” 1998-99 University Missions and Goals Initiatives. Award size: $10,365.00.

14. N. Chen, “ECS Faculty Project – Defining a 300 or 400 level course in Introduction to Systems Engineering,” Funded by Rockwell Endowment income 1998-99.

13. "Firmware Programming and Testing of Foreman's DNC," funded by AMADA Engineering and Service Inc., $5000.00,

12. "Microprocessor Based Tape Drive Emulator" funded by AMADA Engineering and Service Inc., $35,000.00

11. Seed Grant of $1,500.00 from School of Engineering and Computer Science, CSUF, 1991
10. "Micro-mouse Competition Program for Junior Colleges" approved by California Lottery Fund, 1990, $14,000.00
9. "A Robotic Transplanter for Greenhouse Plant Proliferation" funded by CSUF Junior/Senior Research Grant, 1989-90, $3,500.00
8. Equipment Grant of $25,000.00 from Tektronix, 1989
7. Meritorious Performance and Professional Promise Award, 1989, $2,500.00
6. "Computer-Aided Learning in System Theory: Implementing a Software Tool" funded by CSUF Faculty Enhancement and Instructional Development Grant, 1989, $500.00
5. Equipment Grant of $5,000.00 from Delta Tau Systems and Westamp Inc., 1988
4. "A Neural Networks Controller for Switched Reluctance Motors" funded by CSUF Hughes Faculty Research Grant, 1988, $1,000.00
3. "Control of Switched Reluctance Motors by Feedback Linearization with Saturating Inputs" funded by CSUF Junior/Senior Research Grant 1987-88, $2,500.00
2. "Microprocessor Control of Switched Reluctance Motors" funded by CSUF Hughes Faculty Research Grant, 1987, $1,000.00
1. Research Assistant Fellowship (Colorado State University, 1983-86)

Curriculum Vitae

Song-James Choi

Tel: 657-2787257 Email: jchoi@fullerton.edu

POSITION HISTORY

- **Professor**, Computer Science Dept. 2009 -
  California State University: Fullerton, CA

- **Chair**, Computer Science Dept. 2006 - 2009
  California State University: Fullerton, CA

- **Vice Chair**, Computer Science Dept. 2002 - 2003
  California State University: Fullerton, CA

- **Associate Professor,** Computer Science Dept. 2002 - 2009
  California State University: Fullerton, CA

- **Assistant Professor,** Computer Science Dept 1996 - 2002
  California State University: Fullerton, CA

- **Visiting Research Scientist** 1993 - 1996
  University of Southern California: Los Angeles, CA

- **Research Associate** 1990 - 1993
  University of Southern California: Los Angeles, CA

- **Assistant Professor**, Computer Science Dept. 1998 - 1999
  Calif. State University in Los Angeles: Los Angeles, CA

- **Research Assistant**, Computer Science Dept. 1985 - 1988
  University of Southern California: Los Angeles, CA

EDUCATION

- **University of Southern California**: Los Angeles, CA 1988
  Ph.D. - Computer Science
  Major in Software Engineering

- **University of Southern California**: Los Angeles, CA 1985
  M.S. - Computer Science
  Major in Software Engineering

- **Technical University of Karlsruhe**: Karlsruhe, Germany 1980
  M.S. - Physics
  Major in Experimental Nuclear Physics

- **Technical University of Karlsruhe**: Karlsruhe, Germany 1978
  B.S. - Physics

- **Salem High School**: Salem, Germany 1974

SERVICES TO DEPARTMENT, COLLEGE AND UNIEVRSITY

- **Chair**, Computer Science Department
- **Vice Chair**, Computer Science Department
- **Coordinator** for Masters of Software Engineering (MSE) Program
- **Graduate Program Advisor**, Computer Science Department
- **Chair, Selection Committee**, Computer Science Department
- **Chair, Executive Committee**, Computer Science Department
- **Chair, Personnel Committee**, Computer Science Department
- Member of IRC (Instructional Resource Committee), Computer Science Department
- UPE and ACM Advisor, Computer Science Department,
- Member of the Undergraduate Committee, Computer Science Department
- Member of University Library Committee
- Member of University Ad Hoc Global Competency Committee
- Member of University Presidents Scholar Committee
- Member of University Professional Leave Committee

SERVIEC TO COMMUNITY

- Board member of a Community Church in Anaheim with 12000 members for last 15 years
- Construction Committee Chair for a church educational facility with $ 26 million Budget

PUBLICATIONS

- R. North and J. Choi, *Leveraging Software Performance Engineering to Enhance the Maintenance Process*, ISAST Transactions on Computers and Software Engineering, 2009

- C. Jo, G. Chen and J. Choi, *A Framework for BDI Agent-Based Software Engineering*, Studia Informatica Universalis, 2005

- C. Jo, G. Chen and J. Choi, *A New Approach to the BDI Agent-Based Modeling*, ACM SAC 2004, 1541-1545, Cyprus, 2004

- Choi and Scacchi, *Formal Analysis of Structural Correctness Of Software Descriptions*, International Journal of Computers and Applications, 2003

- Choi and Scacchi, *Modeling and Simulating Software Acquisition Process Architecture*, Journal of Systems and Software, 2001

- Choi, *E3SD: AN Environment Supporting Structural Correctness of SLC Descriptions*, IASTED Software Engineering Conference, 2000

- Choi and Scacchi, *Modeling and Simulating Software Acquisition Process Architecture*, ProSim2000, 2000

- Scacchi and Choi, *Experience with Software Architecture and Configured Software Descriptions*, WESAS 2000, May 2000

- Choi, *Normalization and Tools Supporting the Structural Correctness of SLC Descriptions*, Proc. in IASTED International Conference on Software Engineering, 1998

- Choi, *Software Maintenance Through Reverse engineering*, Proc. in 8th KSEA Technology Conference, 1998

- Choi and Scacchi, *Softman: An Environment for Forward and Reverse Computer Aided Software Engineering*, Information and Software Technology,33(9):664-674, November 1991

- Choi and Scacchi, *Extracting and Restructuring the Design of Large Systems*, IEEE Software (7):66-73, January 1990

- Choi and Scacchi, *Assuring the Correctness of Configured Software Descriptions*, Proc. 2nd Int. Workshop on Software Configuration Management, ACM Software Engineering, 17(7) 67-76, 1989

- Choi, *Softman: An Environment for Forward and Reverse Engineering*, PHD Thesis, 1988

RESEARCH GRANTS

- Lockheed Martin, for Research in Identification and Qualification of Reuse of Legacy Software Systems, 2000

- Junior/Senior/general Faculty Research Award, for investigation of Reengineering Software Designs Using Restructuring, 1999

- SH Corp, for investigation of Reverse Engineering for maintaining and Improving Software Systems, 1998

- Lockheed Martin, for Research in Reuse of Software Using Orthogonal Threads, 1998

- Northrop Corporation, for Research in Problem and Opportunities for very large software engineering and software process engineering, 1990 - 1993

- Naval Ocean System Center, for Research in the System Factory Approach to Large Scale Software Engineering Environments, 1990 -1992

- Pacific Bell, for Research in the USC System Factory Project, 1989 - 1992

- AT&T Laboratories, for Research into flexible software manufacturing systems, 1988 - 1990

- TRW Defense Systems Group, for Research in Computer Science and Engineering, 1985

PROFESSIONAL SERVICES

- **Program Chair**, Workshop on Bridging the Gap, CSUF, 2007

- **Program Committee Member**, *IASTED International Conference on Software Engineering*, 2002 -2007

- **Program Committee Member**, 2nd ACIS Annual International Conference on Computer and Information Science (ICIS) '02), Seoul, Korea, 2002

- **Program Committee Member** , SNPD '02 - 3rd ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing, Madrid, Spain, 2002

HONORS AND AWARDS

CSUF "**Service Recognition Award**" in 2003 and 2008

BIN CONG

Professor of Computer Science
California State University at Fullerton

Email: bcong@fullerton.edu

Education:

Ph.D. Computer Science, University of Texas, August 1991
B.S. Computer Science, Nanjing University, China, August 1982

Experience:

May 2012: Certified Scrum Product Owner
Feb. 2012: Certified Scrum Master
June 2009: Certified SEI Lead Appraiser for CMMI SVC
June 2009: Certified SEI Instructor for CMMI SVC Supplement
Sept 2008 – Aug 2010: Difference-in Pay Leave
March 2008: Certified as SEI High Maturity Lead Appraiser
Aug. 2004 – Aug 2007: Coordinator of the MSE (Master of Software Engineering – On-line) at Cal State.
June 2004: Certified as a SEI authorized "Introduction to CMMI" Instructor.
Oct. 2003: Certified as an authorized Lead Appraiser in the SEI Appraiser Program for Standard CMMI Appraisal Method for Process Improvement (SCAMPI). ID#: 0300298
September 2003: Sabbatical Leave
September 2002: Certified as an authorized Lead Assessor in the SEI Appraiser Program for CMM-Based Appraisal for Internal Process Improvement (CBA IPI), ID #: 0200861-A
August 2004 - Present: Professor, California State University at Fullerton
Aug. 2000 – Aug. 2001: (Professional Leave.) Chief Technology Officer, AE Inc. at Silicon Valley
September 1997 – August 1998: Associate Professor, Cal Poly at San Luis Obispo
May 1996 – August 1997: Tenured Associate Professor, South Dakota State University
August 1991 - May 1996: Assistant Professor, South Dakota State University
June 1988 - August 1991: Research/Teaching Assistant, University of Texas
September 1985 – May 1988: Teaching Assistant, Duke University
August 1982 - August 1985: Research Fellow, Nanjing University, China

Awards:

National Scholarship of China 1984
Who is Who among Students in American Universities and Colleges 1988-1989
WHO'S WHO among America's Teachers 1996
International WHO'S WHO of Information Technology 1997
Outstanding Faculty for Research and Creative Activities, CSUF, 2002-2005
Outstanding Faculty Recognition Award for Service, CSUF, April 2003-2006
Distinguished Oversea Chinese Scholar, Oct 2008
Distinguished Faculty Member, College of ECS， May 2011

Research Interests:

Computer Networking, Parallel Processing, Artificial Intelligence (Neural Network Design and Applications, Heuristic Search), Design and Analysis of Algorithms, Computer Theory, Software Engineering, Software Process, CMM and CMMI based Process Improvement and Assessment, Agile Computing, Information Security

New Courses Proposed at Cal State Fullerton:

CPSC 425 – J2EE Programming (with Prof. Ning Chen)
CPSC 541 – Systems and Software Standards and Requirements (totally changed the contents of the existing course)
CPSC 544 – Software Process Definition
CPSC 547 – Software Measurement

Member of the Following New Program Committees:

BS of Computer Engineering (ECS College)
Master of Online Software Engineering

Research Projects / Grant at SDSU:

- *Automatic Transcript Evaluation System* Funded by Student Affair Office (Summer, 1994) (PI $5000.00)
- *A System for Highway Construction* (1995) (Co-PI $1000.00)
- *A Fuzzy Intelligent System for Sitting of Agricultural Facilities* Funded by Agricultural Department (1995 - 1996) (Project Consultant, $25,000.00)
- *Computer Application in Understanding of the Mechanical Properties of Vessel Undergoing Balloon Angioplasty* Funded by USD Medical School (1995) (Project Consultant, $7000.00)
- *Soft Tissue Diagnosis and Rehabilitation* (1995) (Project Consultant, $2,000)
- *Image Classification using Neural Network* at EROS Data Center, South Dakota (1996) (PI, $20,000)
- South Dakota State University Research Support Fund (1992-1997) (Total about $30,000)
- *Design and Implementation of a Fuzzy Supporting System for Investigation of Atmospheric Point Spread Functions* (1996 - 1998) (PI, $150,000, NSF EPSCoR)
- *Development of an Interstate Virtual Computing CO-Laboratory* (Serving as the PI representing South Dakota State University, 1997-1998) ($390,612, NSF EPSCoR)

Grant at Cal Poly:

- California State Mini-Grant ($5,000, 1998)

Research Grants and Project at CSUF:

- Untenured Faculty Support Grant (Cal State Fullerton, 3 units release time and $1000.00, 1999)
- Summer Stipend Award (CSU Program for Research, Scholarship, and Creative Activity, $5040.00, 1999)
- Lockheed Martin Grant ($8,000.00, 1999)
- Networked Computing Lab Development Project. CSUF Faculty Enhancement and Instructional Development Program. (3 WTU and $500.00, 1999)
- Internet Teaching Lab (ITL) Development Project ($75,000.00 equipment, CAIDA)
- Faculty and Student Research Grant, Spring 2000
- Enhance SE Curriculums : Univ. Initiative Award 2011

Supervised Over 300 Graduate Thesis and Projects at SDSU, Cal Poly, and CSUF

Professional Activities:

- Voting Member of ACM
- Member of IEEE Computer Society
- Member of IEEE National Committee of Student Activities
- Member of IRMA
- Member of SEI
- Member of Scrum Alliance

- **Editorship:**

1. Associate Editor: Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications 1998, 1999, 2000, 2001, 2002, 2003 (Editor: H.R. Arabnia)
2. Guest Editor: Journal of Computer Science & Information Management, Special Issue on Applications of Parallel and Distributed Computing.

- **Referee for the following Journals and Conferences:**

1. Journal of Information Science
2. Fibonacci Quarterly
3. Journal of VLSI Design
4. Journal of Parallel and Distributed Computing
5. Journal of Parallel and Distributed Computing Practices
6. Journal of Computer Science & Information Management
7. IEEE Trans. on Software Engineering
8. IEEE International Parallel Processing Symposium
9. IEEE Symposium on Parallel and Distributed Processing
10. International Conf. of the IRMA
11. International Journal of Computer and Their Applications
12. Journal of Information and Computing
13. International Conference on Networks
14. ISMM International Conference on Intelligent Management Systems

15. ACM Symposium on Applied Computing
16. IASTED International Conference on Artificial Intelligence and Soft Computing;
17. IEEE International Conference on Computing and Information
18. International Conference on Parallel and Distributed Computing and Systems
19. International Conference on Advances in Computer Science and Technology CIIT
20. Communications, Internet, and Information Technology

- **Referee for Grant Programs:**

NSF invited panel on Internet Security
NSF Science Program
NSF EPSCoR
NASA EOSDIS
NDSU's Grant-in-Aid Program,
Australia Research Council

- **Served as a Member of the Following International Program Committees:**

1. IASTED International Conference on Parallel and Distributed Computing and Systems (1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004)
2. Network (1996)
3. IEEE International Conference on Computing and Information (1996, 1997, 1998)
4. ISMM International Conference on Intelligent Management Systems (1996)
5. IASTED International Conference on Artificial Intelligence and Soft Computing (1996)
6. Mid-Continent Information and DAtabase Systems Conference (1994, 1996)
7. International Conference on Parallel and Distributed Computing and Networks (1998, 1999, 2000)
8. ISCA International Conference on Computer Applications in Industry and Engineering (1998)
9. International Conference on Parallel and Distributed Processing Techniques and Applications (1998, 1999, 2000, 2001, 2002, 2003, 2004)
10. I-SPAN (2000)
11. International Conference on Communication, Systems and Networks (CSN 2002, 2003, 2004)
12. International Conference on Advances in Communications (AIC 2001, 2002, 2003)
13. The 3rd International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (2002)
14. The 2nd International Conference on Computer and Information Science (2002)
15. International Conference on Communication, Networks and Information Security (CNIS 2003)
16. International Conference on Communications, Internet, and Information Technology (CIIT 2004 - 2011)

- **Served As a Session Chair for the Following Conferences:**

1. International Conf. on Computer Applications in Design, Simulation and Analysis
2. ACM Symposium on Applied Computing
3. IEEE International Conference of Computing and Information
4. IEEE Southeastern Symposium on System Theory
5. IASTED International Conference on Parallel and Distributed Computing and Systems
6. ISCA International Conference on Parallel and Distributed Computing Systems
7. ISCA International Conference on Computer Applications in Industry and Engineering

8. International Conference on Parallel and Distributed Processing Techniques and Applications
9. The 6th Multi-Conference on Systemics, Cybernetics and Informatics.

Invited Presentations:

1. *Trade-Off Considerations in Designing Efficient VLSI Feasible Interconnection Networks*
   University of North Dakota, May 13, 1994.
2. *How to Connect Millions of Computers Together*
   Featured speaker at the 2nd annual Mid-continent information and database systems.
   May 22-23, 1994
3. *Parallel Processing and Information Highway*
   Five day seminar at Zhengzhou University, China, August 21-25, 1995.
4. *Introduction to Neural Networks and Their Applications in Image Processing*
   EROS Data Center, Oct. 26, 1995.
5. *Design of Versatile Interconnection Networks*
   Southern Methodist Univ, Aug. 22, 1996.
6. *International Perspectives on Effective Teaching*
   Bush Faculty Development Workshop (South Dakota State University), Aug. 26, 1996
7. *Network Mapping and Applications*
   Chungnam National University, Korea, May, 1997
8. *Algorithms and Bioinformatics*
   Department of Chemistry and Biochemistry, Cal State Fullerton, March 2, 2000.
   An Invited Keynote Presentation in Chinese IT Conference in Beijing, May 2001.
10. *Methods to Protect your Web Site from Hackers*
    Orange County E-Commerce Education Consortium, April 28, 2000.
11. *Software Outsourcing and CMM*
    Selected as the best keynote speaker for International Forum on China Software Industry Development, Aug. 2001, Beijing, China. Ainvited keynote presentation at Chinese Software Process Conference
12. *Software Process and CMM*
    Department of Computer Science, Cal State Fullerton, April 2002
13. *Detect Internet Intrusions in Real-Time*
    An invited speaker at VIP Scientific Forum of the International Symposium of Santa Caterina on Challenges in Internet and Interdisciplinary Research, Italy 2004
14. *Successful Software Process Improvement Implementation in China: Case Studies on ROI*
    SEPG Conference, Orlando, March 2004
15. Apply SPC in Software Development and Process Improvement, NADIA 2009
16. Using PPBs and PPMs to implement CMMI HM, NADIA 2010
17. Implement Scrum under CMMI Framework, The 9th Chinese Software Engineering Conference, 2012

Publication List:

I. Refereed (Published and Accepted) International Journal Papers since joining CSUF:

[1] G. Young, **B. Cong,** and P. Ng, "Large Scale Linear and Mesh Network of PCs Connected by SCSI," accepted and to appear Journal of Combinatorial Mathematics and Combinatorial Computing in 2004.

[2] **B. Cong** and S.Q. Zheng, "Finding Hamiltonian Paths and Cycles of Fibonacci Cubes with Application," accepted and to appear on Journal of Combinatorial Mathematics and Combinatorial Computing in 2004.

[3] C. Jo, W. Zhao, **B. Cong**, "A Design and Implementation of the Belief-Desire-Intention Agent-Based Programming Language," Journal of Information, pp. 137-153, Vol. 7, Num. 1, January 2004.

[4] **B. Cong,** S.Q. Zheng, "Near-Optimal Simulations of Trees by Fibonacci Cubes," International Journal of Parallel and Distributed Systems and Networks, Vol. 3, Num. 1, pp. 34 – 39, 2000.

[5] **B. Cong,** "On Encoding Neural Networks to Estimate the Atmospheric Point Spread Function in a Parallel Environment," Journal of Parallel and Distributed Computing Practice, Vol. 2, Number 4, pp. 371 – 385, December 1999.

[6] **B. Cong,** N. Chen, H.K. Dai, "On Mapping Neural Networks to Massively Parallel Computing Systems," Journal of Computer Science and Information Management, Vol. 2, pp. 7 – 15, 1999.

II. Submitted Journal Papers that are Under Review or Revision

[1] **B. Cong** and S.Q. Zheng, "Near-Optimal Simulation of Binary Trees and Doubly-Rooted Binary Trees on Fibonacci Cubes," submitted to Journal of Combinatorial Mathematics and Combinatorial Computing and was asked to rewrite the paper before publication.

[2] **B. Cong,** L. Cong, and S. Asghar, "Robust Speech Recognition Neural Networks and Hidden Markov Models," submitted to IEEE Trans. on Systems, Man, and Cybernetics and the conference version has been presented at IEEE International Symposium on Information Technology: Coding and Computing (ITCC 2000).

[3] X. Shen, J. Fang, and **B.** Cong, "Fault Tolerant Capability of Multistage Interconnection Networks with Extra Stages," submitted to IEEE Trans. on Computers.

[4] **B. Cong,** Y. Pan, "Scalable Implementation of ANNs on Linear Array with a Reconfigurable Pipelined Bus System," submitted to IEEE Trans. on Neural Networks and the conference version has appeared on International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'99), July 1999.

III. Refereed Journal Publications before joining CSUF:

[1] S. Bettayeb, **B. Cong,** M. Girou, H. Sudborough "Embedding Star Networks into Hypercube Networks," IEEE Trans. on Computers, vol.45, pp. 186-194, Feb. 1996.

[2] **B. Cong,** S. Bettayeb, S. Zheng "Trade-off Considerations in Designing Efficient VLSI Feasible Interconnection Networks", Journal of VLSI Design, pp. 366-374, Feb. 1995.

[3] **B. Cong,** S. Joshi, A. Salehnia, S. Shin, G. Bergum "A New Expert System Support for Hybrid Ethernet Configuration Design," International Journal of Microcomputer Applications, Vol. 13, No.1, 1994, pp.42 - 47.

[4] S. Bettayeb, **B. Cong,** M. Girou, Q. Hu, X. Shen, H. Sudborough "The 4-Star Graph is not a Subgraph of Any Hypercube," Information Processing Letters, Vol. 45(1993) 199-203.

[5] S. Bettayeb, **B. Cong,** M. Girou, H. Sudborough "Simulating Permutation Networks on Hypercubes," Springer-Verlag Lecture Notes in Computer Science, Vol. 583, pp.61-70.

[6] **B. Cong**, Z. Miller, H. Sudborough "Optimum Simulation of Meshes by Small Hypercubes," Springer-Verlag Lecture Notes in Computer Science, Vol. 464, pp.30-46.

[7] R. Burke, **B. Cong**, Y. Li "An Automatic Transcript Evaluation System," International Journal of Microcomputer Applications, vol.14, No3, 1995. pp. 123-128.

[8] **B. Cong,** A. Salehnia, S. Shin "Expert Systems and Expert System Languages," J. of Computing in Small Colleges. Vol. 7, pp. 1-10.

IV. Referred International Conference Papers Since Joining CSUF:

[1] M. Liu, **B. Cong,** "Queueing in Client-Server Systems," Proc. of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'98), pp. 551-558, Las Vegas, NV, July 13-16, 1998.

[2] **B. Cong,** G. Bergum, H. Yan, "An Efficient Algorithm to Solve the Triangle Puzzle Problem," Proc. of the 11th International Conference on Computer Applications in Industry and Engineering (CAINE), pp. 1-5, LasVegas, NV, Nov. 11-13, 1998.

[3] **B. Cong,** "Scalable Implementation of ANNs on Linear Array with a Reconfigurable Pipelined Bus System," Proc. of the 12th International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'99), pp. 2863-2870, Las Vegas, NV, June 28 - July 1, 1999.

[4] **B. Cong,** "On Encoding Neural Networks to Estimate the Atmospheric Point Spread Function in a Parallel Environment," 12th International Conference on Parallel and Distributed Computing and Systems, MIT in Nov. 1999.

[5] M. Noureddine, **B. Cong,** M. Molodowitch, and H. Yan, "The Pancake-Hypercube Hybrid Network: A promising design feasible for VLSI implementation," Proceedings of International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'2000), pp. 351-356, 2000.

[6] G. Wang, **B. Cong,** N. Chen, M. Lan, and H. Yan, "An Application Using Role-Based Access Control Model," Proceedings of International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'2000), pp. 369-375, 2000.

[7] Y. Xiang, Y. Lin, and **B. Cong, "**One-to-Many Node-Disjoint Paths Problem in Com-Star Interconnection Networks," Proceedings of International Conference of Parallel and Distributed

Computing and System, Aug. 28 – Sept. 2, 2001.

[8] J. Hu and **B. Cong**, "A New XML-based Online Document Generator," Proceedings of International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'2001), pp. 1031-1036, 2001.

[9] **B. Cong, "**Implementation of Real Time Intelligent Intrusion Detection Systems," Proceedings of the 17th International Conference on Computers and Their Applications (CATA 2002), April 2002

[10] **B. Cong** and Young, "Detecting Internet Intrusion," Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'02), pp. 1340 – 1354, June 2002.

[11] **B. Cong,** "Apply SPC in Software Development and Process Improvement," NADIA 2009

[12] **Bin Cong,** "Using PPBs and PPMs to implement CMMI HM," NADIA 2010

[13] **Bin Cong, "**Implement Scrum under CMMI Framework," The 9th Chinese Software Engineering Conference, 2012

V. Refereed Conference Papers Published before Joining CSUF

[1] **B. Cong** "Statistics in Neural Network Design", Proc. of 1994 International Fuzzy Systems and Intelligent Control Conference (IFSICC 94), March, 1994. Louisville.

[2] **B. Cong**, A. Salehnia "Fixed CCC Embedding is NP-Complete", Proc. of International Conference of Computer Design and Applications, March, 1994, Long Beach, CA.

[3] **B. Cong**, S. Pampti "A Dynamic Routing Algorithm for High Traffic Networks", Proc. of IEEE Symposium on Intelligent Systems in Communications and Power (SISCAP'94)

[4] **B. Cong,** S. Zheng, S. Shama "On simulations of Linear Arrays, Rings and 2-D Meshes on Fibonacci Cube Networks", Proc. of IEEE 7th International Parallel Processing Symposium (April, 1993), pp.748-752. Newport Beach, CA.

[5] **B. Cong**, H. Sudborough "Dilation-4 Embedding of 2-D meshes into Star Graphs", Proc of 1st International Conference on Computer Communications and Network (June, 1992), San Diego. pp. 6-10.

[6] **B. Cong,** G. Bergum, S. Shama "Simulation Tree Structures by Fibonacci-Cubes", Proc. of 1st International Conference on Computer Communications and Network (June, 1992), San Diego. pp. 279-284.

[7] **B. Cong,** A. Salehnia, S. Shin, S. Sharma, S. Joshi "Evaluation of Computer Network Topologies", Proc. of International Conference on Computer Applications in Design, Simulation and Analysis (March, 1993), Washington, D.C.

[8] **B. Cong**, S. Bettayeb, S. Zheng "The Star-Hypercube Hybrid Interconnection Networks", Proc. of International Conference on Computer Applications in Design, Simulation and Analysis (March, 1993),

Washington, D.C.

[9] **B. Cong**, M. Cao "Intelligent Search Under Uncertain Environments", Proc. of Second Golden West International Conference on Intelligent System. (June, 1992) Reno, NE. pp.141-147.

[10] **B. Cong,** S. Zheng "On Lower Bounds of Network Embedding Dilations", Proc. of IEEE 36th Midwest Symposium on Circuits and Systems, Aug., 1993, Detroit.

[11] **B. Cong** "A New Generalized Star Graph Network", Proc. of the 7th International Conference on Parallel and Distributed Systems, Oct., 1994. pp.767-771.

[12] **B. Cong**, G. Li, S. Shin "Embedding Complete Binary Trees into X-Cubes", Proc. of the 6th International Conference on Parallel and Distributed Computing and Systems, Oct., 1994, pp.125-129.

[13] T. Meyerink, **B. Cong,** A. Salehnia, "Inductive Learning on Massively Parallel Computer Systems", Proc. of International Conference on Intelligent Information Management Systems. June, 1995. pp. 138-141

[14] **B. Cong,** G. Li "Embedding Large 3-D Meshes into Small Hypercubes", Proc. of 7th International Conference on Parallel and Distributed Computing and Systems.

[15] **B. Cong**, "A New Routing Algorithm", to appear at Proc. of International Conference on Networks.

[16] **B. Cong** "Design Efficient Interconnection Networks" Proc. of the Association of Management 12th Annual International, Aug. 1994. pp.104-113.

[17] A. Salehnia, **B. Cong,** S. Shin, T. Meyerink "An Expert System Prototype for Image Processing", Proc. of the International Conference on Intelligent Information Management Systems. June 1995. pp. 173-175.

[18] A. Salehnia, **B. Cong**, S. Shin, M. Poumaghshband, "Packaged Expert Systems Language", Proc. of International Conference on Computer Applications in Design, Simulation and Analysis (March, 1993), Washington, D.C.

[19] S. Shin, R. Gantenbein, **B. Cong**, A. Salehnia, "Evaluation of Software Fault Tolerance Approaches to Distributed Systems", Proc. of the Fifth International Conference on Parallel & Distributed Computing & Systems (Nov., 1992), Washington, D.C.

[20] A. Salehnia, **B. Cong**, S. Shin, Z. Alishiri, "Managerial Applications of Expert System Languages and Tools", Proc. of 3rd International Conference on Information Resources Management (May, 1992), Charleston. pp. 172-181.

[21] S. Shin, **B. Cong**, A. Salehnia, "Implementation of a Natural Language Query Generator Using Definite Clause Grammars", Proc. of Sixth International Conference on Symbolic and Logical Computing (October, 1992). Madison, SD.

[22] **B. Cong**, A. Salehnia, "AI Languages, Today and Tomorrow". Proc. of 25th Annual Small College Computing Symposium (April, 1992), University of North Dakota. Grand Forks, ND. pp.8-16.

[23] **B. Cong**, S. Joshi, A. Salehnia, S. Sharma, S. Shin, "Issues on Network Topologies", Proc. of 77th Annual Meeting of South Dakota Academy of Science, April 1992.

[24] **B. Cong**, F. Minyard, A. Salehnia, S. Shin, "CASE STUDY: Real Time Expert Systems", Proc. of 77th Annual Meeting of South Dakota Academy of Science, April 1992.

[25] J. Gadd, S. Shin, A. Salehnia, **B. Cong**, "Software Market Research and Software Implementation Methodology", Proc. of 77th Annual Meeting of South Dakota Academy of Science, April 1992.

[26] S. Shin, A. Salehnia, **B. Cong**, R. Gantenbein, "Implementation Issues of Software Fault Tolerant Systems with Case Tools", Proc. of Information Systems Education Conference, March, 1992.

[27] A. Salehnia, **B. Cong**, S. Shin, M. Pournaghshband, "OPS5, CLIPS and Expert Systems: A Comparison", ISECON '92 Information Systems Education Conference, March 1992.

[28] **B. Cong**, R. Burke, "A Neural System for Transcript Evaluation", Proc. of 27 SCCS, April, Iowa.

[29] A. Salehnia, **B. Cong**, S. Shin, "Design of LAN for a Library", Proc. of Computer Application in Industry, Mar. 1993, Chicago.

[30] **B. Cong,** A. Salehnia, S.Shin, "Networks and MIS Applications", Proc. of 4th International Conference of Information Resources Management Association, May, 1993. Salt Lake.

[31] A. Salehnia, **B. Cong,** S. Shin, "LANs in Library Applications", Proc. of 4th International Conference of Information Resources Management Association, May, 1993. Salt Lake.

[32] S. Shin, A. Salehnia, **B. Cong**, "Implementation of Software Fault Tolerant Systems Using Excelerator Case Tool", Proc. of 4th International Conference of Information Resources Management Association, May, 1993. Salt Lake.

[33] **B. Cong**, S. Zheng "Embeddings of Trees to Fibonacci Cubes," Proc. of 28th IEEE Southeast Symposium on System Theory, Baton Rouge, LA, March, 1996.

[34] G. Li, **B. Cong** "Pointer Jumping on Hypercube Connected Networks", Proc. of the 28th SCCS. pp. 324-332.

[35] T. Meyerink, **B. Cong** "Parallelizing Inductive Learning", Proc. of the 28th SCCS. pp.341-351.

[36] S. Shin, **B. Cong**, A. Salehnia, C. Oh "Optimization of Image Processing Via a Parallel Workstation Approach", Prof. the 2nd International Conference on Reliability and Quality in Design.
March, 1995. pp. 196-200.

[37] A. Salehnia, **B. Cong**, S. Shin "Artificial Neural Networks and Their Applications", Proc. of the 1995 Information Resources Management Association International Conference. May 1995.
pp.163-167.

[38] **B. Cong**, "A New Distributed Routing Algorithm," Proc. of the 8th International Conference on Parallel and Distributed Computing and Systems, Chicago, Oct., 1996.

[39] **B. Cong**, Y. Ning, W. Zhau, "Image Data Classification by Neural Networks and SIMD Machines," Proc. of the 8th International Conference on Parallel and Distributed Computing and systems, Chicago,

Oct.1996.

[40] N. Kuriyavar, T. meyerink, **B. Cong**, A. Salehnia, "ATM Network Rerouting with One Link Failure," Proc. of the 3rd Mid-continent Information and DAtabase Systems Conference, Aug., 1996, Fargo, ND, pp.40-45.

[41] G. Li, **B. Cong**, "Pointer Jumping Networks and Their Applications," Proc. of International Conference on Intelligent Information Management Systems, June, 1996, Washington, D.C., pp.139-143.

[42] **B. Cong**, "The Com-Star Network: A New Family of Star Graph Networks", Proc. of ACM 1993 Symposium on Applied Computing (Feb.,1993), pp. 854-862, Indianapolis.

[43] **B. Cong**, "Mapping of ANNs on Linear Array with a Reconfigurable pipelined Bus System," Proc. Of International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'97), June 1997, Las Vegas.

[44] **B. Cong**, "On Embedding of Neural Networks into Massively Parallel Computer Systems," Proc. of IEEE National Aerospace and Electronics Conference (NAECON'97), July 1997, Dayton.

[45] **B. Cong**, L. Wu, Y. Chen, D. Helder, "Estimation of the Atmospheric Point Spread Function Using a Collection of Neural Networks," Proc. of the 9th International Conference on Parallel and Distributed Computing and Systems, Oct. 1997, Washington, D. C.

[46] **B. Cong**, "Estimation of the Atmospheric Point Spread Function Using the Neural Network Approach," Proc. of ISCA 10th International Conference on Parallel and Distributed Computing Systems, Oct. 1997, New Orleans.

[47] **B. Cong**, "Estimating the APSF Using ANNs", Presented at the NSF EPSCoR Joint North Dakota/South Dakota State Conference, Sept. 27, 1997.

Others:

Member of IEEE National Committee of Student Activities
Member of Commission on the Internationalization of Education at South Dakota State University (1994 –1997)
Chairman of Graduate Assistantship Committee at Computer Science Department of SDSU (1995 – 1997)
Faculty Advisor of Chinese Student Association at SDSU (1993 – 1997)
Chair of *Learning Chinese Style* seminar at SDSU
Member of Graduate Committee (Computer Science Department, Cal Poly)
Coach of the ACM Programming Team (Cal Poly, 1997-1998)
Member of Graduate, IRC, Graduation Committees (Computer Science Department, CSUF, 1998-1999)
Member of Graduate, Executive Committee (Computer Science Department, CSUF, 1999-2000)
Advisor of the ACM Club (CSUF, 1999-2000)
Coach of the ACM Programming Team (CSUF, 1999)
Member /Chair of DPC (Computer Science Department, CSUF, 2001 – 2003, 2010 - 2012)
Member of the University Graduate Education Committee (1999 - 2002)
Member of the University IT Committee (2002 – 2004)
Chair of Selection Committee (Computer Science Department, CSUF, 2001- 2002)

Member of Selection Committee (Computer Science Department, CSUF, 2002 – 2003)
Graduate Program Advisor (Computer Science Department, CSUF, 2002 – 2004, 2010-2011)
Member of the Computer Engineering Committee (ECS College, CSUF, 2001 – present)
Member of the On-line Master of Software Engineering Committee (Computer Science Department, CSUF, 2001 – present)
Member of the CSEMS Scholarship Committee (CSUF, 2003)
Member of Ad Hoc Committee for Restructuring of the Division of Engineering (CSUF, 2004)

Curriculum Vitae

Mikhail I. Gofman

Citizenship

United States of America

Research Interests

Access Control Policy Analysis, Information Flow Security, Scientific Workflow Security, Virtualization and Cloud Security, Network Security, Systems Security, Wireless Sensor Networks, Privacy, Software Engineering, Experimental Computer Systems.

Education

Ph.D. in Computer Science August 2012
State University of New York at Binghamton
Dissertation: Efficient Policy Analysis for Administrative Role Based Access Control without Separate Administration
Advisor: Dr. Ping Yang

M.S. in Computer Science May 2008
State University of New York at Binghamton
Thesis: Efficient Policy Analysis for Administrative Role Based Access Control
Advisor: Dr. Ping Yang
GPA: 4.0/4.0

B.S. in Computer Science May 2006
State University of New York at Binghamton
GPA: 3.575/4.0

Research Experience

Assistant Professor, *California State University at Fullerton* 2012 - present

Research Assistant, *State University of New York at Binghamton* 2007 - 2012

- **Dissertation Research: Efficient Analysis for Administrative Role Based Access Control Policies (ARBAC)**
  - Developed *Role Based Access Control Policy Analysis Tool (RBAC-PAT)* which supports a wide range of ARBAC analysis problems including: *user-role reachability, weakest precondition, availability, role-role containment, dead role analysis, RBAC information flow analysis, hierarchical conflict detection, hierarchical role assignment checking, and separate administrating restriction checking.* Since it's release in Spring of 2009, RBAC-PAT has been used by researchers at *Massachusetts Institute of Technology (MIT), Purdue University, University of Waterloo, University of Texas at San Antonio, and University of Della Svizzera Italiana.*
  - Co-developed symbolic user-role reachability analysis algorithms for efficient analysis of ARBAC policies with *parameterized roles.*
  - Co-developed and implemented algorithms for *incremental analysis* of evolving ARBAC Policies. The incremental algorithms can perform up to 181x faster than the non-incremental.
  - Developing efficient algorithms for analysis of ARBAC policies that do not satisfy the *separate administration restriction* which requires the sets of users with and without administrative permissions to be disjoint.

❑ **Information Flow Security Analysis**

- Developed Information Flow Analyzer tool for modeling scientific workflows and detecting cases where the flow of information violates the security policy.
- Developed incremental algorithms for analyzing the information flows induced by the RBAC policy and detecting problematic cases where information flows from a low security object to a high security object.
- Co-developing algorithms for checking provenance security of scientific workflows.

❑ **Virtualization Security**

- Developed a privacy-aware virtual machine checkpointing mechanism (SPARC) which avoids checkpointing the physical memory of applications that process sensitive data.
- Implemented a mechanism for monitoring and filtering network traffic between the VMs running on the same physical host.
- Co-implemented a mechanism enabling direct VM-to-VM communications.

❑ **Wireless Sensor Networks**

- Co-implemented the existing approach that uses trust-based routing to counter selective forwarding attacks in wireless sensor networks. Also, co-developed and co-implemented a probabilistic approach for thwarting selective forwarding attacks which involve colluding adversarial nodes.
- Co-implemented and co-refined the HIF (High Importance First) protocol for timely delivery of sensor data based on the data importance.

Awards, Honors, Travel Grants

- **Graduate Student Award for Excellence in Research**, State University of New York at Binghamton. 2011.
- **Student Travel Grant, ACM Conference on Computer and Communications Security (CCS)**, $955, Chicago, Illinois. 2011.
- **Student Travel Grant, The European Joint Conferences on Theory and Practice of Software (ETAPS)**, €750, Yorkshire, UK. 2009.
- **Graduate School Academic Excellence Award**, State University of New York at Binghamton. 2008.
- **Nominated by the Computer Science department as a candidate for Chancellor's Award for Student Excellence**, State University of New York at Binghamton. 2008.
- Graduated from State University of New York at Binghamton **Cum Laude**.
- **6 times** recipient of **Dean's List Award**. 2002-2006.
- Awarded membership in **Upsilon Pi Epsilon (UPE) Computer Science National Honor Society**.

Publications

Book Chapter

1. J. Oh, K. D. Kang, J. Y. Kim, M. Gofman, "A Cross-Layer Approach to Reducing Delay and Energy Consumption Based on Data Importance in Sensor Networks, Handbook on Sensor Networks," Yang Xiao, Hui Chen, and Frank H. Li (eds.), *World Scientific Publishing Co., June, 2010.*

Journal Papers

2. Symbolic Reachability Analysis for Parameterized Administrative Role Based Access Control, by S. D. Stoller, P. Yang, M. Gofman, and C. R. Ramakrishnan, *Computers & Security, 30(2-3):148-164, March-May 2011.*

3. Information Flow Analysis of Scientific Workflows, by Ping Yang, Shiyong Lu, Mikhail Gofman, and Zijiang Yang, Special issue on scientific workflows, *Journal of Computer and System Sciences (JCSS), volume 76(6), pages 390-402, Elsevier, 2010.*

Refereed Conference/Workshop Papers

4. Analysis of Scientific Workflow Provenance Access Control Policies, Ruiqi Luo, Ping Yang, Shiyong Lu, and Mikhail I. Gofman, to appear, *The 9th IEEE International Conference on Services Computing (SCC),* Press, 2012 (**Acceptance rate: 18%**).

5. SPARC: A Security and Privacy Aware Virtual Machine Checkpointing Mechanism, by Mikhail Gofman, Ruiqi Luo, Ping Yang, and Kartik Gopalan, *Workshop on Privacy in the Electronic Society (WPES), in conjunction with the ACM Conference on Computer and Communications Security (CCS)*, full paper, ACM Press, 2011 (**Acceptance rate: 16%**).

6. User-Role Reachability Analysis of Evolving Administrative Role Based Access Control, by Mikhail Gofman, Ruiqi Luo, and Ping Yang, *European Symposium on Research in Computer Security (ESORICS)*, Lecture Notes in Computer Science, 2010 (**Acceptance rate: 20.9%**).

7. Incremental Information Flow Analysis of Role Based Access Control, by M. Gofman, R. Luo, J. He, Y. Zhang, and P. Yang, pages 397–403, CSREA press, *International Conference on Security and Management*, 2009 (**Acceptance rate: 26%**).

8. Symbolic Reachability Analysis for Parameterized Administrative Role Based Access Control, by S. D. Stoller, P. Yang, M. Gofman, and C. R. Ramakrishnan, *14th ACM Symposium on Access Control Models and Technologies (SACMAT)*, Pages 165–174, ACM press, 2009 (**Acceptance rate: 32%**).

9. RBAC-PAT: A Policy Analysis Tool for Role Based Access Control, by M. Gofman, R. Luo, A. Solomon, Y. Zhang, P. Yang and S. Stoller, *15th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, 2009. (**27 regular papers and 8 tool papers accepted among 131 submissions**).

10. B. Kravitz, M. I. Gofman, K. D. Kang, and V. Candela, "Extending Trust Based Routing by Collusion Avoidance and Detection", *IEEE Upstate NY Workshop on Communications, Sensors, and Networking, November 9, 2007* .

11. Efficient Policy Analysis for Administrative Role Based Access Control, by S. D. Stoller, P. Yang, C. R. Ramakrishnan and M. I. Gofman, *14th ACM Conference on Computer and Communications Security (CCS)*, pages 445-455, ACM press, 2007. (**Acceptance rate: 18%**)

Patent

Source-Transfer Switching System and Method (with Yagudayev, Boris, and Gofman, Igor), *Application No. WO/2009/073510 (Patent Pending)*, Nov, 2009.

Software and Tools

I am the main developer of the following tools:

- **Role Based Access Control Policy Analysis Tool (RBAC-PAT)**
  A tool for checking security properties of ARBAC policies.

- **Information Flow Analyzer**
  A tool for checking whether a particular execution of scientific workflow violates the information flow security policy.

- **A Tool for Incremental ARBAC Analysis**
  A tool which enables the administrators to efficiently analyze evolving ARBAC policies. Unlike it's predecessors, this tool does not assume that the ARBAC policy is fixed.

- **Security and Privacy Aware Checkpointer (SPARC)**
  A tool that avoids checkpointing the memory of applications that process sensitive data.

Presentations

1. Preserving Confidentiality in Virtual Machine Checkpointing and Role Based Access Control, Binghamton, NY, USA, March 2012.

2. SPARC: A Security and Privacy Aware Virtual Machine Checkpointing Mechanism, Chicago, IL, USA, October 2011.

3. User-Role Reachability Analysis of Evolving Administrative Role Based Access Control, Athens, Greece, September 2010.

4. HAVE: Detecting Atomicity Violations via Integrated Static and Dynamic Analysis, Yorkshire, UK, March 2009.

5. RBAC-PAT: A Policy Analysis Tool for Role Based Access Control, Yorkshire, UK, March 2009.

6. Extending Trust Based Routing by Collusion Avoidance and Detection. Syracuse, NY, 2007.

Technical Program Committee

ANT: International Conference on Ambient Systems, Networks and Technologies (2013)

Reviewer

TISSEC: ACM Transactions on Information and System Security (2012)
CLOUDSEC: International Workshop on Security in Cloud Computing (2012)
IC3: The Fifth International Conference on Contemporary Computing (2012)
CCS: ACM Conference on Computer and Communications Security (2011)
CADE: International Conference on Automated Deduction (2011)
IWCMC: International Wireless Communications and Mobile Computing Conference (2011)
ICC: International Conference on Communications (2010)

Teaching Experience

- Instructor for undergraduate Computer Security course, Fall 2012
- Instructor for undergradute Operating Systems course, Fall 2012
- Instructor for graduate Computer Security course, Spring 2011
- Teaching assistant for undergraduate/graduate Computer Security course, Spring 2010 - Fall 2011.
- Teaching assistant for graduate Programming Languages course, Fall 2009.
- Teaching assistant for graduate Programming Languages course, Fall 2007.
- Teaching assistant for undergraduate/graduate Automata Theory and Formal Languages course, Spring 2007.
- Teaching assistant for undergraduate Freshman Seminar course, Fall 2006.

Work Experience

- ❑ Intern at ASCO Power Technologies. Automatic Power Switch Controllers Department. Summer 2006.
- ❑ Intern at ASCO Power Technologies. Automatic Power Switch Design Department. Summer 2005.
- ❑ Intern at ASCO Power Technologies Information Technology Department. Summer 2004.

Curriculum Vitae

Chang-Hyun Jo
Professor, Ph.D.
Department of Computer Science
California State University at Fullerton
Fullerton, CA 92834-6870, USA
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EDUCATION: Ph.D. in Computer Science (May 1991), Oklahoma State University, USA. <http://osu.okstate.edu/>
M.S. in Computer Science (July 1988), Oklahoma State University, USA. <http://osu.okstate.edu/>
B.Economics in Statistics (Feb. 1984), SungKyunKwan University, Seoul, Korea. <http://www.skku.edu/>

CERTIFICATES:

- Certified Scrum Master
- SEI Certified CMMI Instructor
- SEI Certificate in CMMI
- SEI ATAM Evaluator Certificate
- SEI Software Architecture Professional Certificate
- IEEE Computer Society Education Board (IEEE-Certified Software Development Professional (CSDP), SWEBOK)

EXPERIENCE:

August 2002 – Present:
Professor (Tenured), Department of Computer Science, California State University at Fullerton, USA

- Teaching: Software Engineering, Compilers, Programming Languages, Seminar in Computer Sciences
  <Teaching at http://jo.ecs.fullerton.edu>
- Research: Numerous funded research and consulting, Publication of 60+ technical papers since 1988
  <Research at http://jo.ecs.fullerton.edu>
- Service: ACM SAC Programming Languages Track Chair (1998-2008)
  ACM Student Advisor, Graduate Committee, MSE Committee, Resource Committee, Executive Committee
  <Service at http://jo.ecs.fullerton.edu>
- Student Advising: More than 60 M.S. students in the area of software engineering, CMMI, SCAMPI, software design, software architecture, agent-oriented software engineering, and agent-based programming languages and compilers

Oct. 1998 – July 2002:
Associate Professor (Tenured), Department of Computer Science, University of North Dakota, USA

- Teaching: Undergraduate Courses: Organization of Programming Languages, Software Engineering, Principles of Translation, Computer Science II (Ada).
  Graduate Courses: Compiler Design (Java Bytecode), Advanced Software Engineering (OOA/OOD), Programming Languages and Paradigms (Distributed Computing with Java/CORBA – Programming for Internet/Web Server/Collaborative Tools).
- Student Advising: 7 M.S. Students and Undergraduate Student Projects/Thesis
- Service: Faculty Search Committee Chair, Undergraduate Committee Chair (curriculum, assessment, accreditation), And several committee members.
- Research: Several research grant, Publication of 7 technical papers in conference proceedings between 1998 and 2002.

Sept. 1991 – Aug. 1998:

Associate Professor (Equivalent to Tenure), Computer Science Department, Kyonggi University, Korea.

- Teaching: Programming Languages, Compiler Writing, Computer Science, Artificial Intelligence, Programming Methodology and Practices, Multimedia Programming, etc. (Undergraduate/MS/Ph.D. Courses)
- Student Advising: 4 M.S. Graduate Student Research
- Serving many committees such as the University Information Committee
- Research: Numerous research grants, publications of almost 40 technical papers in journals, conferences and international standards (between 1988 and 1998).

Department Chair (March 1992 - Feb. 1994), Computer Science Department, Kyonggi University, Korea.

- Academic Administration, Fund Managing, Lab Renovation

Part-time Research Staff (Invited Joint-Research Position) (Sept. 1992 - July 1993),
Electronics and Telecommunications Research Institute (ETRI), Korea.

- Joint Research: Object-Oriented CHILL Design and Compiler Construction, Debugger, Software Testing etc.
- Delegate to International Standardization of ITU-T Z.200
  (Sponsored by Korea Telecommunications Tech. Association (TTA), ETRI, Samsung)

Aug. 87 - May 1991:

Graduate Teaching Assistant, Computer Science Department, Oklahoma State University.

- Class Teaching: Compiler Writing, PL/I Programming Language
- Grading: Discrete Mathematics, Operating Systems, Computer Science, Computer Architecture.
- 7 Publications including technical papers in ACM/IEEE/ISMM conferences, MS thesis, and Ph.D. Dissertation.

Dec. 83 - April 85:

Software Engineer, Electronics Research Lab. (Hyo-Sung Co.), Korea.

- Programming of Chinese/Japanese Dictionary Utility Program, Hitachi COBOL Compiler Testing, Writing Technical Reports and Lab Standards.

PROFESSIONAL AFFILIATION AND ACTIVITIES:

Member of ACM, IEEE Computer Society
Programming Language Track Chair of ACM Symposium on Applied Computing (ACM SAC) (1998 - 2008)
Editor of ACM Applied Computing Review (1997-Present)
Asia Membership Liaison of ACM SIGAPP (1996-1998)
Secretary of ACM SIGAPP (2005-2007)
ITU-T SG10 Korean Delegate (1992-1998: Involved in International Standardization for CHILL)
Editor of Korea Information Processing Society (1996-1998)
Co-organizer of Special Interest Group on Object-Oriented Technology in Korea (1997-1998)

AREA OF INTEREST:

Software Process Improvement, Software Architecture, ATAM, CMMI, SCAMPI
Agent-Based Programming Language and Software Engineering (APL, AMT, etc.)
Object-Oriented S/W Engineering (Modeling, Analysis, Design, Testing, Tools, Formal Specification)
Concurrent Object-Oriented Programming Language Design and Compiler Construction (Parallel-C++, CHILL-96)
Integrated Programming Environments (Debugger, Compiler/Interpreter)
Computer Supported Cooperative Work (CSCW)/Collaborative tools/Groupware on the Internet/Web
Ubiquitous Computing, SaaS (Software as a Service)

PUBLICATIONS:

1. Jo, Chang-Hyun. *Abstraction and Specification of Local Area Networks*. **M.S. Thesis**. (Donald D. Fisher, Advisor), Department of Computing and Information Sciences. Oklahoma State University. (July 1988).

2. Jo, Chang-Hyun, Fisher, Donald D. and George, K.M. Abstraction and Specification of Local Area Networks. Proceedings of the Eighth Annual International Phoenix Conference on Computers and Communications, Scottsdale, Arizona, (March 22-24, 1989), IEEE Computer Society Press, (1989), 337-342.

3. Jo, Chang-Hyun and George, K.M. Distributed object-oriented programming with dynamic objects. OSU-CS-TR-89-14, Department of Computer Science, Oklahoma State University (1989).

4. Jo, Chang-Hyun. Parallel-C++: An object-based parallel programming language. (Abstract/Presentation) Centennial Graduate Student Research Symposium, Oklahoma State University, (Feb. 27, 1990).

5. Jo, Chang-Hyun and George, K.M. Language concepts using dynamic and distributed objects. Proceeding of the ACM 1991 Computer Science Conference (ACM/CSC '91), San Antonio, Texas, (March 5-7, 1991), ACM Press (1991), 211-220.

6. Jo, Chang-Hyun, George, K.M. and Teague, K.A. Parallelizing translator for an object-oriented parallel programming language. Proceedings of the Tenth Annual International Phoenix Conference on Computers and Communications (IPCCC '91), Scottsdale, Arizona, (March 27-30, 1991), IEEE Computer Society Press (1991), 265-271.

7. Jo, Chang-Hyun. *The Design and Implementation of an Object-Oriented Parallel Programming Language*. **Ph.D. Dissertation**, (K. M. George, Advisor), Department of Computer Science, Oklahoma State University (May 1991).

8. Jo, Chang-Hyun and George, K.M. Storage management for dynamic objects in a distributed memory system. Proceedings of the Fourth ISMM International Conference on Parallel and Distributed Computing and Systems. Washington, DC, ACTA Press, (ISBN: 0-88986-159-5), (October 8-11, 1991), 112-116.

9. Lee, J. K., ***Jo, Chang-Hyun**, et. al. A Survey of Object-Oriented Programming Concepts. ETRI, Korea, TT/E-TM92-05, (1992).

10. Jo, Chang-Hyun. Investment Consultant Expert System. Proc., Basic Science Research Institute, Kyonggi University, Vol.6, No.1, pp.73-84, (1992).

11. Jo, Chang-Hyun. Natural Language Processing using Prolog. Kyonggi University Journal, No.31, 329-342, (1992).

12. Lee, J.-K., ***Jo, Chang-Hyun**, Lee, D.-G., Choi, W., Song, Y.-K., and Kim, Y.-S., A Survey: Object-Oriented Programming Concepts and Paradigm, Electronics and Telecommunications Trend Analysis, ETRI, Korea, 45-68, (April 1993).

13. Lee, J.-K., ***Jo, Chang-Hyun**, Lee, D.-G., Choi, W., Song, Y.-K., and Kim, Y.-S., A Study of Type Extension for OOCHILL, Korea Information Science Society 1993 Spring Conference, (1993).

14. Lee, J.-K. ***Jo, Chang-Hyun**, Lee, D.-G., Choi, W., Choi, G.-B., and Lee, C.-K. An efficient implementation of type-test and type-guard for an object-oriented switching system. Proc. of the International Conference on Globalization of Computer & Communication (INFOCOM'93), Tata McGraw-Hill, New Delhi, 148-155, (1993).

15. Jo, Chang-Hyun, A Study on Concurrent Object-Oriented Programming, The Statistical Review, V.2, Research Institute of Applied Statistics, 61-76, (May 1994).

16. Jo, Chang-Hyun and Choi, Wan. A Proposal for Concurrent Objects in CHILL. ITU-T SG10 Contribution, 10/D/0025, Geneva, Swiss, (1994. 10.).

17. Jo, Chang-Hyun and Lee, Sang-Hong. Analysis for the Syntactic Problems in Object-Oriented CHILL. ITU-T SG10 Contribution, 10/TD/0055, Geneva, Swiss, (1994. 10.).

18. Kim S., ***Jo, Chang-Hyun**. An Implementation Scheme for a Concurrent Object-Oriented Language on a Parallel System, Korea Information Science Society Conference (Fall), 117-120, (1994).

19. Kim, S., ***Jo, Chang-Hyun**. A Design and Implementation of Concurrent Object-Based C Preprocessor, Korea Information Processing Society Conference (Fall), 75-78, (1994).

20. Baek, I., ***Jo, Chang-Hyun**. An Implementation Scheme for Concurrent Object-Oriented CHILL on SPARC, Korea Information Science Society Conference (Fall), 113-116, (1994).

21. Jo, Chang-Hyun. Guarded Methods in Object-Oriented CHILL. 1995 CHILL Expert Meeting Contribution, WD.004, SIEMENS, Taipei, (1995. 3.).

22. Jo, Chang-Hyun et al. Design of a Concurrent Object-Oriented Programming Language for Telecommunications, Korea Information Science Society Conference (Spring), 337-340, (1995. 4.).

23. Jo, Chang-Hyun, Guarded Methods for Concurrent Objects. Korea Information Processing Society Conference (Spring), 459-462, (1995. 5.)

24. Jo, Chang-Hyun, et al. Encoding for Debugging Information of Object-Oriented Programs, Korea Information Science Society Conference (Choong-Chung Regional), 253-256, (1995. 11.24 - 25).

25. Jo, Chang-Hyun. An Experiment on a Concurrent Object-Oriented Programming Language. Proc. of the ACM Symposium on Applied Computing (SAC'96), Philadelphia, USA, 98-104, (1996. 2. 18-20).

26. Kim, P., Lee, C., Lee, J., ***Jo, Chang-Hyun**. A Development of a SPARC Back-End, Korea Information Processing Society Conference (Spring), 138-141, (1996. 4. 12-13).

27. Im, H. , Kim, P., ***Jo, Chang-Hyun**, et al. A Design of an Object-Oriented CHILL Debugger, Korea Information Processing Society Conference (Spring), 142-145, (1996. 4. 12-13).

28. Lee, C., Kim, J., ***Jo, Chang-Hyun**. Design and Prototyping of a C++ Compiler Front-End, Korea Information Science Society Conference (Fall), 819-822, (1996. 10. 25-26).

29. Kim, P., Im, H., ***Jo, Chang-Hyun**, et. al. A Model Test of Object-Oriented CHILL Debugger, Korea Information Science Society Conference (Fall), 827-830, (1996. 10. 25-26).

30. Jo, Chang-Hyun, et al. A Design and Prototyping of an Object-Oriented Program Debugger, Proc. of the ACM Symposium on Applied Computing (SAC'97), San Jose, USA, 45-51, (Feb.28, 1997).

31. Im, H., ***Jo, Chang-Hyun**, et al. A Debugging Scheme for Object-Oriented Program with Visibility, Korea Information Processing Society Conference (Spring), 866-869, (1997. 4. 12.).

32. Lee, C., Son, J, and ***Jo, Chang-Hyun**. An Implementation of a Concurrent Object-Oriented Language: Parallel-C++, Korea Information Science Society Conference (Fall), 277-280, (1997. 10).

33. Jo, Chang-Hyun and Kang, S. An Experiment on Semantic Prototyping, Korea Information Science Society Conference (Fall), 331-334, (1997. 10.).

34. Jo, Chang-Hyun. A Proposal for an Overloading Mechanism in Object-Oriented CHILL, Journal of Basic Science, 10(2), 393-401, Kyonggi University, (1997. 12.).

35. Jo, Chang-Hyun, A Formal Definition of Module Mode in CHILL, Journal of Basic Science, 19(2), 403-410, Kyonggi University, (1997. 12.).

36. Jo, Chang-Hyun. A Dynamic Binding and a Dynamic Type Checking for Polymorphism, Journal of Kyonggi University, 41(2), 289-304, (1997. 12.).

37. Jo, Chang-Hyun. A Design of Generic Constructs on an Object-Oriented Programming Language, Journal of Kyonggi University, 41(2), 305-319, (1997. 12.).

38. Jo, Chang-Hyun, et al. A Realization of Concurrent Object-Oriented Programming, Proc. of the ACM Symposium on Applied Computing (SAC'98), Atlanta, Georgia, USA, 558-563, (Feb. 27 – Mar 1, 1998).

39. Jo, Chang-Hyun et al. Implementation of a Code Generator for SPARC, Journal of Korea Information Science Society, 4(1), 178-189, (Feb. 1998).

40. Jo, Chang-Hyun, Jea Gi Son, Younwoo Kang, and Phill Soo Lim, "The Distributed Programming Environment on the Internet", ACM 1999 13th Annual Symposium on Applied Computing (ACM SAC'99), San Antonio, Texas, 85-90, (Feb. 28 – March 2, 1999).

41. Denehy, Timothy E. and **Jo, Chang-Hyun**. "Parallel-C++ for the Java Virtual Machine", ND-EPSCoR Poster Session, North Dakota State University, July 28, 1999.

42. Arnold, Allen J. and **Jo, Chang-Hyun**, "Distributed Programming Environment to Facilitate Geographically Separate Collaboration and Education", ND-SD Joint EPSCoR Conference Poster Session, September 10, 1999.

43. Denehy, Timothy E. and **Jo, Chang-Hyun**. "Parallel-C++ for the Java Virtual Machine", ACM 2000 14th Annual Symposium on Applied Computing (ACM SAC'00), 843-848, Como, Italy, (March 2000).

44. Jo, Chang-Hyun. A Seamless Approach to the Agent Development, ACM 2001 15th Annual Symposium on Applied Computing (ACM SAC'01), Las Vegas, 641-647, (March 2001).

45. Jo, Chang-Hyun and Allen J. Arnold, "Agent-based Programming Language: APL", ACM 2002 16th Annual Symposium on Applied Computing (ACM SAC'02), Madrid, Spain, 27-31, (March 2002).

PUBLICATION at CSUF (Fall 2002 –Present)

46. Feng, Xin and **Jo, Chang-Hyun**, "Agent-Based Stock Trader", The 18th International Conference on Computers and Their Applications, The International Society for Computers and Their Applications, (ISCA CATA-2003), 275-278, Honolulu, Hawaii, March 26-28, 2003. (ISBN 1-880843-46-3)

47. Lin, Dongqing, Wiggen, Thomas P. and **Jo, Chang-Hyun**, "A Restaurant Finder using Belief-Desire-Intention Agent Model and Java Technology", The 18th International Conference on Computers and Their Applications, The International Society for Computers and Their Applications, (ISCA CATA-2003), 404-407, Honolulu, Hawaii, March 26-28, 2003. (ISBN 1-880843-46-3)

48. Zhao, Wei and **Jo, Chang-Hyun**. "A Compiler Design for the Agent-Based Programming Language", The 18th International Conference on Computers and Their Applications, The International Society for Computers and Their Applications, (ISCA CATA-2003), 393-396, Honolulu, Hawaii, March 26-28, 2003. (ISBN 1-880843-46-3)

49. Jo, Chang-Hyun. "A New Way of Discovery of Belief, Desire and Intention in the BDI Agent-Based Software Modeling", The International Conference and Exhibition on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment and Management (HNICEM 2003), Manila, Pavillon Hotel, March 27-30, 2003. (ISBN# 971-92723-0-9)

50. Jo, Chang-Hyun and Allen J. Arnold, "A Portable and Collaborative Distributed Programming Environment", The 2003 International Multi-Conference in Computer Science and Computer Engineering – The International Conference on Software Engineering, (IMCCSCE – SERP'03), 198-203, Las Vegas, Nevada, June 23-26, 2003.

51. Jo, Chang-Hyun and Einhorn, Jeffery M., "A Process for BDI Agent-Based Software Construction", The 2003 International Multi-Conference in Computer Science and Computer Engineering – The International Conference on Software Engineering, (IMCCSCE – SERP'03), 204-209, Las Vegas, Nevada, June 23-26, 2003.

52. Einhorn, Jeffery M. and **Jo, Chang-Hyun**. "A Use-Case Based BDI Agent Software Development Process", Proceedings of the 2nd International Workshop on Agent-Oriented Methodologies, 7-20, ACM *OOPSLA-2003*, Anaheim, October 26-30, 2003. also at http://www.open.org.au/Conferences/oopsla2003/proc.htm., Oct. 26, 2003.

53. Jo, Chang-Hyun, Zhao, Wei and Cong, Bin., "A Design and Implementation of the Belief-Desire-Intention Agent-based Programming Language", ***Information: An International Interdisciplinary Journal***, ISSN 1343-4500 (print), 1344-8994 (electronic), 7(1), International Information Institute, (January 2004), 137-153.

54. Jo, Chang-Hyun. "A New Way of Discovery of Belief, Desire and Intention in the BDI Agent-Based Software Modeling", ***the International Journal of Advanced Computational Intelligence & Intelligent Informatics (JACIII)***, ISSN 1343-0130, 8(1), 2-6, Jan. 2004.

55. Jo, Chang-Hyun, Guobin Chen and James Choi, "A New Approach to the BDI Agent-Based Modeling", ACM SAC 2004, 1541-1545, Nicosia, Cyprus, March 14-17, 2004.

56. Jo, Chang-Hyun, Won-Young Kim, Jeong-Min Shim, and Wan Choi. Agent-based Framework for Software On-Demand. Proceedings of the IEEE 7th International Conference on Advanced Communication Technology, Phoenix Park, Korea, (Vol.2), 730-735, Feb. 21-23., 2005. (IEEE Catalog # 05EX1046) (ISBN: 89-5519-123-5)

57. Park, Seungjin, Seong-Moo Yoo, M. Al-Shurman, B. V. Voost, **Chang-Hyun Jo**, "ARM: Anticipated Route Maintenance Scheme in Location-Aided Mobile Ad Hoc Networks", *Journal of Communications and Networks*, Vol.7, No.3, 325-336, September 2005.

58. Jo, Chang-Hyun and Einhorn, Jeffery M., "A BDI Agent-Based Software Process", *Journal of Object Technology (JOT)*, Vol.4, No.9, 101-121, November – December 2005. (available at http://www.jot.fm/issues/issue_2005_11/article3)

59. Jo, Chang-Hyun, Guobin Chen and James Choi, “A Framework for BDI Agent-Based Software Engineering”, *Studia Informatica Universalis (International Journal)*, Vol.3, No.3, Editions SUGER, 15 rue Catulienne, F-93200 Saint-Denis, France, http://csmc.ephe.sorbonne.fr:8081/Studia, http://studia-informatica.org, 41 rue G. Lussac, 75005 Paris, France, (ISBN 2-912590-30-2), (ISSN 1621-7545), 285-314, 2004 (2005).

60. Jeong-Min Shim, Won-Young Kim, Wan Choi and **Chang-Hyun Jo**. Agent-Based Framework for the Software On-Demand Service. Information: An International Journal, International Information Institute, Tokyo, Japan, Vol.8, No.5, 725-738, 2005. (ISSN 1343-4500)

Under the Review Process for Publications (present)

61. Michael Vermilion and Chang-Hyun Jo. A Unification of Web Engineering Techniques, (Under the Review Process)

62. Chang-Hyun Jo and Dongshi Zhang, A Realization of BDI Agent-Based Software Development, (Under the Review Process)

63. Chang-Hyun Jo and Heejeong Lim. Is On-Line Education Effective?, (Under the Review Process)

64. Robert Kumar, Chang-Hyun Jo, and Heejeong Lim. A Quantitative Way for Programming Language Comparison and Selection, (Under the Review Process)

65. Kailasapathy Aravinthan, Chang-Hyun Jo, and Heejeong Lim. Programming Language Comparison and Analysis in Education, (Under the Review Process)

66. Won-Young Kim, Sugito Lie, Jeong-Min Shim, Wan Choi, and Chang-Hyun Jo. Secure Mobile Agents for Ubiquitous Open Space, (Under the Review Process)

Research Grants (2002 to present) at CSUF

Research Title	Funding	Amount	Period

- A Research on the Framework and Programming Environment for On-Demand Software, Electronic and Telecommunications Research Institute (ETRI), Korea, $25,000, May 1, 2004 - November 30, 2004.
- A Research on the Programming Environment for the Evergreen Technique and Software on Demand, ETRI, Korea, $26,000, June 2005 – November 2005. (Renewed project)
- A Research on the Programming Environment for the Evergreen Technique and Software on Demand, ETRI, Korea, $30,000, July 2006 – November 2006. (Renewed project)

Previous Research Grant (before joining CSUF)

Research Grants in Korea (1991-1998)

Research Title	Funding	Amount	Period
The Next Gen. CHILL Compiler	ETRI, Korea	US$17,000	1993.7-'94.6
ATM CHILL Compiler	ETRI, Korea	US$ 6,700	1994.7-'95.6
CHILL/SPARC Back-End	SamSung Electronics	US$28,000	1995.1-'95.12
Object-Oriented CHILL Debugger Research	ETRI, Korea	US$17,000	1995.3-'95.12
Object-Oriented CHILL Manual	ETRI, Korea	US$25,000	1995.9-'96.4
Compiler Front-End	Kyonggi Univ.	US$ 2,800	1995.11-96.10
Object-Oriented CHILL Debugger Develop.	ETRI, Korea	US$22,500	1996.3-'96.12
Semantic Prototyping	Kyonggi, Univ.	US$ 3,400	1997.1-'97.6
OO S/W Testing Language	ETRI, Korea	US$22,500	1997.1-'97.12
Audit Guidelines for IS Develop. Using OO Approach	N. Comp. Agency	US$20,000	1998.8-'98.10

- ETRI, Korea: Electronics and Telecommunications Research Institute
- N. Comp. Agency: Korea National Computerization Agency

Research Grants (1999 to 2003) in USA

Research Title	Funding	Amount	Period
Development of the Distributed Programming Environment	UND ORPC(FRCAC)	US$ 1,700	1999.1-'99.12
"	ND EPSCoR TRIC	US$ 3,500	1999.5-'99.11
Development of the New Course Material	UND SIDP	US$ 2,700	2000.7-'00.8
Component-Based Framework (1st yr)	ND EPSCoR IIP (1st)	US$ 7,500	2000.5-'01.4
Component-Based Framework (2nd yr)	ND EPSCoR IIP (2nd)	US$ 7,500	2001.5-'02.4

- UND ORPD: University of North Dakota, Office of Research & Program Development, Faculty Research and Creative Activity Committee
- ND : North Dakota
- EPSCoR: Experimental Program to Stimulate Competitive Research
- TRIC: Technology Transfer Into Commercialization
- UND SIDP: University of North Dakota, Summer Instructional Development Professorship
- IIP: Seed Grant

Small Awards (1999 to 2003) in USA

Research Title	Funding	Amount	Period
Travel to the ACM SAC'99, San Antonio	ND EPSCoR	US$ 250	1999.1.- '99.5.
Travel to the ACM SAC'99, San Antonio	UND ORPD	US$ 428	1999.2.- '99.3.
Travel to the NASA	ND EPSCoR	US$ 1,000	1999.8.
Travel to the Oak Ridge National Lab.	ND EPSCoR	US$ 500	1999.8.17.
Travel to the OOPSLA'99, Denver	UND FIDC	US$ 660	1999.10.
OOPSLA'00 Educational Symposium Scholarship	ACM SIGPLAN	US$ 1,950	2000.10.15-19.

- UND: University of North Dakota, Office of Research and Program Development, Faculty Research and Creative Activity Committee
- ND : North Dakota
- EPSCoR: Experimental Program to Stimulate Competitive Research

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kkung@raytheon.com
kennethkung@verizon.net

Biographical Sketch:

Dr. Kenneth Kung has applied systems architecture, systems engineering, and trusted systems technology to new business development, project management, project support and commercial product development in military, homeland security, banking, and network communications systems. He is a results-oriented engineer with over 30 years of experience and numerous inventions (8 patents awarded and two trade secrets).

AREAS OF EXPERTISE

- System Architecture
- Front-End Systems Requirements Definition and Analysis
- Operational Concept Definition
- Information Assurance and Cyber Systems
- Network Communications Protocol and Design
- System & Software Design, Development, Test, and Deployment.

Clearance Level

- Top Secret
- SSBI (inactive)

Educational Experience:

Year	Degree	Area	University
1984	PhD	Computer Science	UCLA
1978	MS	Computer Science	UCLA
1978	BS	Electrical Engineering	UCLA

Professional Experience:

2010-now, Senior Principal Engineering Fellow, Raytheon Company

Led as Corporate lead in system architecture and systems engineering to apply technology, process, and people to projects. Responsible to develop the technology roadmap for 19 technology areas related to systems architecture and systems engineering. Provided assessment on enabling technologies, competitive position, investment strategy, and technical milestones needed for the success of the company.

Led the Energy Surety and Environment Enterprise Campaign as the Chief Engineer to develop command, control, and communications system, sensors, and information assurance technologies. Supported the Marine Expeditionary Forward Operation Base energy management system demonstration in 29 Palms, California, exercise. The integrated energy management system along with the solar and diesel generation system was deployed to forward operational bases in Helmand Province, Afghanistan.

Led as the Technical Director for a project that applied architecture principals and methods to create a new command and control military organization. Worked with the customer to establish doctrine, operations, facility, computing and networking capability, organization structure, training, and personnel capability needs.

Led as the chair of promotion board for Network Centric Systems to nominate, evaluate, and recommend engineers to the four ranks of the engineering fellow positions. Improved the fellows population diversity and pipeline. Developed the guidance for career path for younger engineers.

Pioneered the distant learning capability in Raytheon in 2010. Taught Information Assurance course (15 weeks) to over 500 engineers (in 4 class offering) located in 20 cities. Leveraged subject matter experts from across the company to ensure the bridging of theoretical topics and practical applications for Raytheon engineers. Course can be taken either in real time via video conferencing and remote sharing tools, or using recorded material. The proven approach for delivering knowledge has been adopted for additional courses in system architecture methods, wireless network, and service oriented architectures topics.

Represented Raytheon at the International Standards Organization for Cyber Security (Sub Committee 27), US National Body since its inception in 2005. Provided information that enable standards to be applied by practitioners.

2003-2010, Principal Engineering Fellow, Raytheon Company

Led as Corporate Architecture Technology Area Director to define Company's reference architecture, unify major business architectures, develop training programs for architects, guide company modeling and simulation effort for architectural refinement, and carry out the system architecture and system engineering initiatives for Raytheon. Formed intellectual property strategy, branding strategy, and release strategy for the reference architectures,

Developed architectures as a Certified Architect in Raytheon Certified Architect Program, which is accredited by the Open Group Certified Architect Program. Chaired the Corporate Architecture Review Board to maintain the reusable architecture models and established an architecture taxonomy for storing these artifacts. Created governance and review process for architecture review board to validate the architectures and reduce risks.

Appointed as the System Engineering Technology Network Chair that oversees the knowledge management and information sharing across Raytheon for network centric operation system architecture, architectural process, modeling and simulation, information security, human system interface, reliability and safety, standards, communication systems, and object oriented system engineering.

Chaired MILCOM Architecture Modeling Simulation Track, 2008, with 9 technical sessions and 61 refereed papers.

Served as a member of FAA WAAS Recovery Independent Review Board, 2005. The government board was formed to review the failures of this safety critical systems.

Coordinated a UCLA (with Professor Leonard Kleinrock) Workshop on Network Technology in 2004. Topics included sensor networks, agent based middleware, programmable radios (MIMO), ad hoc networks, dynamic routing, swarms, real time signal processing, real time simulation of mobile wireless network, and integrated system management.

2002 – 2003, Zumwalt (DDG-100) Total Shipboard Computing Environment Infrastructure

Network Element and Infrastructure Security Element Lead

Led a team of network engineers to design an integrated data, voice, and image network, both wired and wireless, for the next generation surface combatant ships. Led a team of information security engineers to develop multilevel security and information protection mechanisms to ensure the network centric warfare system can support joint, coalition and special missions.

1999 — 2002, Engineering Fellow, Command, Control, Communication, and Intelligence Systems (C3IS) Business, Raytheon Company

Coordinated system engineering technology across the company. Coordinated and developed Raytheon Working Group to come up with a unified network centric warfare architecture where Raytheon products could interoperate. Developed technology directions for air defense command and control systems, air traffic management systems, military C3I systems, and next generation shipboard systems. Developed technology strategy in information management, multilevel security/protection, and computer network operations. Assisted NATO and Asian countries to develop operational concept for information operation and information assurance.

Developed information security solutions for next generation destroyer (DD21/DDX), Joint Maritime Command and Control Ship (JCCX), amphibious assault ship (LPD-17), Joint Strike Fighter (JSF), NATO next generation air defense system (ACCS), and FAA satellite-based navigation system (WAAS and LAAS). Solved technical issues included the single sign on, role based access control, protection of multilevel security during transit and at rest through the use of encryption, digital certificates, public key infrastructure, intrusion detection, firewall, and Defense Information Infrastructure Common Operating Environment security segments.

Trained and certified as Raytheon Six Sigma Expert and translated business strategy and roadmap into technology roadmap and specific projects.

Led C3S Business Unit in selecting strategic technology projects that can solve critical customer requirements. Led as one of the strategic technology project in developing anti-tampering techniques for software intensive products that potentially may be reverse engineered.

1997 — 1999, Sr. Principal Scientist, System Analysis and Algorithm, Raytheon Systems Company

Led information security working group across two Raytheon companies, four Raytheon Systems Company segments, and Corporate Chief Information Security Office. The members of the working group came from the Legacy Hughes, Raytheon, E-Systems, and TI business units. Presented fifteen information security demos that showed Raytheon's security products and capabilities to Congressmen and Senators, multiple Government departments and agencies, multiple DoD organizations and invited industry guests.

Developed and applied System Security Risk Assessment Methodology to three FAA programs – Standard Terminal Automation Replacement System (STARS), National Airspace System Infrastructure Management System (NIMS), and Wide Area Augmentation System (WAAS). Assessed threats, vulnerabilities, assets, attack scenarios, likelihood of attack, and risks. Developed protection profiles for functional and assurance requirements. Designed counter measures to eliminate, reduce, transfer, or accept the risks using commercial-off-the-shelf systems.

1994 — 1996, Sr. Scientist, Trusted Systems Engineering, Hughes Information Systems

Analyzed and designed a weighed Global Position System pseudorange error correction variance measurement algorithm for FAA's Wide Area Augmentation System (WAAS). Incorporated the analysis into the navigation signal augmentation for precision approaches for aircraft navigation.

Led Hughes Aircraft Company Information Warfare Technology Network make up from all segments of Hughes Aircraft Company. Met with DoD and other government customers before developing Hughes business and technology strategy to meet the emerging defensive and offensive information superiority challenges.

Analyzed the IEEE Scalable Coherent Interconnect for Real Time (SCI/RT) Systems for the next generation fighter (JSF) architecture. Developed a security model and the associated performance impact of the SCI/RT.

Acquired a $2M National Institute of Standards and Technology grant for building a community health information network (CHIN) medical enterprise system. Led seven engineering staff to perform front end system requirements definition and to incorporate security engineering and distributed processing capabilities into a commercial health information repository.

Developed and applied Hughes Information Systems Security Analysis Methodology to analyze a Hospital Information System. The methodology derived the information security needs as well as counter measures required to eliminate prioritized risks.

Participated in three standards organizations. Drafted requirements on Distributed Computing Environment, Public Key and Single Signon Working Groups of the Open Software Foundation Special Interest Group on Security. Wrote an issue paper for digital signature implementation issues. Was the Chair of Information Security Management Working Group of Computer-based Patient Record Institute leading professionals from ten organizations to produce a guideline document. Participated in producing Authentication Standards on Health Information Network Subcommittee of the American Society on Testing & Material.

Led a $4.6 million internal research program over 10 years to address computer and communication security needs. A commercial network security product, NetLOCK™, was derived from this

development in 1993. It adapted the security encapsulation protocol for the IP packets, SNMP version 2 for network management and Diffie Hellman for key exchanges over the TCP/IP network. Applied technology to various projects requiring security, integrity, access control, non-repudiation, authentication and cryptography services

- Scaleable cooperative network management system,
- Rule based access control mechanism,
- OSF DCE Generic Security Service API,
- Digital signature system
- Secure communication protocols (TCP/IP)

Led a capture team in 1994 to attain secure asynchronous transfer mode (ATM) network capability for multiple gigabit communication network.

Chaired and presented at Pipeline of Excellence Symposium, UCLA, 1995.

1989 — 1994, Scientist and Manager, System Design Department, Hughes Command and Control Systems Division

Supported three NSA study contracts to work with nine other contractors (Unisys, IBM, AT&T, Digital, Xerox, Wang, BBN, Motorola, Honeywell) to develop the specifications for secure protocol, key management protocol and mail security protocol. Developed prototype of security protocol at transport layer and key management protocol.

Supported trusted systems engineering activities for the F22 Common Integrated Processor development. Designed trusted startup, operation and shutdown process using SDIO Secure Development Methodology Level 3 trusted steps.

Received the Inventor of the Year Award from Hughes Systems Sector in 1992.

1987 — 1989, Supervisor, System Security Engineering, Hughes Command and Control Systems Division

Directed a $1 million Rome Air Development Center Research Contract (1986-1989) that generated the security policy, short term and long term architecture solutions for the SDI BM/C3 systems security requirements.

1985 — 1987, Systems Engineer, System Security Engineering, Hughes Command and Control Systems Division

Led a study team in analyzing the security design of an advanced air traffic control system.

1984 — 1985, Member of Technical Staff, The Aerospace Corporation

Participated on the NSA NCSC evaluation team assessing the security features of the CDC NOS operating system. Authored the NCSC guideline on discretionary access control, and contributed in

the development of Trusted Network Interpretation. Researched and analyzed paralleled processing performance issues of using multiprocessors on-board satellites.

1980 — 1984, Postgraduate Research Engineer, UCLA
Researched toward the PhD dissertation in the area of modeling and analysis of speed up in parallel processing.

1978 — 1981, Member of Technical Staff, Transaction Technology Inc., CITICORP
Designed the network layer functions of a communication network, a flow control algorithm, a congestion control mechanism, and a routing algorithm for CITICORP financial communication network.

1976 — 1978, Computer Programmer Analyst, MIS Project, System Development Corporation
Implemented personnel, fixed asset, and salary review subsystems in a management information system. Improved the processing speed of transactions by a factor of 10. Led a study to evaluate the test results of elementary students given by the Department of Health, Education and Welfare.

Affiliations:
IEEE, ACM, Computer Security Institute, American Society for Testing and Material, Computer-based Patient Record Institute
Tau Beta Pi, Phi Beta Kappa, Phi Eta Sigma

Lecturer at California State University, Fullerton, CA, 86- present
Adjunct Professor at Northrop University, Inglewood, CA, 82-86

Industry Liaison to Harvey Mudd College, California State University, Fullerton, and Stanford.

Board Member of Southern California Conference for Undergraduate Research (SCCUR).

Publications and Presentations:
"One Decade of Wide Area Augmentation System Lessons - How Would We Have Done It Differently, If Given Another Chance," Stanford Symposium on Position, Navigation, and Timing, 2011.

"National Command Center Cyber Security," Gulf Cooperation Council, 2011.

"Raytheon's Environmental Solutions, Technologies for Monitoring and Preserving our Environment," Raytheon Technology Today, Issue 2, 2011.

"Raytheon and the Environment -Technologies to understand, monitor and preserve", Issue Editor, Raytheon Technology Today, 2011.

"Raytheon's Integrated Energy Solutions - Applying technologies critical to national security", Contributing Issue Editor, Raytheon Technology Today, 2011.

"Information Systems Security Engineering," Raytheon Information Systems and Computing Symposium, 2009.

"Governance of Applying Architecture in Mission Systems Integration," Raytheon Processing and Software Engineering Symposium, 2008.

"NCS Architecture Review Board Methodology and Lessons," Raytheon Software Systems Symposium, 2007.

"Raytheon Reference Architectures," Systems Architecture Forum, Hoboken, NJ, 2007

"Establish Systems of Systems" and "Start with Flexible Architecture," Sections in Raytheon MSI Game Book, 2007.

"The Benefits of Multi-Level Security," Raytheon Technology Today, Issue 2, 2007.

"The Value Proposition for Reference Architectures," NetCentric Operation International Consortium, June 2007.

"Biometrics Standards in System Integration," Raytheon Systems Engineering Symposium, August 2007.

"NCS Architecture Review Board Methodology and Lessons," Raytheon 6th Software Engineering Symposium, March 2007.

"Applying TOGAF 8 Architecture Compliance Resource in Architecture Reviews," The Open Group Architecture Practitioners Conference, October 2006.

"Information Assurance Reference Architecture: A New Beginning," Raytheon Technology Today, Issue 1, 2006.

"How System and Software Engineering Supports Mission Assurance," Raytheon Technology Today, Issue 1, 2006.

"Network Centric Warfare," presentation given at California State University, Fullerton, 2005.

"Human Immunology as a Model for Cyber Defense," Raytheon Third Systems and Software Engineering Symposium, March 2004.

"Information Warfare Attack Against US Critical Information Infrastructure – Digital Pearl Harbor War Game," Raytheon 2nd Systems and Software Engineering Symposium, April 2003.

"Integrated Information Operations," Raytheon Processor Systems Symposium, June 2002.

"Computer Network Attack Model and Scenario," Raytheon 1st Systems and Software Engineering Symposium, March 2002.

“Computer Network Operation in Raytheon,” Raytheon Processor Systems Symposium, 2001.

“Information Management Technologies Initiative,” Raytheon Systems Engineering Symposium, November 2000.

“Network Security Issues and Risks in Critical Infrastructure of United States”**,** Raytheon 13th All-Raytheon Software Symposium, December 2-3, 1998.

"Secure End-to-end Network Communications for TCP/IP and ATM," Proceedings of Experts for Networks Symposium, UCLA, 1994.

"Configuration Management and Testing in Secure Networks," DoD Computer Security Center Invitational Workshop on Network Security, New Orleans, March 1986.

"Discretionary Access Control Guidelines,” Proceedings of IEEE Symposium on Security and Privacy, Oakland, 1985.

"Concurrency in Parallel Processing Systems," PhD Dissertation, UCLA, 1984.

Patents:
"Enhanced Call-back Mechanism", U.S. Patent #5280581, 1993
"Secure File Erasure", U.S. Patent #5265159, 1993.
"Single Logon Mechanism", U.S. Patent #5241594, 1993.
"Challenge-and-Response User Authentication Protocol", Canadian Patent #2,066,715, 1995.
“Method for Providing Mutual Authentication of a User”, U.S. Patent 5,434,918, 1995
"Distributed Authentication Algorithm", U.S. Patent #5,442,342, 1995.
"Secure Mobile Storage", U.S. Patent #5,442,706, 1995.
"Method of Protected Distribution of Keying and Certificate Material", U.S. Patent #5825300, 1998.
“Algebraic Calculation of Keys”, Trade Secret, 2005.
“Quantitative Method to Assess Architecture Maturity and Effectiveness Through Risk Analysis”, Trade Secret, 2009.

“Method for Synchronizing Electrical Phases Using Satellite Navigation Clocks”, Patent Pending, 2011.
“Method for Radomization of Reverse Engineering Protection Features”, Patent Pending, 2012.

Honors and Awards:
Special Service Recognition Award from Network Centric Systems Engineering Vice President, 2008.

Best Knowledge Sharing Award for Systems Engineering Technology Network, 2004.

Systems Sector Inventor of the Year Award, Hughes Aircraft Company, 1992.

Michael Shafae
Curriculum Vitae

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Fullerton, CA 92834-3302

michael@shafae.com
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Education

Ph.D.	2007	Information & Computer Science University of California, Irvine
M.S.	2002	Information & Computer Science University of California, Irvine
B.S.	1999	Computer Science University of California, Santa Cruz
B.A.	1999	Politics University of California, Santa Cruz

Research Interests

Parallel rendering, tiled displays, graphics clusters, level-of-detail rendering

Citizenship

United States of America

Dissertation Title

A General Cost Model for Sort-First Parallel Graphics Processing

Academic Experience

2007–present	Assistant Professor School of Engineering and Computer Science California State University, Fullerton
2006	Lecturer School of Information and Computer Science, U.C. Irvine
2001–2004	Teaching Assistant School of Information and Computer Science, U.C. Irvine
1999–2000	Teaching Assistant Department of Computer Science, Texas A&M University

Publications Review Preparation

Michael Shafae, Rachan Tananuchittikul, *Rigid Body Dynamics Using Hertz's Model and Granular Particles on the GPU*, Visual Computer.

Nam Ho, Michael Shafae, *Physically Based Real-Time Fluid Boiling Simulation*, Visual Computer

Florian Zitzelsberger, Michael Shafae, *Markerless Performance Capture of Hand Gestures*, ISAST Transactions on Computers and Intelligent Systems

Ashish Patel, Michael Shafae, *A Cake Cutting Approach to Rezoning School Districts*, ISAST Transactions on Computers and Intelligent Systems

Refereed Publications

Michael Shafae, Murtaza Virji, xtine burrough, *Your Neighbors' Biz: Measuring Trust Relationships in Online Cottage Industries*, ISAST Transactions on Computers and Intelligent Systems, Volume 2, No. 2 (2010) 77-86

Thomas Joy, Michael Shafae, *An Application of Motion Control and Motion Planning*, In Proceedings of International Conference of Computing in Engineering, Science and Information, 2009, Fullerton, CA.

Michael Shafae, *Large Displays for Collaborative Visualization*, In Proceedings of Thirty Seventh Annual Meeting of Western Decision Science Institute, 2008, San Diego, CA.

Xiaohong Bao, Renato Pajarola, Michael Shafae, *SMART: An Efficient Technique for Massive Terrain Visualization from Out-of-core*, In Proceedings of Vision, Modeling and Visualization, 2004, Stanford, CA.

Michael Shafae, Renato Pajarola. *DStrips: Dynamic Triangle Strips for Real-Time Mesh Simplification and Rendering.* In Proceedings of Pacific Graphics 2003, Canmore, Alberta, Canada.

Christopher Campbell, Michael Shafae, Suresh K. Lodha and D. Massaro. *Multimodal Visualization of Multidimensional Visible Speech Data.* In Proceedings of The International Community for Auditory Display 2003, Boston, MA.

Gloria Mark, Ulrik Christensen and Michael Shafae. *A Methodology Using a Microcamera for Studying Mobile IT Usage and Person Mobility*. Position paper for the Workshop: Mobile Communications: Understanding Users, Adoption, and Design at CHI 2001, Seattle, WA.

Posters & Other Refereed Publications

Christine Hanson, Michael Shafae. *Your Neighbors' Biz.* Talk and abstract at Futursonic 2008, Manchester, England.

Xiaohong Bao, Renato Pajarola, Michael Shafae. *Live Range Visibility Constraints for Adaptive Terrain Visualization.* Poster and abstract at IEEE Visualization 2004, Austin, TX.

Michael Shafae, Renato Pajarola. *DStrips: Dynamic Triangle Strips for Real-Time Mesh Simplification and Rendering.* Poster and abstract at IEEE Visualization 2003, Seattle, WA.

Michael Shafae, Renato Pajarola. *DStrips: Dynamic Triangle Strips for Real-Time Mesh Simplification and Rendering.* In Slides & Video Proceedings of Eurographics 2003, Granada, Spain.

Other Publications

Michael Shafae. *SIGGRAPH 2008 Reports.* Articles, interviews and photographs from SIGGRAPH 2008, Los Angeles, CA. http://reports.siggraph.org/s2008/

Michael Shafae. *SIGGRAPH 2007 Student Reports.* Articles, interviews and photographs from SIGGRAPH 2007, San Diego, CA. http://reports.siggraph.org/s2007/

Michael Shafae. *SIGGRAPH 2006 Student Reports.* Articles, interviews and photographs from SIGGRAPH 2006, Boston, MA. http://reports.siggraph.org/conference/2006/

Michael Shafae. *Associated Graduate Students Website.* Articles pertaining to graduate life at UC Irvine, Irvine, CA, USA. http://www.ags.uci.edu/

Michael Shafae. *SIGGRAPH 2005 Student Reports.* Articles, interviews and photographs from SIGGRAPH 2005, Los Angeles, CA. http://reports.siggraph.org/conference/2005/

Industry Experience

2007	University of California, Irvine–Network & Academic Computing Contractor
2007	Banzai Research, Inc., Irvine, CA Contractor
Summer 2000	Sun Labs, Mountain View, CA Intern
1998–1999	Sun Microsystems, Inc., Mountain View, CA

	Software Engineer
Summer 1998	Sun Microsystems, Inc., Mountain View, CA Intern
Summer 1997	Sun Microsystems, Inc., Mountain View, CA Intern
1996–1998	University of California Observatories–CCD Lab, Santa Cruz, CA

Service

2008–2012	Undergraduate Curriculum Committee, Academic Senate, CSU Fullerton
2007–2012	Faculty Advisor, CSU Fullerton Video Game Design Club
2007–2012	Instructional Resource Committee, Department of Computer Science, CSU Fullerton
2007–2012	Commencement Committee, Department of Computer Science, CSU Fullerton
2009–2011	Information Technology Committee, Academic Senate, CSU Fullerton
2007–2010	Library Committee, Department of Computer Science, CSU Fullerton
2009–2010	Undergraduate Curriculum Committee, Department of Computer Science, CSU Fullerton
2009	ICCEIS 2009 Computing/Engineering Applications Session Chair
2007-2008	Reporter, ACM SIGGRAPH Communications Committee
2007	Engineering Systems Management I Session Chair, Annual Meeting of WDSI
2007	Ad-hoc Course Topics Committee, Department of Computer Science, CSU Fullerton
2005–2006	Vice President of Financial Affairs and Council Representative, The Associated Graduate Students of U.C. Irvine
2005–2006	Graduate Student Representative, U.C. Irvine Student Center Board
2005–2006	Webmaster and System Administrator, The Associated Graduate Students of U.C. Irvine
2005–2006	Student reporter, SIGGRAPH Reports
2004–2006	Steward, District 3, UAW, Local 2865

2004–2006	Business & Social Committee, The Associated Graduate Students of U.C. Irvine
2004–2005	Vice President of Administrative Affairs and Council Representative, The Associated Graduate Students of U.C. Irvine
2004	Science Fair Judge, Center for Educational Partnerships, U.C. Irvine
2003–2005	Student volunteer, IEEE Visualization Conference
2003–2004	Webmaster and System Administrator, The Associated Graduate Students of U.C. Irvine
2001–2006	Student Employee Organizer, UAW, Local 2865
2001–2005	Volunteer, School of Biological Science Outreach Programs Office *Ask a Scientist* Events
2000–2001	KUCI, public radio station

Honors, Awards and Grants

2011	EPOCHS Phase II Grant
2010	EPOCHS Phase I Grant
2010	Accessible Technology Initiative Grant
2009	Intramural Jr./Sr. Research Grant
2008	Probationary Faculty Stipend
2007	Donald Bren School of ICS Distinguished Student Award
2007	Paul Butterworth Student Award, $4,000 (with Pablo Diaz Gutierrez)
2007	2nd place h.ITEC Entrepreneurship Competition, $2,500 (with Pablo Diaz Gutierrez)
2005–2006	Graduate Assistance in Areas of National Need Fellowship (GAANN)
2004–2005	GAANN Fellowship
2003–2004	GAANN Fellowship
2002–2003	GAANN Fellowship
2000–2001	GAANN Fellowship

Technical Skills

OS: Mac OS X, FreeBSD, Linux, Solaris, Irix, Microsoft Windows

Languages: C, Objective-C, C++, Perl, Python, Java, PHP

APIs: OpenGL, Cocoa, UNIX/POSIX, X11

3D Software: Blender, Alias-Wavefront

Miscellaneous: Zope, Plone, MySQL, PostgreSQL, BIND, Sendmail, Apache, NFS, Mailman, Spam Assassin, LaTeX

Professional Affiliation

Association for Computing Machinery
ACM SIGGRAPH
ACM SIGGRAPH Los Angeles Chapter
IEEE OC Game SIG

Curriculum Vitae

Christopher T. Ryu
Professor
Department of Computer Science
California State University, Fullerton
800 N. State College Blvd., P.O. Box 6870
Fullerton, CA 92834
Email: tryu@fullerton.edu Phone: (657) 278-7231 Fax: (657) 278-7168

Education
Ph.D., Computer Science, University of Houston, 1998.
B.S., Computer Science, Inha University, 1986.

Research Interests
Data mining, Database, Internet computing, Machine learning, Evolutionary Computation, Computational Finance

Professional Experience
- Professor, Department of Computer Science, California State University, Fullerton, 2010 – present.
- Associate Professor, Department of Computer Science, California State University, Fullerton, 2005 – 2009.
- Assistant Professor, Department of Computer Science, California State University, Fullerton, August 1999 – 2004.
- Software engineer, participated in an oil and gas utility management system, EDS and Volts Group, Houston, TX, 1997 ~ 1999.

Grants
- T.W. Ryu; A Web-based Telecommunications Link and Orbital Analysis, Simulation, and Operation; $200,863; NASA-Jet Propulsion Laboratory; since 2002 ~ 2009.
- T.W. Ryu (co-PI) with M. Tolmasky, K. Kantardjeff, A. Cohen, D. Eernisse; Decontamination of affected areas after a bio-terrorist attack; $24,000; University Mission & Goals; 2003.
- T.W. Ryu (Consultant) with Joyce K. Ono, Judith Kandel, Merri Lynn Casem, and William J. Hoese; Development of Faculty Collaboratives to Assess Achievement of Student Learning Outcomes in Critical Thinking in Biology Core Courses; $444,005; NSF; 6/1/2002 ~ 5/31/2005.
- T.W. Ryu (co-PI) with H. Chung; Developing Performance Model and Adaptive Control Components for Brushless DC Motor based on Computer Simulation and Intelligent Learning Approaches; $139,111; UMC; 1/1/2001 ~ 12/31/2002.
- T.W. Ryu; A Web-based Information Management System; $19,240; FMC; 8/1/2001 ~ 1/1/2002.
- T.W. Ryu; Data Model and User Interface for ASSIST Scheduling Module Engine; $9,800. Lockheed Martin Missiles & Space; 1/1/2000 ~ 12/20/2000.
- T.W. Ryu; Natural-Language Understanding Database Query Interface System; $5,000; CSU Program for Research, Scholarship, and Creative Activity, 2000.

Selected Conference and Journal Publications
- H. Kimm, N. Sherpa, C. Ryu, “Implementation of a Multi-level Secure Database on Security Enhanced Linux: SELinux PostgreSQL,”, International Workshop on Information Security Applications, Jeju, Korea, 2012.
- Y. Park, D. Seo, J. Yun, C. Ryu, J. Kim, J. Yoo, “An Efficient data-centric storage method using time parameter for sensor networks”, Information Sciences 18, p. 4806-4817, Elsevier, 2010.

- C. Ryu, Y. Park, D. Seo, J. Yun, J. Yoo, “Distributed Broadcast Scheme using Wireless Sensor Networks in Road Network Environments,” ICCC 2010, Seoul, 2010.
- C. Ryu, “Benchmarking of BioPerl, Perl, BioJava, Java, BioPython, and Python for Primitive Bioinformatics Tasks and Choosing a Suitable Language”, International Journal of Contents, Vol.5, No. 2, pp. 6-15, 2009.
- C. Ryu, J.S. Yoo, and M. Bickel, An Efficient Clustering Algorithm based on Sorting and Binary Splitting, in the Proc. of the International Conference on Data Mining, 2009, Las Vegas.
- B. Covington and C. Ryu, Financial Time-Series Forecasting Using Multiple Regression Supported by Sector Dynamics and Moving Average Smoothing, in the Proc. of the International Conference on Data Mining, 2008, Las Vegas.
- F. Rafati-Chamachar, and T.W. Ryu, A Distributed Blackboard Real-time DBMS, in the Proc. of the International Conference on Knowledge Engineering, 2008.
- H.J. Kim, T.W. Ryu, J. Lee, and H.S. Yang, Face Detection using an Adaptive Skin-Color Filter and FMM Neural Networks, Lecture Notes in CS 2006.
- H.J. Kim and T.W. Ryu, Time Series Prediction Using an Interval Arithmetic FIR Network, Neural Information Processing Letters and Reviews, 2005.
- T.W. Ryu and Christoph F. Eick. “A Database Clustering Methodology and Tool”, Information Sciences, An International Journal, Elsevier, 2005.
- T.W. Ryu “A Common Characteristic Knowledge Discovery System in Distributed Computing Environment”, International Journal of Artificial Intelligence and Tools, World Scientific Publishing, 2004.
- H.J. Kim, T.W. Ryu, T. Nguyen, J.S. Lim, and S. Gupta. “A Weighted Fuzzy Min-Max Neural Network for Pattern Classification and Feature Extraction”, Lecture Notes in Computer Science (LNCS), Springer-Verlag, Antonio Lagana et al. (Eds), LNCS 3046, pp. 791-798, 2004.
- S. Yoo, H.S Choi, and T.W. Ryu, “Performance Evaluation of Cache Conscious Multi-Dimensional Index Structures”, in the Proc. Of the International Conference on Information and Knowledge Engineering, 2004.
- H.J. Kim, T.W. Ryu, H.S. Yang “Two-Stage Image Segmentation using Modular Neural Networks” in the Proc. of the International Conference on Artificial Intelligence, 2003.
- H. Chung and T. W. Ryu “A new two dimensional FFT algorithm without transpose operation” in the Proc. of the International Conference on Parallel and Distributed Processing Techniques and Applications, 2001.
- H.L. Kimm and T.W. Ryu “A Framework for Distributed Knowledge Discovery System over Heterogeneous Networks using CORBA” In the Proc. of the ACM SIGKDD Workshop on Distributed and Parallel Knowledge Discovery, Kluwer Press, 2000.
- T.W. Ryu and C.F. Eick, “Deriving Queries using Genetic Programming,” in the Proc. of the International Conference on Knowledge Discovery and Data Mining (KDD'96), Portland, Oregon, 1996.
- T.W. Ryu and C.F. Eick, “MASSON: Discovering Commonalities in Collection of Objects using Genetic Programming,” Proc. of the 1st Genetic Programming Conference (GP'96), San Francisco, California, 1996.

Awards

- Outstanding teacher and scholar award; California State University, Fullerton, 2007.
- Invited presentation and travel award ($1,000.00); the conference on Automated Learning and Discovery (CONALD’98) sponsored by Carnegie Mellon University, June 1998.
- Invited presentation and travel award ($1,000.00); the First Genetic Programming Conference (GP’96) sponsored by Stanford University, 1996.

Professional Activities

- Program committee for RFD database conference, 2012
- Reviewer of Biomedcentral, 2012
- Reviewer of IEEE man, cybernetics, 2012
- An editor of ICCC journal since 2009
- Reviewer for the IEEE transactions on Education, 2010
- A reviewer for the journal of supercomputing, 2006
- A reviewer for the journal of Data and Knowledge Engineering, 2006
- A reviewer for the IEEE transaction on education 2005~2006
- A reviewer for the CSUPERB grant, 2005
- A board member for the International Journal of Internet Technology and Secure Transactions, 2005.
- A reviewer for the IEEE transactions on Man, Cybernetics - Part B, 2005
- A reviewer for the International Journal of Data & Knowledge Engineering, 2005
- A reviewer for the Bioinformatics Journal, 2004
- A reviewer of the journal, "Bioinformatics", International Society for Computational Biology (ISCB), 2004.
- A reviewer for several books 2003~2006
- A program committee member for the International Conference on Artificial Intelligence (2001 – 2003)
- A reviewer for 3rd International Conference on Advances in Web-Age Information Management, 2002
- A reviewer for the international conference Smart Engineering System Design: Neural networks, Fuzzy logic, Evolutionary programming, Complex systems, and Data mining, 2001.

SHAWN XIONG WANG - Curriculum Vitae

a.k.a XIONG WANG (name changed on Aug 28, 2009)

Ph.D., Professor, U.S. Citizen
March 20, 2013

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Department of Computer Science
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Education

Ph.D., Computer and Information Science, New Jersey Institute of Technology, Jan. 2000.
Dissertation: *Information Retrieval and Mining in High Dimensional Databases.*
M.S., Computer Science, Fudan University, China, 1989.
Thesis: *Query Optimization in Knowledge Base Systems.*
B.S., Mathematics, Xiamen University, China, 1982.

Professional Memberships

Association for Computing Machinery (ACM)
ACM Special Interest Group on Management of Data (SIGMOD)
IEEE Computer Society

Employment History

- Aug. 2011 - present, Professor of Computer Science, California State University, Fullerton.
- Aug. 2005 - Aug. 2011, Associate Professor of Computer Science, California State University, Fullerton.
- Aug. 2000 - Aug. 2005, Assistant Professor of Computer Science, California State University, Fullerton.
- Aug. 1999 - May 2000, Special Lecturer of Computer Science, New Jersey Institute of Technology.
- Aug. 1989 - May 1995, Lecturer of Computer Science, Fudan University, China.
- Aug. 1987 - May 1989, Instructor of Computer Science, Fudan University, China.
- Aug. 1982 - May 1985, Instructor of Mathematics, Liaoning Technical University, China.

Monograph

- Xiong Wang, *Information Retrieval and Mining in High Dimensional Databases*, ISBN 0-599-63177-5, 160 pages, ProQuest Digital Dissertations, 2000.

Book Chapters

- Shawn X Wang, Mining Protein 3D Structures, in *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, Witold Pedrycz, Editor in Chief. Invited submission. Under review. 2010.
- Xiong Wang, Data Management in Three-Dimensional Structures, in *Encyclopedia of Data Warehousing and Mining*, John Wang, editor, ISBN 1-591-40557-2, Idea Group Publishing, 2005.
- Xiong Wang and Jason T.L. Wang, Chapter 7. Protein Classification: A Geometric Hashing Approach, in *Computational Biology and Genome Informatics*, J.T.L. Wang, *et al.*,editors, ISBN 9-812-38257-7, World Scientific Publishing Company, 2003.
- Xiong Wang, Chapter 7 & 8 of *Database Theory and New Areas*, Baile Shi, *et al.*,editors, ISBN 7-040-03135-3, Higher Education Publishing House, China, 1990. (*Won 2nd Award of best book of the year, issued by the Educational Commission of China.*)

Referred Journal Articles

- Shawn Wang, Susamma Barua, Kunal Desai, and Swaroop Deshmukh, "GeoTNavi - smart navigation using geo-temporal traffic information," *International Journal of Data Mining, Modelling and Management*, Volume 5, Number 1, pp. 20 - 36, 2013.
- Junilda Spirollari, Shawn Xiong Wang, and Jason T.L. Wang, "Using folding ensemble and stem probability maximization to predict H-type pseudoknots," *Tsinghua Science and Technology*, Vollume 17 Number 6, pp. 691 - 700, 2012.
- Xiong Wang, "ER Modelling - A Zoom in and Zoom out Approach," *International Journal of Data Mining, Modelling, and Management*, Volume 1, Number 4, pp. 357 - 374, 2009.
- Jason T.L. Wang, Xiong Wang, Dennis Shasha, and Kaizhong Zhang, "MetricMap: An Embedding Technique for Processing Distance-Based Queries in Metric Spaces," *IEEE Transactions on Systems, Man, and Cybernetics - Part B: Cybernetics*, Volume 35, Number 5, pp. 973 - 987, 2005.
- Xiong Wang, "Finding Patterns on Protein Surfaces: Algorithms and Applications to Protein Classification," *IEEE Transactions on Knowledge and Data Engineering*, Volume 17, Number 8, pp. 1065 - 1078, 2005.
- Xiong Wang, Jason T.L. Wang, Dennis Shasha, Bruce Shapiro, Isidore Rigoutsos, and Kaizhong Zhang, "Finding Patterns in Three Dimensional Graphs: Algorithms and Applications to Scientific Data Mining," *IEEE Transaction on Knowledge and Data Engineering*, Volume 14, Number 4, pages 731 - 749, 2002.

- Xiong Wang, Jason T.L. Wang, King-Ip Lin, Dennis Shasha, Bruce A. Shapiro, and Kaizhong Zhang, "An Index Structure for Data Mining and Clustering," *Knowledge and Information Systems: An International Journal*, Volume 2, Issue 2, pages 161 - 184, 2000.

- Xiong Wang and Jason T.L. Wang, "Fast Similarity Search in Three-Dimensional Structure Databases," *The Journal of Chemical Information and Computer Sciences*, Volume 40, Issue 2, pages 442 - 451, 2000.

Referred Conference Papers

- Junilda Spirollari, Jason T.L. Wang, and Shawn Xiong Wang, "A New Approach to RNA Pseudoknot Prediction," *Proc. of the 4th International Conference on Bioinformatics and Computational Biology*, March 2012, Las Vegas, Nevada, USA.

- Syed Raza Ali Rizvi and Shawn Xiong Wang, "Using semantic and structural similarities for indexing and searching scientific papers," *The Proc. of 10th 2011 IEEE International Conference on Computer Science and Automation Engineering*, June 2011, Shanghai, China.

- Syed Raza Ali Rizvi and Shawn X Wang, "DT-Tree: A Semantic Representation of Scientific Papers," *Proc. of 10th IEEE International Conference on Computer and Information Technology*, June 2010, Bradford, UK.

- Justin Lee and Xiong Wang, "Pair-wise Sequence Analysis using Information Specific Algorithm," *The Proc. of 6th IEEE International Conference on Computer and Information Technology*, September 2006, Seoul, Korea.

- Daniel K. Park and Xiong Wang, "Toward a General Framework for Microarray Data Comparison," *The Proc. of 6th IEEE International Conference on Computer and Information Technology*, September 2006, Seoul, Korea.

- Ventzislav Tzvetkov and Xiong Wang, "DBXML - Connecting XML with Relational Databases," *Proc. of 5th IEEE International Conference on Computer and Information Technology*, pages 130 - 135, September 2005, Shanghai, China.

- Yongming Tang, Xiong Wang, and Murat M. Tanik, "Formalizing UML Activity Diagrams Using Concurrent Regular Expressions," *Proc. of 8th International Conference on Integrated Design and Process Technology*, pages 319 - 330, June 2005, Beijing, China.

- Xiong Wang, Yongming Tang, and Bita Behnam, "Component-Based Software Integration Using Colored Petri Net," *Proc. of 8th International Conference on Integrated Design and Process Technology*, pages 520 - 525, June 2005, Beijing, China.

- Sheng-Ti Li and Xiong Wang, "Ad Hoc Network Security with Geographical Aids," *Proc. of the 2004 IEEE International Conference on Networking, Sensing, and Control*, pages 474 - 479, March 2004, Taipei, Taiwan.

- Sheng-Ti Li and Xiong Wang, "Enhanced Security Design for Threshold Cryptography in Ad Hoc Network," *Proc. of the International Conference on Next Generation Teletraffic and Wired/Wireless Advanced Networking*, pages 27 - 31, February 2004, St. Petersburg, Russia.

- Sheng-Ti Li and Xiong Wang, "A Performance Analysis of Securing Heterogeneous Mobile Ad Hoc Network," *Proc. of the 2003 OPNETWORK: The Conference on Intelligent Network*, August 2003, Washington D.C.

- Xiong Wang, "ΔB^+ Tree: Indexing 3D Point Sets for Pattern Discovery," *Proc. of the 2002 IEEE International Conference on Data Mining*, pages 701 - 704, December 2002, Maebashi, Japan.

- Xiong Wang, "α - Surface and Its Application to Mining Protein Data," *Proc. of the 2001 IEEE International Conference on Data Mining*, pages 659 - 662, November 2001, San Jose, California.

- Xiong Wang, "Mining Protein Surfaces," *2001 ACM SIGMOD Workshop on Research issues in Data Mining and Knowledge Discovery*, pages 20 - 24, May 2001, Santa Barbara, California.

- Xiong Wang and Jason T.L. Wang, "Analyzing Protein Surface for Classification: A Geometric Hashing Approach," *Proc. of Atlantic Symposium on Computational Biology, Genome Information Systems & Technology*, pages 31 - 34, March 2001, Durham, North Carolina.

- Jason T. L. Wang, Xiong Wang, Dennis Shasha, Bruce A. Shapiro, Kaizhong Zhang, Qicheng Ma, and Zasha Weinberg, "An Approximate Search Engine for Structural Databases," *Proc. of the 2000 ACM SIGMOD International Conference on Management of Data*, page 584, May 2000, Dallas, Texas.

- Jason T.L. Wang, Xiong Wang, King-Ip Lin, Dennis Shasha, Bruce A. Shapiro, and Kaizhong Zhang, "Evaluating A Class of Distance-Mapping Algorithms for Data Mining and Clustering," *Proc. of the 5th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pages 307 – 311, August 1999, San Diego, California, U.S.A.

- Xiong Wang and Jason T. L. Wang, "Fast Similarity Search in Databases of 3D Objects," *Proc. of the 10th IEEE International Conference on Tools with Artificial Intelligence*, pages 16 – 23, November 1998, Taipei, Taiwan.

- Yanling Yang, Kaizhong Zhang, Xiong Wang, Jason T.L. Wang and Dennis Shasha, "An Approximate Oracle for Distance in Metric Spaces," In M. Farach-Colton, editor, *Combinatorial Pattern Matching*, pages 104 – 117, Lecture Notes in Computer Science, Springer-Verlag, 1998.

- Xiong Wang, Jason T.L. Wang, Dennis Shasha, Bruce Shapiro, Sitaram Dikshitulu, Isidore Rigoutsos and Kaizhong Zhang, "Automated Discovery of Active Motifs in Three Dimensional Molecules," *Proc. of the Third International Conference on*

Knowledge Discovery and Data Mining, pages 89 – 95, August 1997, Newport Beach, California.

- Xiong Wang and Jason T.L. Wang, "Approximate Substructure Search in a Database of 3D Graphs," *Proc. of the Third Joint Conference on Information Sciences*, pages 12 – 15, March 1997, Research Triangle Park, North Carolina.
- Xiong Wang and Baile Shi, "Query Optimization in a Knowledge Base System," *Proc. of the Second Far-East Workshop on Future Database Systems*, pages 327 – 330, April 1992, Kyoto, Japan.
- Xiong Wang, "Query Optimization in Knowledge Base Systems," *Proc. of the 8th National Conference on Databases*, pages 348 - 355, Xiamen, China, Sept. 1989. (in Chinese)

Presentations

- "A New Approach to RNA Pseudoknot Prediction," at *The 4th International Conference on Bioinformatics and Computational Biology*, Las Vegas, Nevada, March 2012.
- "DBXML - Connecting XML with Relational Databases," at *The 5th International Conference on Computer and Information Technology*, Shanghai, China, September 2005.
- "Pattern Discovery in Protein Three-Dimensional Structures," Panel presentation at *The 2002 International Conference on Web-Age Information Management*, Beijing, China, August 2002.
- "α - Surface and Its Application to Mining Protein Data," at *The 2001 IEEE International Conference on Data Mining*, San Jose, California, November 2001.
- "Discovering Frequently Occurring Patterns in Database of 3D Graphs," Invited talk in a research group of the Computer Science Department at the University of California at Santa Barbara, June 2001.
- "Mining Protein Surfaces," at *The 2001 ACM SIGMOD Workshop on Research issues in Data Mining and Knowledge Discovery*, Santa Barbara, California, May 2001.
- "Analyzing Protein Surface for Classification: A Geometric Hashing Approach," at *The Atlantic Symposium on Computational Biology, Genome Information Systems & Technology*, Duke University, Durham, North Carolina, March 2001.
- "An Approximate Oracle for Distance in Metric Spaces", at *The 9th Annual Symposium on Combinatorial Pattern Matching*, Rutgers University, Piscataway, New Jersey, July 1998.

Professional Services

- Expert reviewer for the Georgia National Science Foundation, 2008 and 2009.
- Panelist for an NSF Grant Merit Review Panel, 2008.

- Reviewer for the following journals and magazines:

  International Journal of Computational Bioscience, by ACTA Press/IASTED.
  International Journal of Computational Science and Engineering, by Inderscience Publishers
  IEEE IT Professional
  IEEE Transactions on Education
  The EURASIP Journal on Wireless Communications and Networking, by Hindawi Publishing
  International Journal of Data Mining and Bioinformatics, by Inderscience Publishers
  Computer Networks, by Elsevier.
  IEEE Intelligent Systems, by IEEE Computer Society.
  IEEE Transactions on Knowledge and Data Engineering, by IEEE Computer Society.
  The International Journal of Computational Intelligence and Applications, by World Scientific.
  Journal of Information Science and Engineering, by Academia Sinica.
  Bioinformatics, by Oxford University Press.
  Information Systems, by Elsevier Science.
  Knowledge and Information Systems, by Springer-Verlag.
  Information Sciences, by Elsevier Science.
  Journal of Systems Integration, by Kluwer academic publishers.

- Program committee member of The IEEE 12th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom-2013)

- Program committee member of The IEEE 11th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom-2012)

- Program committee member of The IEEE 11th International Conference on Computer and Information Technology (CIT'11)

- Program committee member of The 4th International Conference on Complex, Intelligent and Software Intensive Systems (CISIS'10)

- Program committee member of The 10th IEEE International Conference on Computer and Information Technology, (CIT'10)

- Program committee member of The 9th IEEE International Conference on Computer and Information Technology, (CIT'09)

- Special Track Chair of The 3rd IEEE International Workshop on Biomedical Ontologies and Literature Mining (BIOLM'08)

- North America area chair and program committee member of The 8th IEEE International Conference on Computer and Information Technology, (CIT'08)

- Program committee member of *The 7th IEEE International Conference on Computer and Information Technology*, (CIT'07).
- Reviewer for *The 2006 International Conference on Knowledge Discovery and Data Mining* (KDD'06).
- Program committee member of *The 6th IEEE International Conference on Computer and Information Technology* (CIT'06).
- Reviewer for *The 2006 International Conference on Semantics of a Networked World* (ICSNW'06).
- Reviewer for *The 9th Pacific-Asia Conference on Knowledge Discovery and Data Mining* (PAKDD'05).
- Reviewer for *The 2005 IEEE International Conference on Data Mining* (ICDM'05).
- Program committee member and session chair of *The 5th International Conference on Computer and Information Technology*, 2005.
- Reviewer for *The 2004 SIAM International Conference on Data Mining.*
- Reviewer for *The 20th IEEE International Conference on Data Engineering* (ICDE'04).
- Program committee member of *the 4th International Conference on Web-Age Information Management* (WAIM'03).
- Reviewer for *The 11th International Conference on Intelligent Systems for Molecular Biology* (ISMB'03).
- Publicity Chair, session chair, and program committee member of *The 3rd International Conference on Web-Age Information Management* (WAIM'02).
- Program committee member of *The 4th International Conference on Computational Biology and Genome Informatics* (CBGI'02).
- Reviewer for *The 2001 IEEE International Conference on Data Mining* (ICDM'01).
- Reviewer for *The 2nd International Conference on Web-Age Information Management* (WAIM'01).
- Publicity Chair and session chair of *The Atlantic Symposium on Computational Biology, Genome Information Systems & Technology* (CBGI'01).
- Reviewer for *The 8th ACM International Conference on Information and Knowledge Management* (CIKM'99).
- Reviewer for *The 10th International Conference on Software Engineering and Knowledge Engineering* (SEKE'98).
- Reviewer for *The 7th ACM International Conference on Information and Knowledge Management* (CIKM'98).

- Reviewer for *The 4th Joint Conference on Information Sciences* (JCIS'98).

Committee Services

- Faculty Research Committee, Fall 2011 - 2013
- Professional Leave Committee, 2008 - 2011
- Graduate Education Committee, 2007 - 2011
- 2004 - present, President's Scholars Screening Committee
- Advisory Board on Green Data Center (University Extended Education): Spring 2009 - present
- Curriculum Committee (ECS College): Spring 2005 - Fall 2011
- Chair of Computer Science Department: Fall 2012 - present
- Vice Chair of Computer Science Department: Fall 2009 - Spring 2012
- Department Executive Committee: Fall 2006 - Spring 2007, Fall 2009 - Spring 2010.
- Department Personnel Committee: Fall 2006 - Spring 2009.
- Undergraduate Program Adviser: Fall 2007 - Spring 2010
- Graduate Program Adviser: Fall 2003 - Spring 2007
- Instructional Resources Committee: Fall 2003 - Spring 2006
- Commencement Committee: Fall 2003 - Spring 2004
- Undergraduate Committee: Fall 2002 - Spring 2005
- ACM Student Chapter Adviser: Fall 2002 - Spring 2003
- Instructional Resources Committee: Fall 2001 - Spring 2002
- Advisory Board on Bioinformatics (University Extended Education): Spring 2001 - present
- Graduate Committee: Fall 2000 - Spring 2002
- Curriculum Committee (ECS College): Fall 2000 - Spring 2002
- Commencement Committee: Fall 2000 - Spring 2001

Grants

- CSU Special Fund for Research, Scholarship, and Creative Activity, 2010
- Dean sponsored project Multi-Functional Data Center, 2006 - 2007

- CSUPERB Faculty Travel Grant, Fall 2006
- International Travel Grant, Fall 2006
- International Travel Grant, Fall 2005
- Department of Energy (NASULGC) Travel Award, Summer 2004
- Undergraduate/Faculty Creativity Grant, Fall 2003
- Untenured Faculty Support Grant, Spring 2002
- Summer Stipend Award, Summer 2002
- International Travel Grant, Summer 2002
- CSUPERB Faculty Travel Grant, Summer 2002

Awards and Honors

- Certificate for Contribution to Globalization, June 2011.
- Outstanding Faculty Recognition: Scholarly and Creative Activity, April 2010.
- Outstanding Faculty Recognition in the category of sponsoring student research and creative activities, April 2008.
- Outstanding Service to the University, 2005 - 2006.
- Listed in Marquis Who's Who in America, 63rd Edition, 2009.
- Listed in Marquis Who's Who in the World, 25th Edition, 2008.
- Listed in Marquis Who's Who in Science and Engineering, 9th Edition, 2006.
- Early promotion to Associate Professor in August 2005.
- Outstanding Faculty Adviser, 2003 - 2004.
- Profile featured in The Daily Titan, Volume 76, Issue 5, February 27, 2003.
- Member of AEL, the Honor Society of Graduate & Professional School Students, since July 1998.
- NJIT Faculty Assistantship, 1995 - 1999.
- Research Assistantship from NSF grants, every summer, 1996 - 1999.
- 1993 MOTOROLA award in Fudan University, issued by Motorola China Company and Fudan University.
- 2nd award of 1992 for contribution to the advancement of science and technology in Shanghai, issued by Shanghai municipality.

Kevin A. Wortman

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Education

University of California, Irvine, Ph.D., Information and Computer Science, 2009
Advisor: David Eppstein

University of California, Irvine, M.S., Information and Computer Science, 2004
Concentration: Algorithms and Data Structures

University of Massachusetts, Amherst, B.S., *cum laude*, 2002.
Majors: Computer Science, Mathematics

Academic Employment

Assistant Professor, Department of Computer Science, CSU Fullerton, September 2009 to present

Research Assistant, Department of Computer Science, UC Irvine, under David Eppstein, Fall 2008

Teaching Assistant, Donald Bren School of Information and Computer Sciences, UC Irvine, 2003 - 2005

Summer Research Staff, MIT Lincoln Laboratory, Lexington, Massachusetts, summer 2002

Undergraduate Research Assistant, Laboratory for Advanced Software Engineering Research, Amherst, Massachusetts, June 2000 to December 2001

Industry Employment

Engineering Co-Op, Unisys, Mission Viejo, California, July 2008 to August 2009

Engineering Intern, Google, Mountain View, California, June to August 2005; January 2006 to August 2007

Intern, Tektronix, Chelmsford, Massachusetts, summers of 1997, 1998, and 1999

Publications

Invited, Peer Reviewed Journal Articles

I-1. J. Augustine, D. Eppstein and K. A. Wortman, *Approximate Weighted Farthest Neighbors and Minimum Dilation Stars,* Discrete Mathematics, Algorithms and Applications (DMAA), v. 2, i. 4, pp. 553-565, DOI: 10.1142/S1793830910000887 2010, 2010. Preliminary version listed as C-2.

I-2. D. Eppstein and K. A. Wortman, *Minimum Dilation Stars,* Computational Geometry: Theory and Applications, v. 37, i. 1, pp. 27-37, 2007. Preliminary version listed as C-5.

Journal Articles

J-1. D. Eppstein and K. A. Wortman, *Optimal Angular Resolution for Face-Symmetric Drawings*, J. Graph Algorithms and Applications (JGAA), 15(4):551-564, 2011.

Peer Reviewed Conference Proceedings

C-1. J. M. White and K. A. Wortman, *Divide-and-Conquer 3D Convex Hulls on the GPU,* 24th Canadian Conference on Computational Geometry (CCCG 2012), Prince Edward Island, Canada, 2012, pp. 137-142.

C-2. J. Clay and K. A. Wortman, *A Durable Flash Memory Search Tree,* 3rd International Conference on Computational Sustainability (CompSust'12), Copenhagen, Denmark.

C-3. J. Augustine, D. Eppstein and K. A. Wortman, *Approximate Weighted Farthest Neighbors and Minimum Dilation Stars*, 16th International Computing and Combinatorics Conference (COCOON 2010), Nha Trang, Vietnam. Final version listed as I-1.

C-4. M. Dickerson, D. Eppstein and K. A. Wortman, *Dilation, Smoothed Distance, and Minimization Diagrams of Convex Functions,* 7th Int. Symp. Voronoi Diagrams in Science and Engineering (ISVD 2010), Quebec City, Canada, pp. 13-22.

C-5. D. Eppstein and K.A. Wortman, *Optimal embedding into star metrics,* Algorithms and Data Structures Symposium (WADS), Banff, Canada (best paper award). Lecture Notes in Comp. Sci. 5664, 2009, pp. 290-301.

C-6. D. Eppstein and K.A. Wortman, *Minimum Dilation Stars,* ACM Symposium on Computational Geometry (SoCG), Pisa, Italy pp. 321-326, 2005. Final version listed as I-2.

Teaching

Courses Taught — CSU Fullerton

- Intro. to Programming (CPSC 120): Fall 2009 (2 sections), Spring 2010, Fall 2010 (3 sections), Spring 2011, Fall 2011 (3 sections), Spring 2012, Fall 2012 (4 sections)
- Unix and Open Source Software (CPSC 254): Spring 2010, Spring 2011
- Problem Solving Strategies (CPSC 335): Fall 2009, Spring 2010, Summer 2010, Spring 2011 (2 sections), Summer 2011, Spring 2012 (2 sections), Summer 2012
- Data Security and Encryption (CPSC 433): Summer 2012
- Formal Language & Automata Theory (CPSC 491T): Spring 2012
- Graduate Project (CPSC 597): Fall 2011

Courses Proposed

- Python Programming (CPSC 223P), co-proposer, offered Fall 2012
- Formal Language & Automata Theory (CPSC 491T), offered Spring 2012

Teaching Assistant Experience — UC Irvine

- Honors Intro. to CS I (H21): Fall 2005
- Honors Intro. to CS II (H22): Winter 2004
- Honors Intro. to CS III (H23): Winter 2003, Spring 2004
- Engineering Data Structures (160E): Spring 2003
- Formal Languages and Automata (162): Fall 2003

Advising

Masters Theses Advised

- Brian Croner, *Offline Intelligent Lossless Compression of Hyperlinked Documents*, Spring 2012
- James Clay, *An Efficient Multi-Level Flash Data Structure,* Fall 2011
- Mihai Marinescu, *Wear-Resistant Flash Hash Tables,* Fall 2011
- David Luu, *Numerical Methods in Prime Factorization: To Find or not to Find a Prime,* Summer 2010

Masters Projects Advised

- Brenda Griffith, *A Developers Checklist for White Box Testing: A Human Factors Perspective,* Spring 2012
- Alejandro Alvarenga, *Design and Implementation of a Secure Role Access Control Web Based Healthcare Credentialing Tracking System for the Cal State Fullerton Health Center,* Fall 2011
- Aseel Ashoor, *C++ Parallel Skip List Implementation,* Fall 2011
- Brian Badal, *Automated Data Extraction From Remote Database,* Fall 2011
- Arunkumar Chandrasekaran, *Implement a Dynamic Programming Algorithm for Matrix Chain Multiplication Using MapReduce,* Fall 2011
- Dena Fitzgerald, *Baby Record iPhone Application,* Fall 2011
- Christa McCarthy, *Neural Networks as a Blog Comment Spam Filter,* Fall 2011
- Jaydeep Patel, *Hybrid Classifier: A Clustered Decision Tree,* Fall 2011
- Bhavana Sudharshan, *A Demonstration of the "Categorization of Web Documents Using Extraction Ontologies" Approach for Mobile Phones Application Domain,* Fall 2011

Masters Theses Reviewed

- Tuyet Le, *Single Triangle Strips for Graphs With Boundaries,* Spring 2011
- Ashish Patel, *Cake Cutting For Real World Problems,* Fall 2010
- Rachan Tananuchittikul, *Simulating Collisions between Granuar Phenomena,* Fall 2010

Masters Projects Reviewed

- Edward Duterte, *Premiere Sports System,* Spring 2011
- Jochen Schmitt, *Implementation and Analysis of Face Recognition Algorithms,* Spring 2011
- Aasma Zahid, *Open Source Virtual Folder - Application of Cloud Computing,* Spring 2011
- Vaishali Saral, *Implementing Multimodal Biometric System,* Fall 2010
- Krishna Balasa, *Performance Evaluation of TCP Algorithm Suitable for High Bandwidth-Delay Product Network,* Summer 2010

Service

University Service

- Judge, on-campus selection for the CSU System-wide Research Competition, Spring

2012

- Promoting Undergraduate Research Experiences Committee (PURE), Spring 2011 to present
- SafeSpace Ally, CSU Fullerton Multicultural Leadership Center, 2009-present

College Service

- Commencement Committee, AY 2009-2010, 2010-2011, 2011-2012, 2012-2013

Department Service

- AY 2012-2013: ACM Club Advisor; Executive Committee; Undergraduate Committee
- AY 2011-2012: ACM Club Advisor; Chair, Chair Election Committee; Undergraduate Committee
- AY 2010-2011: Executive and Undergraduate Committees
- AY 2009-2010: Undergraduate Committee

Workshops and Roundtables

- *Issues in Educating Veteran Engineers: A Multi-Institution Workshop Exploring Best Practices in Educating Veterans*, University of San Diego, June 15, 2010
- *Department of Defense Roundtable: A Hispanic Engineering, Science, and Technology Week (HESTEC) 2009 Activity*, University of Texas Pan-American, September 29, 2009

Media Coverage

- Pearson Higher Education, *MyProgrammingLab: A Success Story*
- The Pollak Library Blog, *Dr. Wortman's top resources for trends in Computer Science*, invited guest post, December 2010.

Reviewer, IEEE Transactions on Education, *Open Data Structures* (textbook)

External Reviewer, ISAAC 2008, J. Algorithms, ACM TALG

Associated Graduate Students, UC Irvine, Council Representative, School of Information and Computer Science, AY 2004-2005 and AY 2006-2007

Awards

Carol Barnes Excellence in Teaching Award Nominee, February 2011

Faculty Recognition: Scholarly & Creative Activity, *Scholarship that results in the highest quality, peer reviewed journal articles,* CSU Fullerton, April 2010

Best Paper Award, Algorithms and Data Structures Symposium (WADS) 2009, for *Optimal embedding into star metrics;* Sponsored by Springer Verlag

Graduate Assistance In Areas Of National Need (GAANN) Fellow, 2004-2005 academic year

UMass Amherst Computer Science Talent Advancement Program, 1998-1999 academic year

Affiliations

Association of Computing Machinery (ACM)