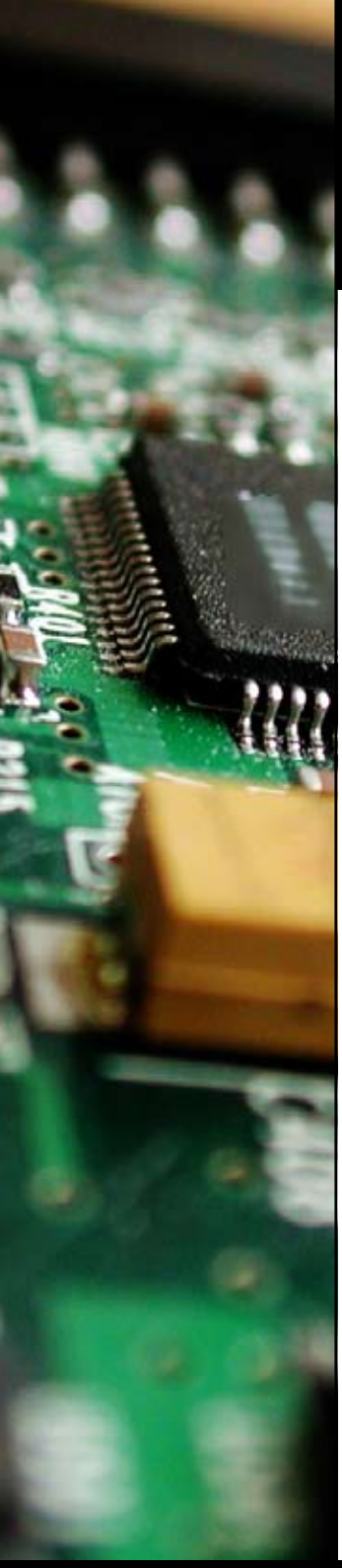

Ira A. Fulton school of engineering

Department of Computer Science and Engineering

2004-2005 Annual Report

Arizona State University is leading the transformation of American higher education by establishing itself as the model for the New American University.

ASU is building a comprehensive public research university that is an unparalleled combination of academic excellence and commitment to its social, economic and environmental setting. We are dedicated to the creation of new knowledge and to its application in a broader social context.

Our university is inclusive, rather than exclusive, and offers access to a broad and talented populace. Research at ASU focuses on use-inspired innovation and societal relevance. ASU proudly champions diversity, and is an active partner in initiatives to enhance the social well-being, economic competitiveness and cultural depth of the region.

On this exciting trajectory, ASU is committed to being a catalyst for new thinking, new answers and demonstrating the full creative potential of the New American University.

"We are building a new kind of university, one whose fate is tied to our collective fate, and one committed to the collective good." - Michael Crow, President

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Letter from the Chair

Dear colleagues,

Under the leadership of ASU President Michael Crow, the Department of Computer Science and Engineering (CSE) in the Fulton School of Engineering (FSE) at Arizona State University (ASU) continues to excel in research, education and outreach activities.
Most significantly, we have embarked on the creation of a new School of Computing and Informatics (SCI) that will house the CSE department, as well as a new Biomedical Informatics (BMI), and future Informatics activities.

In terms of the progress in the department in 2004-2005, CSE faculty significantly increased the quality and quantity of research publications in prestigious journals and conferences, books and book chapters. Research proposal submissions increased by more than 50 percent and faculty members continue to successfully garner highly competitive research grants. In addition, faculty members have received prestigious awards and professional recognition:

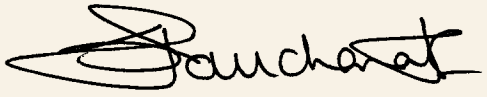
- Professor Sundaram won the new faculty development award from NEC.
- The Center for Cognitive Ubiquitous Computing (CUbiC) was named Arizona Innovator of the Year for Academia at the Governor's Celebration of Innovation Awards.
- A number of faculty serve as editors of international journals. For example, Dr. Farin serves as Editor-in-Chief of CAGD and Dr. Colbourn serves as Editor-in-Chief of the Journal of Combinatorial Design.
- Several faculty chair top tier conferences and workshops. For example, Dr. Kambhampati served as the program co-chair of the Artificial Intelligence Conference.

These examples illustrate the evolving and vibrant research culture within CSE that strengthens the goals and objectives of the Fulton School and ASU.

We recently revised and further strengthened our CS and CSE programs. We successfully obtained full accreditation for both our CS and CSE programs from the Accreditation Board for Engineering and Technology (ABET). ABET selected our department's Computing Accreditation Commission report as a model at their annual summit. The Institute for Computing and Information Science and Engineering (InCISE) created trans-disciplinary research collaborations centered around a computing core. In keeping with the spirit of trans-disciplinary research activities at ASU, we also embarked on the development of new certificate programs in information science and informatics. These programs target students from various disciplines across ASU and deliver on the increasing demand for trans-disciplinary education in informatics.

We have significantly expanded services to our undergraduate and graduate students. We now offer scholarships for our undergraduate students, and provide exciting research opportunities in laboratories. We offered a number of fellowships, assistantships and scholarships for our graduate students. We continue to increase activities to reach out to our industry and community partners through online and executive programs. A new career center was established to better serve our students and industry partners.

We look forward to accelerating our trajectory of rapid progress as we continue to focus on excelling in all aspects, achieving intellectual and international recognition as well as contributing to President Crow's vision for a New American University at ASU.



New Faculty

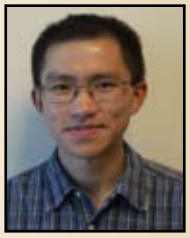
Debra Calliss

Debra Calliss joined ASU in 1984 and rejoined in 2004. In 1995 to 2001, she was a software engineer and project manager at Motorola. Prior to rejoining ASU, she was a faculty member at Mesa Community College. She teaches undergraduate classes in programming languages, program development and software engineering.

Seungchan Kim

Seungchan Kim received his Ph.D. at Texas A&M University in electrical engineering. Kim's research at the ASU/CSE is Computational Systems Biology, an effort to incorporate mathematical, statistical, computational and engineering tools into the study of biological systems, focusing on cancer biology and other biological systems; molecular classification of cancers; and the understanding and mathematical modeling of genetic regulatory networks.

Baoxin Li



Baoxin Li joined ASU in 2004. Prior to joining ASU, he was a senior researcher with SHARP Laboratories of America, Camas, Washington. He was also an adjunct assistant professor at Portland State University from 2003 to 2004. Li's research focuses on image and video processing, computer vision, statistical inference and multimedia content indexing and analysis.

Sarma Vrudhula

Sarma Vrudhula joined ASU in 2005 as the Consortium for Embedded Systems (CES) Chair Professor in the Department of Computer Science and Engineering. Prior to joining ASU, he was a professor in the Department of Electrical and Computer Engineering at the University of Arizona in Tucson, AZ, and director of the NSF UA/ASU Center for Low Power Electronics.

Peter Wonka

Peter Wonka received his Ph.D. in computer science from the Technical University of Vienna. Prior to coming to ASU, he was a post-doctoral researcher at the Georgia Institute of Technology in Atlanta for two years. At ASU, Wonka is affiliated with the PRISM lab (Partnership for Research in Spatial Modeling). His research interests include various topics in computer graphics, especially real-time rendering and procedural modeling.

Programming Competition hosted by Women in Computer Science.

Student *Organizations*

The Department of Computer Science and Engineering has a long tradition of diverse students who lead and participate in technical student organizations. These clubs allow students an opportunity to expand on skills learned in the classroom as well as learn about computer science and engineering outside academia.

Windows Interest Group (WIG)

The Windows Interest Group aims to increase knowledge of and create interest in the science, design, development, construction, languages, management and application of today's computer technology. It specializes in Microsoft technology, though not exclusively, and offers presentations, tutorials, help on projects and various other activities, both independently and with the support of Microsoft. WIG's main goal is to provide a place for both beginning and experienced programmers to learn about new technologies that may be outside of their current course work and to involve them in technical projects.

Women in Computer Science

The Women in Computer Science organization fosters interaction between female faculty and students in the CSE department. Faculty serve students, upper-class students mentor younger students and faculty and students of all years volunteer to help middle-school and high-school students. The organization has hosted faculty-student luncheons and programming contests and members reach out to the community through programs with the American Indian Science and Engineering Society, WISE Investments and the Intel Clubhouse.

IEEE Computer Society

With nearly 100,000 members, the IEEE Computer Society is the world's leading organization of computer professionals. Founded in 1946, it is the largest of the 35 societies organized under the umbrella of the Institute of Electrical and Electronics Engineers (IEEE). The ASU chapter involves both undergraduate and graduate students in its activities.

Student Advisory Council

Students within the Department of Computer Science and Engineering formed the Student Advisory Council (SAC) to promote a healthy relationship between students and the department. The council meets with the department chair and associate chairs each semester to communicate students' needs and ideas for changes. The department has already responded to several SAC requests, including creation of a work space in the Brickyard for CSE student groups and the installation of a copy machine classroom building for student use. SAC is currently giving input to the associate chairs on changes to the undergraduate curriculum for Fall 2006.

Student Accomplishments

Nitin Agarwal, a Ph.D. student, will co-present a research paper at the Web Age Information Management conference in Hang Zhou, China, in October 2005. Agarwal published a paper in a special issue of the *International Journal of Information Technology and Web Engineering*. He has been involved in NSF projects at ASU's Hispanic Research Center and has experience in database programming for applications to help Hispanic students apply to U.S. universities. Argawal also helped organize the MGE@MSA conference in 2004 and 2005.

In March 2005, Women in Computer Science and the Windows Interest Group hosted a programming competition. The top three teams were: first place, graduate student **Hai Huang**; second place, graduate student **Ying Wang**; third place, undergraduates **Dallan Simper** and **Michael McGuire**.

Lance Parsons, a master's student, co-authored a well-cited survey paper and two papers on subspace clustering for research paper recommendations, which will be published in the 2005 International Conference on Web-Age Information Management and the International Journal of Information Technology and Web Engineering. He was also a contributing author on NIH and NSF bioinformatics grants in conjunction with neurogeneticists at the Translational Genomics Institute (TGen).

Graduate students **Weiwei Song** and **Xiao Wei** won the Ultimate Architect SumoBot Competition at the 2005 Microsoft Mobile and Embedded DevCon in Las Vegas, NV.

Jian Tang, a Ph.D. candidate, has been selected as a Division of Graduate Studies Dissertation Fellow for the 2005-06 academic year. These competitive, university-wide fellowships are designed to support highly meritorious doctoral students in the final stages of post-candidacy doctoral work.

Renee Turban, a Ph.D. student, presented a paper on "A Framework of Greedy Methods for Constructing Interaction Test Suites" (with Charles Colbourn and Myra Cohen) at the 27th International Conference on Software Engineering (ICSE2005) in St. Louis, MO, in May 2005.

Lei Yu, who received a Ph.D. in computer science from ASU in May 2005, has joined the faculty of the Department of Computer Science at the State University of New York, Binghampton, as an assistant professor. While part of the CSE department, Yu received a Fulton School of Engineering dean's scholarship as well as the CSE Best Ph.D. Student Award. He has published articles in three premier journals presented a research paper at a data mining conference and presented two posters. He has also written two book chapters.

Dawei Zhang, a graduate student, presented a talk at the 2004 IASTED Conference on Software Engineering and Applications in Cambridge, MA.

Outstanding Undergraduate Achievement

This year the department honored Danny Greg Little as the top graduate with a B.S. in Computer Science. Not only did Little maintain a 4.0 GPA throughout his academic career at ASU, but he also spent ten hours each week conducting undergraduate research in the Center for Cognitive Ubiquitous Computing.

With two video game patents to his credit, Little came to ASU in Fall 2003. He won the department programming competition in 2004, beating several teams of graduate students. As such, Little served as a judge for the 2005 competition.

Little will attend MIT in the fall working toward his Ph.D. in computer science. He has already co-authored a paper entitled, "A Methodology for Evaluating Robustness of Face Recognition Algorithms with Respect to Variations in Pose Angle and Illumination Angle," which he presented at the International Conference on Acoustics, Speech, and Signal Processing (ICASSP) in Philadelphia, PA, in March 2005.

Danny Greg Little in the CUbiC lab.

Faculty Honors

Professor **Charles Colbourn** has been awarded the 2004 **Euler Medal for Lifetime Achievement in Research** by the Institute for Combinatorics and Its Applications. He gave an invited lecture on covering arrays and software testing at 'Combinatorics 2004' in Capomulini, Sicily, Italy, in September 2004. Colbourn was also an invited speaker at the International Workshop Aspectos Combinatorios y Computacionales de Optimización, Topología y Álgebra in San Miguel de Allende, Guanajuato, Mexico in November 2004.

Guoliang Xue joined ASU as an associate professor in 2001 and was promoted to professor in 2005. His research interests are in networks and bioinformatics. He is PI of an NSF ITR grant on optical networks, an ARO grant on ad hoc networks and an NSF grant on algorithms for sensor networks. Xue serves on the editorial boards of IEEE Transactions on Circuits and Systems, Part I, IEEE Networks, Computer Networks and the Journal of Global Optimization. He is a program co-chair of the IEEE Globecom 2006 Symposium on Wireless Ad Hoc and Sensor Networks and an Executive/TPC member of many other conferences.

Professor **Subbarao Kambhampati,** who was elected a **Fellow of the American Association of Artificial Intelligence** and also received an **IBM** faculty award in 2004, was the program co-chair (along with Manuela Veloso of Carnegie Mellon University) of the July 2005 **National Conference on Artificial Intelligence** (AAAI). This conference is among the oldest and most pre-eminent forums for presenting advances in artificial intelligence (AI). It celebrated its 25th aniversary this year. The conference featured 150 oral presentations and 70 posters, and was preceded by two days of workshops and invited tutorials. MIT's Marvin Minsky, who is considered one of the founders of AI, gave the keynote address.

The **Computer Society of the Institute of Electrical and Electronics Engineers (IEEE)** presented **Professor Stephen S. Yau** with the **2002 Tsutomu Kanai Award** in recognition of his outstanding contributions to distributed computing software engineering and promotion of the community of distributed computing software researchers.

CUbiC: Innovator of the Year for Academia

The Center for Cognitive Ubiquitous Computing (CUbiC) was named Innovator of the Year for Academia for its iCARE research project at the Governor's Celebration of Innovation Awards held at the Arizona Biltmore in November 2004.

This event is presented by the Arizona Technology Council, the Arizona Commerce Department, the High Technology Industry Cluster and the Southern Arizona Tech Council. More than 1,100 people attended the event honoring companies, scholars, legislators and others with technological and business achievements.

The mission of CUbiC is to design and develop perceptive computers that are environmentally aware to serve the needs and enrich the lives of people. Its flagship project, iCARE, aims to develop several projects to help people who are visually impaired recognize text, people and environments.

"CUbiC is one of the best examples of our new ASU design principles," said ASU President Michael Crow. "Research that is linked to the people and their needs that fuses our intellectual cultures together in new ways that gives us a chance for unanticipated breakthroughs. This is ASU at our finest."

Roy Vallee, Chairman and CEO, Avnet; Sethuraman Panchanathan; Wendy Vittori, Corporate VP and GM, ECCNB, Motorola, Inc.

Events bring students, faculty together

Honors Convocation, programming contest and other events allow students to shine.

This year the department held its annual **CSE Night and Honors Convocation** in April. The event allowed students to receive scholarships in the presence of donors. Both individual donors and representatives from companies that sponsor scholarships had the opportunity to meet the students they support. The department hosted a dinner and then gave its own awards for outstanding performance of students, faculty and staff. Emeritus professors and past-chairs were also invited and recognized.

In March, the department's **Women in Computer Science** organization hosted a **programming competition** for graduate and undergraduate students. Sixty-seven students in 30 teams received eight programming problems to solve in four hours. Faculty and WCS members acted as judges. First-place winner Hai Huang received an iPod and $300; other winners took home prizes that included iPods, cash, software and binary clocks. Sponsors included IBM, General Dynamics, Boeing Women's Leadership, Microsoft, Motorola Women's Business Council, Google and Borders Books and Music.

The department also sponsored a **high-school recruitment day** in conjunction with the programming competition event. Eight students and their parents were present for tours and talks about the department. Three of the students joined the programming competition, working problems designed specifically for them and received prizes for their participation.

The **Summer Institute in the Ira A. Fulton School of Engineering** held several high-school and junior-high summer programs during the summer of 2005. The computer science and engineering one-week commuter program was designed to provide information about the field of computer science and engineering and the opportunities at ASU. The 19 upcoming junior and senior high-school students received an introduction

Presentation of student awards at CSE Night.

to programming, worked in teams and developed an interactive website. In addition, the students toured computer science-related laboratories in the department and elsewhere in the university. Graduate student, Nibedita Das, under the direction of lecturer Debra Calliss, coordinated and presented the content.

The CSE department is committed to attracting top quality students to our graduate programs and is aggressively pursuing these students. As part of this effort, in February, the CSE department organized a **graduate student recruitment day** under the auspices of the Fulton School of Engineering. Six students from across the country attended presentations by the dean of the Fulton School, the chairs of the CSE and Electrical Engineering departments, several faculty members and the president of the Fulton School Graduate Student Association. Each invitee also had a student host to answer questions regarding academics, student life, recreational activities and available opportunities. Of the six invitees, three will join the CSE department in Fall 2005 and one in Fall 2006.

InCISE

http://incise.asu.edu

Institute for Computing and Information Science and Engineering

Computing and informatics have become foundations for advanced research in disciplines far beyond computer science and engineering.

Physical, social, behavioral and medical science today are differentiated and valued by the ability to integrate computing and information sciences into their disciplines and into cross- and trans-disciplinary collaborations. To foster such interdisciplinary research, education and entrepreneurship, ASU's Office of the Vice President for Research and Economic Affairs created the Institute for Computing and Information Science and Engineering (InCISE) led by CSE department Chair Sethuraman Panchanathan.

InCISE is a confederation of interdisciplinary research units that share expertise in computer and information science, informatics and their application to research problems in academic disciplines. The mission of InCISE is to foster fusion of intellectual inquiry within disciplines with computing and informatics applications such as data storage, security, modeling, visualization and analysis. Synergies have been identified with researchers in cognitive, earth and environmental sciences; biosciences; disability studies; business; and linguistics. InCISE's goal is to leverage selective investments in collaborative, interdisciplinary projects to build partnerships between researchers, improve internal and external visibility and generate successful larger scale inter- and trans-disciplinary proposals. InCISE continuously evolves to promote and enable new collaborations as well as meet the demands of our collaborators and communities.

InCISE is entering its second phase and is working with the Office of the Vice President for Research and Economic Affairs, the Fulton School of Engineering, the College of Liberal Arts and Sciences and new schools and departments such as the Department of Biomedical Informatics to explore and seed research partnerships. Opportunities identified to date include geoinformatics, cognitive informatics, social/cultural informatics and health informatics. ASU partners include the Decision Theater, High Performance Computing Initiative, Institute for Social Science Research, College of Architecture and Environmental Design, Information Technology, University Libraries and the College of Law, in addition to local, regional and national level academic, and private and public sector partnerships.

InCISE is located in the Brickyard on Mill Avenue in downtown Tempe, a 130,000 square foot academic, commercial and research space that also houses the CSE Department and School of Computing and Informatics. The institute provides the intellectual leadership, facilities and the resources ASU needs to create world-class programs in interdisciplinary research, education and entrepreneurship.

Information Assurance

Information systems through various types of networks have been indispensable for modern societies in the information age. In order to use and process information with great confidence, both the information systems and networks as well as the information must be trustworthy. To achieve this objective, users need not only dependable and secure information systems and networks, but also effective mechanisms to ensure the integrity and quality of the information.

The Information Assurance Program (IA) at ASU addresses the broad issue of developing trustworthy, networked information systems (TNIS) that people can rely on to store, process and transmit information over networks. Created only a year ago, the IA program has already attracted more than 20 faculty members from several departments. It has also recruited a new faculty member in network security.

Current research activities involve in foundational, network, system and application aspects of developing trustworthy networked information systems, including logic, languages and tools for the development of secure systems; composition methods; ways to measure, model, analyze, verify and test the dependability and security of networked information systems; trustworthy system architectures; steganography; survivable network design; anonymous and secure network routing; dynamic and deterministic Quality of Service management; data mining for security; privacy in data management; situation awareness; and legal and ethical issues.

Many proposals have been submitted to the IA program. Four projects have been funded, and several are still pending. A prototype of a service-oriented infrastructure for rapidly building trustworthy, networked information systems has been developed with some demonstration applications to show the necessary features, including security, situation awareness and adaptability.

In addition, IA faculty members are also engaged in both academic and outreach training programs. A new IA cluster was established in April 2005 to promote IA research and education activities at ASU and to establish a NSA DHS certified national Center of Academic Excellence in Information Assurance Education (CAEIAE). A number of courses have or will be offered, including: Information Assurance; Applied Cryptography; Network Security; Practical Network Security; Reliable Computer Systems and Networks; Software Security and Safety. Several IA-related courses have included or will be reorganized to include IA as a significant component.

CUbiC

http://cubic.asu.edu

Center for Cognitive Ubiquitous Computing

The Center for Cognitive Ubiquitous Computing (CUbiC) envisions a future of people wearing unobtrusive sensor-equipped perceptive computers to enhance their natural perception. These perceptive computers will continuously transform environmental inputs into human concepts and will perform concept processing instead of data processing. Because concept processing is more compatible with human thought, this will facilitate collaboration between wearable computers and their user, as they face the problems of everyday life.

CUbiC's flagship research project, called iCARE, aims to enrich the lives of people who are blind. Its basic research component studies human perceptual and cognitive processes to provide a foundation for its applied research component. This consists of four projects to develop computer-based assistive devices for people who are blind to use in their everyday life.

Desktop reader deployed at the Foundation for Blind Children.

The iCARE Reader is a three-phase project aimed at providing easy access to printed material. CUbiC has completed Phase 1 by developing and deploying desktop readers at the Foundation for Blind Children in Phoenix, at the Disability Resource Center on the ASU campus and at the Brickyard, the home of ASU's Department of Computer Science and Engineering.

The iCARE Interaction Assistant facilitates person-to-person interaction between users who are blind and other people. CUbiC's wearable prototype employs a tiny camera embedded in a pair of glasses to recognize people, then speak their names to the user.

iCARE Interaction Assistant

The iCARE Information Assistant is aimed at facilitating access to websites designed to navigate with mouse clicks. CUbiC has developed a prototype to assist students in accessing the Blackboard™ course management system, including its discussion board.

The iCARE Haptic Interface is aimed at allowing users to explore their environment by touch. During the last year, CUbiC researchers have identified a set of concepts to efficiently encode the salient haptic characteristics of objects. They have been building a library of object images that will be used to develop methods for automatically describing objects in terms of these concepts.

Haptic interface research allows persons who are blind to explore the environment with their hands.

ET-I3

Enabling Technologies for Intelligent Information Integration

The mission of Enabling Technologies for Intelligent Information Integration (ET-I3) cluster is to develop enabling technologies for integrating diverse information sources. Its aim is to collaborate with interdisciplinary teams, with CSE PIs providing integration know-how that is tailored to the scientific and engineering integration task at hand. In the past year, ET-I3 has been busy with several inter-disciplinary projects, as described below. In addition, two of the students supported through the ET-I3 project, Lei Yu and Thomas Hernandez, received the CSE department's outstanding Ph.D. and M.S. student awards this year.

Archaeological Informatics

In collaboration with Keith Kintigh and several researchers from the Department of Anthropology, ET-I3 has been actively investigating frameworks for supporting online integration of archaeological information sources. A planning grant from NSF in 2004-2005 funded part of this work. A recent follow-on proposal on query-driven ad hoc integration of archaeological sources has been selected for a reverse site visit by NSF.

Bioinformatics

ET-I3 is involved in several projects on bioinformatics for the last two years. NSF funded one of these projects. Led by professor Chitta Baral, it examines reasoning with signaling pathways. Another recent project is "collaborative curation," which aims to obtain "data nuggets" in articles and abstracts such as gene names, protein names, interaction between genes and interaction between proteins, and to integrate these with traditional databases and data repositories. ET-I3 proposes an inexpensive and yet scalable solution whereby the readers of the articles can participate and collaborate in the curation of information. To overcome the reluctance of many to be the first one to curate an article, ET-I3 proposes to use automatic extraction systems as an initial step. A proposal on this project has been submitted to NIH. The CBioC server prototype is accessible at http://cbioc.eas.asu.edu/.

Engineering and Sustainability Informatics

Rapid urbanization has caused an unprecedented influx of population into metropolitan areas. This demographic shift presents challenges for nurturing key engineering, social, economic and environmental components of urban systems to ensure a better quality of life. ET-I3 is participating in the CLEANER project, a university-based, cyber-intensive initiative led by professor Harindra Fernando, as well as an NSF Engineering Research Center proposal coordinated by professor John Crittenden of the International Institute for Sustainability.

Toxicological Informatics

Professor Hasan Davulcu leads ASU's involvement in a joint research grant, funded by the U.S. Army Medical Research Institute of Infectious Disease and Department of Defense to establish a Toxin Knowledge Base, a resource to be used in fighting bioterrorism.

CES

http://www.ceint.org

Consortium for *Embedded* Systems

The Consortium for Embedded Systems (CES) is a partnership among Arizona State University, Motorola and Intel designed to facilitate world-class research as well as prepare a talented, skilled workforce. CES supports fundamental and applied research in embedded systems, curriculum development and an outstanding internship program chaired by professor James Collofello.

This year Sarma Vrudhula was hired as a CES professor and has assumed a leadership role in developing CES research programs. He has served on technical program committees of many national and international conferences in VLSI CAD, on government review panels, and as associate editor for *IEEE Transactions on VLSI*. At the University of Arizona, Vrudhula was a director of the NSF Center for Low Power Electronics (CLPE), a joint center between ASU and the U of A. Vrudhula's research in design optimization and VLSI CAD includes optimization problems that arise in chip layout, logic synthesis and verification, low power design, testability analysis and design for testability.

Interns usually spend multiple semesters with a company working on a specific project. They have two mentors, one from the company and one from the Fulton School. At the end of each semester, the intern writes a paper and makes a presentation about their research. CES interns completed more than 60 work-semesters during the past academic year.

CES also provides financial assistance to graduate and undergraduate students interested in embedded systems. CES's graduate fellowships help attract top students to ASU. In addition, junior and senior undergraduates can apply for merit scholarships of $1,500 per semester through the Scholars program. Once selected, students receive an award each semester if they continue to meet the academic qualifications.

The ultimate goal of all the consortium's activities is to turn the Phoenix metro area and the state of Arizona into a globally recognized center for embedded systems. It's an ambitious goal, but the consortium is well on its way.

The Consortium for Embedded Systems fellowship has offered me a fantastic opportunity to become involved in new and interesting research while pursuing graduate studies at ASU. This summer, I have been working with Dr. Sarma Vrudhula researching the low power applications of asynchronous ternary logic design utilizing negative differential resistive devices. In the short time I have spent here, I have already learned a great deal, and I enjoyed every minute of it. I am very excited to be a part of the ASU academic community and a Consortium for Embedded Systems Fellow.

Sam Leshner, Ph.D. Student

AME

http://ame.asu.edu

Arts, Media and Engineering

Engineering, arts and science disciplines at ASU invested in media research and training have come together to create the Arts, Media and Engineering Program (AME). AME combines the expertise and resources of the departments of art, bioengineering, chicana and chicano studies, computer science and engineering, dance, electrical engineering, kinesiology, music, psychology, sociology and theater as well as the colleges of design and education, and the schools of life sciences and human evolution and social change.

AME offers opportunities for hybrid training in experiential media that are formalized through degree concentrations. These concentrations are designed to produce hybrid artists-engineers-scientists, complement AME research, accommodate students of diverse educational and experiential backgrounds and promote innovative, trans-disciplinary thinking.

After three years of collaboration on the motion^{e} project with internationally renowned choreographers Trisha Brown and Bill T. Jones; visual artists Paul Kaiser, Mark Downie and Shelley Eshkar; composers Roger Reynolds and Curtis Bahn; lighting designer Robert Weirzel; and AME artists, engineers and research associates, AME premiered two groundbreaking, interactive multimedia works April 9th, 2005, at ASU's Galvin Playhouse. (http://ame.asu.edu/motione/) The following week, the work Brown created for motion^{e}, "How Long Does the Subject Linger at the Edge of the Volume. . ." premiered at Lincoln Center in New York as part of Brown's 35th anniversary season.

In addition to the success of the performances and national press, motion^{e} broke new ground in support of the project, garnering a NSF grant in support of the motion analysis research; a National Endowment for the Arts grant; a City of Tempe Cultural Services grant for community outreach; Arizona Public Services support for the presentation of the works; and an ongoing partnership with Academy Award-winning Motion Analysis Corporation. ASU Public Events co-presented motion^{e}.

Photos Below:
Far left and right photo, Trisha Brown Dance Company, "How long does the subject linger at the edge of the volume..".
Middle photo, Bill T. Jones, "22"
Photography by Tim Trumble

PRISM

http://prism.asu.edu

Partnership for Research in Spatial Modeling

As the modeling and visualization lead for InCISE, the Partnership for Research in Spatial Modeling draws upon advanced spatial and temporal data acquisition techniques, 3D modeling and visualization and rapid prototyping technologies. In addition, PRISM has made significant strides in developing 3D digital libraries and innovative educational programs that bridge the arts and sciences and build partnerships between computer scientists and researchers in other disciplines.

For example, PRISM researchers Anshuman Razdan and Jeremy Rowe led the development of the Decision Theater prototype and design of the facility. The PRISM research team created the modeling and rendering environments for the prototype. The 3D immersive applications include a simulated anthrax release in Oklahoma City and the effects of the Urban Heat Island on Metropolitan Phoenix. The first Decision Theater external project, a coalition of the East Valley Water Forum, Arizona Department of Water Resources and Bureau of Reclamation, began in January 2005. This project creates accurate hydrologic models of Eastern Maricopa County and helps identify and explore the interaction between water management policies and urban planning decisions and their potential impact on our future.

Other funded research efforts include: 3D facial recognition; forensic reconstruction and “de-aging” of George Washington; spatial and temporal analysis of cloud formation; 3D handwriting analysis; brain modeling for Alzheimer’s research; multi-resolution modeling; feature extraction; and Mars rock abrasion. Funding sources include the National Science Foundation, National Aeronautics and Space Administration, US Army Research Office and In-Q-Tel.

PRISM research continues to develop and exploit surface and volumetric modeling techniques as well as the unique virtual space of the computer to pre-visualize and evaluate 3D forms; enable comparative analyses of large quantities of 3D data; produce tangible prototypes representing scientific and aesthetic synthesis; and create new knowledge in computer and other sciences.

Decision Theater

http://dt.asu.edu

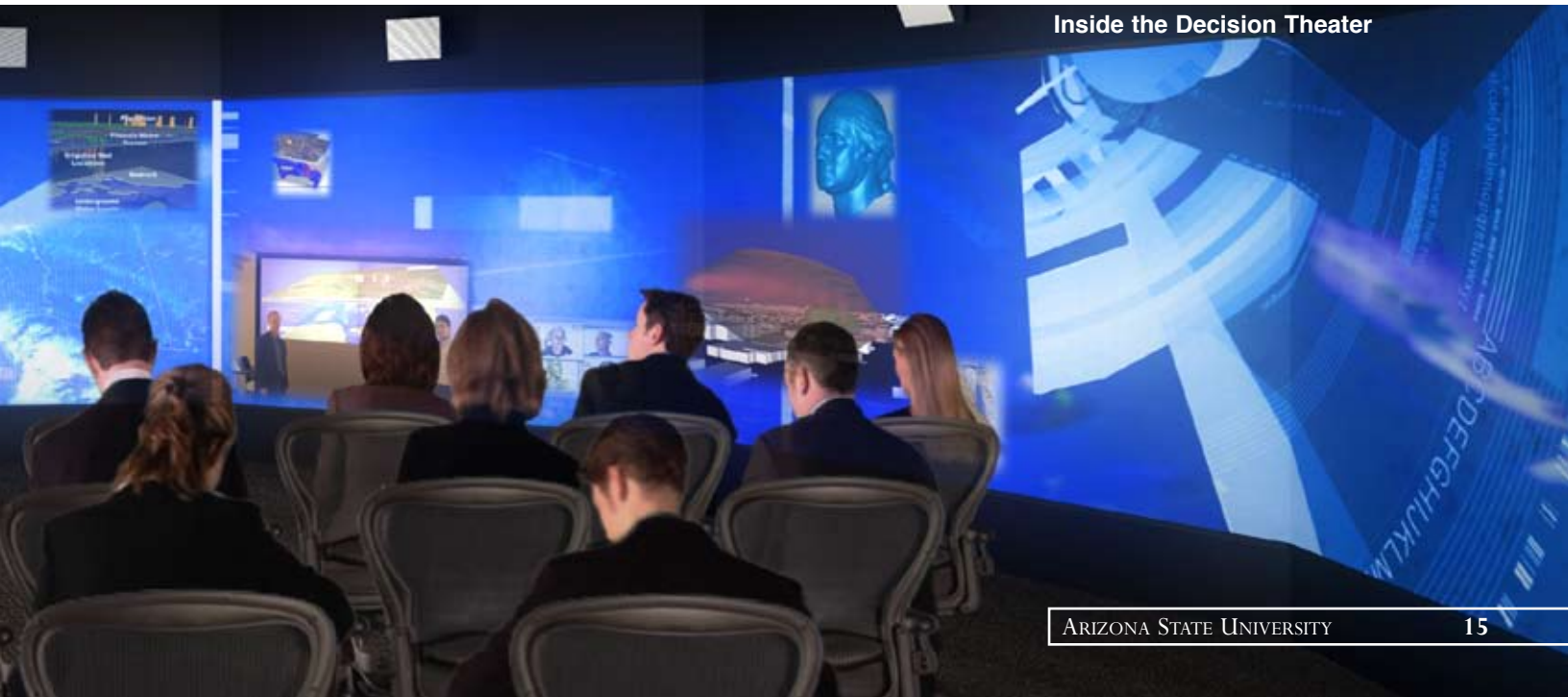
The pairing of advanced 3D visualization, complex societal issues and a forum for objective, informed analysis results in a facility where research is more relevant to society.

Ira A. Fulton has promoted such a facility through a generous $3 million gift through the ASU Foundation to create the Decision Theater—a world-class facility positioned at the cutting edge of research and technologies in visualization and computer graphics. The Decision Theater brings policy makers and decision makers together to address challenging problems in a unique, visualization environment led by Rick Shangraw, executive director.

The Decision Theater team facilitates informatics research in data management, data mining, high performance computing, enterprise computing, decision analysis, policy analysis and cognition. The theater itself consists of an interactive 3D immersive environment and computational resources built with the latest state-of-the-art graphics technologies. The core component, called the drum, is a 260-degree, faceted screen with seven rear-projection, passive-stereo sources that can display panoramic computer graphics or 3D screen video content. The drum accommodates 20-25 people and includes tools for collecting participant input and interaction. The advanced visualization environment enables policymakers and others to see in detailed, three-dimensional representations the consequences of behavior, decisions and policy in order to examine potential future scenarios.

"This project demonstrates how computer technology can be instrumental to the future," said Fulton.

As the Valley grows to be one of the greatest cities in the world, we will be able to use this tool to make responsible decisions affecting our future. The Decision Theater is operated under the Office of the Vice President for Research and Economic Affairs and is currently partnering with the Decision Center for a Desert City (DCDC), International Institute for Sustainability (IIS), InCISE and the East Valley Water Forum (EVWF). The Decision Theater is located in the Orchid House in downtown Tempe and provides public tours several times a week.



Inside the Decision Theater

BARAL

Answering Complex Questions and Performing Deep Reasoning in Advance Question Answering Systems
DOD-NSA/ARDA 5/3/06-10/31/06 $810,977

Knowledge Representation, Reasoning and Problem Solving in a Cellular Domain
NSF-CISE 8/1/04-7/31/07 $399,000

Reasoning and Planning with Sensing Actions and Their Applications*
NSF-CISE 4/1/00-3/31/05 $351,695

BAZZI

Framework for Fault-Tolerant and Secure Agents
NSF-CISE 6/1/99-9/30/04 $150,000

CAM

Power-Aware Sensor Nodes for Monitoring and Data Aggregation
CEINT 8/25/04-8/24/05 $59,087

CANDAN

Chatha, Ryu, Sundaram
Development of Quality-Adaptive Media-Flow Architectures to Support Sensor Data Management
NSF-CISE 9/15/03-8/31/06 $470,000

MIS Eighth International Workshop on Multimedia Info. Systems
DOD-Army Research 6/1/02-12/31/04 $15,000

CHATHA

Gannod
A Product Line Approach for the Development of Network Processor Programming Tools
CEINT 1/1/04-5/15/06 $90,147

Laboratory Development: Capstone Design Project
CEINT 1/1/03-8/15/05 $84,069

Lee
Curriculum and Laboratory Development for Advanced Hardware
CEINT 5/17/02-8/15/04 $49,987

Graduate Level Course on Co-Design
CEINT 1/1/04-8/15/05 $49,975

COLBOURN

Performance and Reliability of Large-Scale Disk Arrays
Univ. of Vermont 11/29/01-8/15/04 $73,503

Software Testing Using Covering Arrays
CEINT 8/25/04-8/24/05 $61,134

COLLOFELLO

Lee
Dynamic QOS Management for Network-Centric Computing Environment
Boeing Aero Division 1/1/04-6/30/05 $108,662

DASGUPTA

Ye, Lai, Ying-Cheng
A Complex Adaptive System Approach to QOS Assurance and Stateful Resource Management for Dependable Information Infrastructure
DOD-Air Force Office 4/9/01-11/30/04 $202,778

Chatha, Gupta
CEINT: Infrastructure for Identity Assurance
CEINT 1/03/05-1/2/06 $89,789

CALYPSO: High Performance Fault Tolerant Platform for Parallel Processing on Networked Computers
Intel 8/1/95-9/30/05 $45,000

DAVULCU

A System for Discovering Bioengineered Threats by Knowledge Base Driven Mining of Toxin Data
Brookhaven National Lab 12/31/03-7/31/05 $97,688

AZTEC: Arizona Teacher Excellence Coalition: A Statewide Partnership (CSE)
Northern AZ Univ. 1/20/04-8/22/04 $15,484

FARIN

Computational Brain Imaging - Year 6
Harrington Arthritis Research Center
7/1/03-6/30/05 $172,811

Computerized Brain Imaging - Year 5
Harrington Arthritis Research Center
7/1/02-6/30/05 $157,258

Spines over Iterated Voronoi Diagrams*
NSF-CISE 12/15/03-11/30/05 $155,253

Registration and Visualization for Dynamic PET
Harrington Arthritis Research Center
7/1/02-6/30/05 $25,000

Computerized Brain Imaging - Year 5
Harrington Arthritis Research Center
7/1/02-6/30/05 $15,553

GANNOD

CAREER: A Two-Tier Approach for the Analysis and Evolution of High-Integrity Software Product Lines
NSF-CISE 2/1/02-1/31/07 $295,228

GUPTA

Wireless Solutions for Smart Sensors Biomedical Applications
Wayne State Univ. 9/1/00-8/31/05 $633,295

Mobility Tolerant Adaptive Multicast Protocols for Ad Hoc Networks*
NSF-CISE 1/1/01-7/31/05 $264,700

Dasgupta
A Location Based Access Control Architecture for Wireless Home Networks
CEINT 1/01/04-12/31/04 $71,885

Mobility Tolerant Adaptive Multicast Protocols for Ad Hoc Networks
Colorado St. Univ. 9/12/01-7/31/04 $8,563

KAMBHAMPATI

Scalable Multi-Objective Planning for Metric Temporal Domains: Heuristics, Algorithms and Tradeoffs*
NSF-CISE 7/1/03-6/30/06 $472,642

KONJEVOD

Set Covering Problems in Combinatorial Optimization
NSF-CISE 8/15/02-7/31/05 $114,239

LEE, Y.

Safety and Certification Approaches for Ethernet-Based Aviation Databuses
DOT-FAA 9/26/01-11/30/04 $360,000

Collaborative Research: Adaptive Performance and Power Management for Real-Time Systems
NSF-CISE 9/15/01-8/31/05 $214,939

Flight Critical Data Integrity Assurance for Ground-Based Cots Components
DOT-FAA 9/27/01-7/9/04 $214,939

Adaptive Intrusion Detection in NEST
Univ. of Mass 9/9/02-12/9/05 $167,901

Real-Time Embedded Systems
SAIC 5/17/05-9/30/05 $40,000

LI

A Framework of Acquisition and Deployment of Digital Imagery for Computer Assisted Evaluation of Diabetic Retinopathy
Univ. of Texas 3/25/05-10/31/05 $47,550

LIU

Banks
Collaborative Project: Development of an Undergraduate Data Mining Course
NSF 1/1/03-12/31/04 $52,720

Synthesis of Streaming Data from Multiple Sensors via Embedded Data Extraction
CEINT 1/1/04-8/15/05 $52,102

Modeling Driving Data
Motorola 5/16/04-8/16/04 $13,605

NIELSON

Analysis of Implicit Modeling of Complex Geometric Environments
DOD - Army Research 6/1/05-3/31/08 $89,845

MALYANKAR

Findler
Representation and Distribution of Geospatial Knowledge*
NSF-CISE 8/1/00-12/31/04 $484,880

PANCHANATHAN

Candan, Black, Hedgpeth
ITR: iLEARN: IT-Enabled Intelligent and Ubiquitous Access to Education Opportunities for Blind Students*
NSF-CISE 9/1/03-8/31/08 $1,224,212

Gannod, Golshani, Huey, Lee
Concentration Track in Embedded Systems
NSF 9/1/01-8/31/05 $490,139

Candan, Hedgpeth, Donderler
PPD-FRI: Ubiquitous Environment to Facilitate Engineering Education for Blind Persons
NSF-HER 10/1/03-9/30/05 $172,538

RICHA

CAREER: Assessing Shared Objects and Routing in Distributed Environments
NSF - CISE 6/15/00-5/31/06 $273,598

RYU

Sigma-Watch: Adaptive Multi-Resolution Performance Monitoring and Tuning of Large-Scale Networked Embedded Systems
CEINT 1/1/04-12/15/05 $65,448

SARJOUGHIAN

DEVS as a Formal Modeling and Simulation Framework for Scalable Enterprise Design
Univ. of Arizona 9/1/01-12/31/04 $130,493

A Scalable Approach to Model Validation
Intel 7/1/03-6/30/06 $105,000

Analysis of Trends and Implication of Simulation Technology
Boeing 9/24/04-5/15/06 $34,608

SEN

Hardware-Software Co-Design of Network Process System
Motorola Labs 8/15/03-8/14/06 $116,257

Multi-Application Partitioning System (MAPS) - A Design Tool for Hardware/Software Partitioning of Network Processor Systems
CEINT 1/1/04-6/30/05 $86,357

Introduction of a Capstone Course Sequence on System Design with Network Processors
CEINT 1/1/04-6/30/05 $56,395

SYROTIUK

Collaborative Research: Characterizing Protocol Interaction in News: A Network Environment Wireless State Service
NSF-CISE 6/1/03-5/31/06 $233,324

ITR: MERIT: A Formal Framework for Systematic Protocol Assessment
Univ. of Texas at Dallas 10/1/02-9/30/06 $215,544

META-MAC Protocols: A New Dimension to Adaption in Medium Access Control
Univ. of Texas at Dallas 9/1/02-8/31/05 $135,159

Colbourn
Design and Analysis of Algorithms for Heterogeneous Sensor Networks
Los Alamos Nat. Lab 1/28/03-1/31/08 $75,000

Colbourn
Modeling Cross-Layer Interaction to Achieve Power Savings in Connectionless Networks
General Dynamics, Inc. 12/16/03-9/24/04 $54,854

Colbourn
Probe Placement in Wireless Networks
Defense SciTech Org 4/19/05-6/15/05 $15,552

TSAI

Adaptive End-to-End Interpretation Test and Evaluation Using Scenarios, Object-Oriented Test Frameworks and Verification Patterns
Univ. of South Florida 8/1/03-5/15/05 $400,000

Web Application Development Tool and Testing Framework
Hitachi Software Eng 10/1/99-12/31/06 $385,000

Developing Highly Dependable Embedded Systems With Reconfigurable Software
CEINT 1/3/05-1/2/06 $68,117

ITR: TADE - Timeless-Assured Design Environment for Distributed Object-Based Embedded Computing
Univ. of California-Irvine 4/0/04-12/31/05 $54,000

Configurable Business Logic Software
Intel 12/16/03-8/15/05 $45,000

VRUDHULA

ITR: Methodologies for Robust Design of Information Systems Under Multiple Sources of Uncertainty
Univ. of Michigan 1/1/05-7/31/05 $250,337

Low Power Electronics - State Funds (AZ Dept of Commerce)
Univ. of Arizona 1/1/05-12/31/05 $109,714

Low Power Electronics - State (AZ Dept of Commerce): Dr. Naehyuck Chang SOW
Univ. of Arizona 1/1/05-12/31/05 $14,502

XUE

Robustness and Survivability Issues in Wireless Ad Hoc Networks
DOD-ARO 9/1/04-8/31/07 $255,734

Numerical Algorithms for Location Problems Arising in Wireless Sensor Networks and Other Applications*
NSF-CISE 8/15/04-7/31/07 $212,000

ITR Collaborative Research: Fault Tolerance in WDM Optical Networks: Multifailure Recovery and Multilayer Survivability*
NSF-CISE 9/15/03-8/31/06 $168,500

Approximations to Minimum Cost QOS Routing in Communication Systems
Univ. of Vermont 9/1/01-7/13/04 $167,898

ROSENET: Robustness Issues in Wireless Sensor Networks
CEINT 1/1/04-8/15/05 $68,166

Sen
IEEE Workshop on High Performance Switching and Routing in Phoenix April 2004
CEINT 1/2/04-6/30/05 $2,400

YAU

Davulcu
Adaptable Situation-Aware Secure Service-Based Systems
DOD-ONR 7/5/04-7/1/06 $992,834

Gupta
Adaptive Middleware Services for Situation-Aware Communication in Ubiquitous Computing*
NSF-CISE 9/15/01-8/31/05 $736,000

Trustworthy Data Sharing and Management for Collaborative Pervasive Computing Applications
NSF-CISE 9/15/04-8/31/07 $320,000

* These awards also include a Research Experience for Undergraduates (REU) component. Funded by the National Science Foundation, REUs support research participation by undergraduates.

Many faculty are involved in interdisciplinary research projects with other departments and centers within Arizona State University.

Center for Evolutionary Functional Genomics

Panchanathan (CSE 25%)
Computational Analysis of Gene Expression Patter Images
HHS-NIH-NHGRI 7/11/03-6/30/06 $311,108

Department of Chemical and Materials Engineering

Sarjoughian (CSE 36%)
GOALI: Process Control Approaches to Supply Chain Management in Semiconductor Manufacturing
NSF 10/1/04-9/30/07 $45,360

Department of Electrical Engineering

Panchanathan (CSE 50%)
Video Traces: Create, Disseminate, Analyze
NSF-CISE 9/15/02-8/31/06 $366,654

Chatha, Vrudhula (CSE 75%)
CSR-EHS: Analytical Techniques for Global Energy Minimization of a System of Interacting Components
NSF-CISE 8/1/05-7/31/08 $300,000

Candan, Farin, Panchanathan, Ryu, Sundaram (CSE 20%)
CISE RI: An Interdisciplinary Research Environment for Motion Analysis
NSF-CISE 9/15/04-8/31/09 $204,268

Richa (CSE 33%)
Academic and Professional Development for Computer Science, Engineering, and Mathematics Students: Transitioning to Upper Division, Research, Grad...
NSF 8/1/04-7/31/08 $131,989

Chatha, Vrudhula (CSE 70%)
Power Optimization Techniques for a System of Interacting Heterogenous Components
CEINT 1/3/05-1/2/06 $63,652

Department of Mathematics and Statistics

Farin (CSE 5%)
Improved Algorithms for PET/MR Physiological Estimates
NSF 9/20/03-8/31/06 $28,663

Department of Mechanical and Aerospace Engineering

Panchanathan (CSE 25%)
MEASURES: A Proof of Concept Demonstration
NSF 8/15/04-7/31/05 $21,500

International Institute for Sustainability

Baral, Candan, Davulcu, Kambhampati, Liu (CSE 30%)
Enabling the Study of Long-Term Human and Social Dynamics: A Cyberinfrastructure for Archaeology
NSF 9/15/04-8/31/05 $30,000

Ira A. Fulton School of Engineering

Urban, J (CSE 8%)
WISE Investments
NSF-HER 2/1/99-7/31/04 $71,437

Partnership for Research in Spatial Modeling

Nielson (CSE 17%)
Observations and Modeling of Orographic Cumulus Development
Using Digital Imaging and Data Cataloguing
NSF 6/1/04-5/31/06 $54,265.02

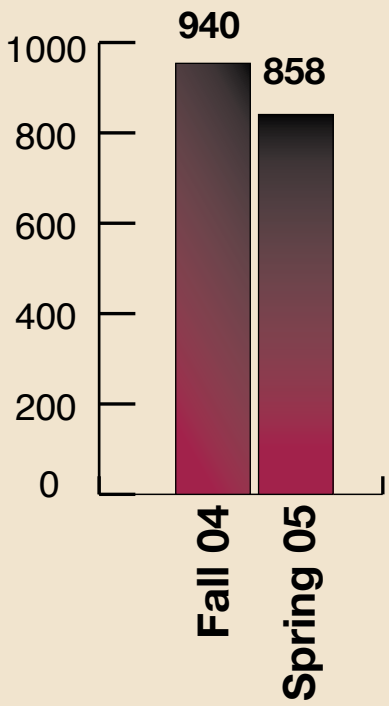
Farin (CSE 25%)
3D Face Authentication for Biometric Access Access Control
NSF-CISE 8/15/03-7/31/06 $53,750

School of Human Evolution and Social Change

Sarjoughian (CSE 15%)
Land-Use and Landscape Socioecology in the Mediterranean Basin
CEINT 2/1/99-7/31/04 $224,999

CSE Students present their research at Fulton School of Engineering poster presentation events.

Undergraduate Degrees



Undergraduate Student Enrollment 2004-2005

The Department of Computer Science and Engineering offers two degree programs at the undergraduate level. The Computer Systems Engineering degree emphasizes the design and production of hardware and software components comprising a computer system. It includes courses on computer organization and architecture, system programming, operating systems, microprocessor system design and digital hardware design.

Although the program addresses numerous application areas, its emphasis on embedded systems sets it apart. The Consortium for Embedded Systems, a partnership of ASU, Intel and Motorola, sponsors curriculum development projects that enable faculty to develop new and innovative courses such as Testing Embedded Systems, which students can take as technical electives. The consortium also provides internship opportunities through which students can earn credit toward their degree.

The Computer Science degree provides a solid background in computing principles and enables students to customize their degrees with 24 hours of computer science and technical electives. More than 30 senior level courses are offered within the department; students may also select courses in mathematics, other engineering areas and biology to meet requirements. This degree also offers a software engineering concentration consisting of four courses in which students have an opportunity to master software development techniques while working in teams.

Undergraduate research opportunities exist for students in both degree programs. The department provides scholarship funds to encourage undergraduate research, which can culminate in an undergraduate thesis through the university's Barrett Honors College.

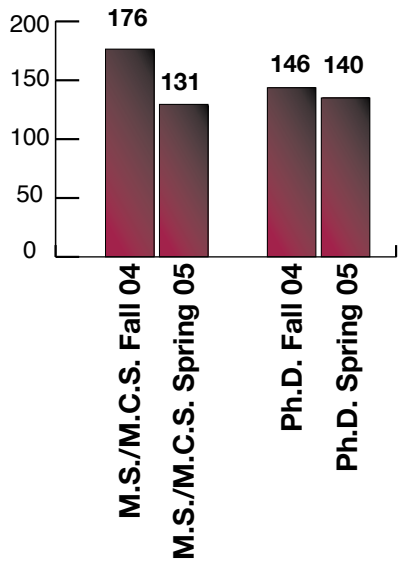
Graduating Students 2004-2005

B.S./B.S.E. - 162
M.S./M.C.S. - 72
Ph.D. - 8

Master's Degree

The Department of Computer Science and Engineering offers two degree programs at the Master's level. The Master of Science in Computer Science (MS) is a research-oriented degree targeted at students with an undergraduate education in the science of computation. It provides advanced course work and emphasizes student research as well as offers numerous opportunities for interdisciplinary study. Within this degree, a concentration in Arts, Media, and Engineering (AME) has recently been established in collaboration with faculty in the Department of Electrical Engineering and the Herberger College of Fine Arts.

The Master of Computer Science (MCS) is an advanced degree targeted at students with undergraduate education in computer-related disciplines who can benefit from further breadth and background.



Graduate Student Enrollment 2004-2005

The MCS also provides an opportunity for students employed in industry to seek advanced education in computer science.

Admission to both degrees is highly competitive. The graduate level course work emphasizes research topics of current interest, bringing students to the research frontier in areas such as embedded systems; information assurance and computer security; multimedia and the arts; database systems; algorithm design and analysis; computational biology; sensor and ad-hoc networks; data mining; information integration; optical networks; and computer aided-geometric design. Independent study in research is encouraged as part of the MS program. The Consortium for Embedded Systems, a partnership of ASU, Intel and Motorola, supports work that applies academic research to industrial problems in embedded systems and networks. This is one of the many ways the MS and MCS programs combine academic excellence and relevance to industry.

Ph.D.

The Doctor of Philosophy (Ph.D.) degree in Computer Science prepares students to undertake fundamental and applied research in computer science in academia, government and industry. Having matured as a discipline in its own right, computer science is now developing deep interactions with other fields, not just in engineering and science, but throughout the arts and humanities, education, law, medicine and business. Indeed, while computers have become essential tools in these areas, the depth of interaction of fundamental computer science with each is rapidly evolving.

The program at ASU strives to reflect the depth and breadth of computer science as a science, an art, an engineering discipline and primarily as a creative human endeavor. Strong collaborations with the six other engineering departments in the Fulton School; the Department of Mathematics and Statistics; the School of Life Sciences and the Biodesign Institute; the William P. Carey School of Business; the Herberger College of Fine Arts; the Consortium for Embedded Systems; and the Translational Genomics Research Institute (TGen), provide a wealth of experience for our doctoral students. Recently, the interdisciplinary strength of the program has been enhanced by a concentration on Arts, Media and Engineering (AME) within the Ph.D. degree.

Distinguished Lecture Series

Cyber-Identity, Authority and Trust in an Uncertain World
Speaker: Ravi Sandhu
Affiliation: George Mason University

Interactive Display and Walkthroughs of Complex Environments
Speaker: Dinesh Manocha
Affiliation: University of North Carolina

Many-to-many Secure Group Communication and Its Applications
Speaker: Dijiang Huang, as faculty candidate
Affiliation: University of Missouri

Surface-Based Similarity Determination and Query-Retrieval of Molecules
Speaker: Rahul Singh
Affiliation: San Francisco State University

On Denial-of-Service Attacks in Under-Water Sensor Networks (UWSN): A Localization Approach
Speaker: Jiejun Kong
Affiliation: University of California

Designing, developing, for evaluating developmentally appropriate technologies for children
Speaker: Juan Pablo Hourcade
Affiliation: U.S. Census Bureau

Automated Reasoning about Actions
Speaker: Joohyung Lee, as faculty candidate
Affiliation: University of Texas at Austin

ePsych, Java and the HyperBook
Speaker: Gary Bradshaw
Affiliation: Mississippi State University

Scheduling Co-allocated Jobs in Computational Mini-Grids
Speaker: Dan Stanzione
Affiliation: Arizona State University

Whole Execution Trace and its Applications
Speaker: Rajiv Gupta
Affiliation: University of Arizona

Towards Simulated Reality Via Physically-Inspired Modeling and Haptic Rendering
Speaker: Ming C. Lin
Affiliation: University of North Carolina

Database Exploration, Search and Retrieval
Speaker: Gautam Das
Affiliation: University of Texas at Arlington

Energy-Efficient Power/Rate Control for Wireless Sensor Networks
Speaker: Marwan Krunz
Affiliation: University of Arizona

Simulating Interactions of Natural and Social Systems: Examples from Ancient Mesopotamia
Speaker: Mark Altaweel
Affiliation: Argonne National Laboratory

Information Sharing across Multiple Private Databases
Speaker: Li (Shirley) Xiong
Affiliation: Georgia Institute of Technology

Managing XML Data Effectively in Relational Databases
Speaker: Yi Chen, as faculty candidate
Affiliation: University of Pennsylvania

Efficient Structural Query Processing in XML Databases
Speaker: Haifeng Jiang
Affiliation: IBM Almaden Research Center

Simulation-based System Development and Testing in a Net-Centric Environment
Speaker: Bernard P. Zeigler
Affiliation: Arizona Center for Integrative Modeling and Simulation

Exploiting Patterns in Biological Data
Speaker: Laxmi Parida
Affiliation: IBM Watson Research Center

Verification and Analysis of System Designs with Functional and Performance Constraints
Speaker: Xi Chen
Affiliation: University of California, Riverside

Cyclic Combinational Circuits and Other Novel Constructs
Speaker: Marc D. Riedel
Affiliation: California Institute of Technology

Software Failures and the Road to a Petaflop Machine
Speaker: Ian Philp
Affiliation: Los Alamos National Lab

High-level Modeling and Optimization in the Nanometer Era
Speaker: Lin Zhong
Affiliation: Princeton University

Human Computer Interaction and Visualization split position between AME and CSE
Speaker: David Gotz
Affiliation: UNC-Chapel Hill

Privacy-Preserving Auditing Algorithms
Speaker: Nina Mishra
Affiliation: HP Labs

Multiple protein structure alignment
Speaker: Jieping Ye, as faculty candidate
Affiliation: University of Minnesota, Twin Cities

Challenges in Improved Sensitivity of Quantification of PET Data for Alzheimer's Disease Studies
Speaker: Rosemary A. Renaut
Affiliation: Arizona State University

Scalable Continuous Query Processing in Location-Aware Database Servers
Speaker: Mohamed F. Mokbel
Affiliation: Purdue University

Automatic Verification of Component-based Systems: A Decompositional and Hybrid Approach
Speaker: Gaoyan Xie
Affiliation: Washington State University

Computer Networking: Recent Developments, Trends and Issues
Speaker: Raj Jain
Affiliation: Nayna Networks, Inc.

Staff

James Allen
Technology Support Analyst, Sr.

Audrey Avant
Secretary Administrative

Maria Barrett
Accountant

Carol Behl
Assistant Director

Helen Burns
Office Specialist, Sr.

Jeanne Clarke
Office Specialist, Sr.

Pamela Dunn
Office Specialist, Sr.

Kathy Fretwell
Administrative Assistant

Sandra Hoeffer
Business Operations Manager

Deborah Hurth
Technology Support Analyst, Sr.

Debby Parker
Office Specialist, Sr.

Lee Reynolds
Technology Support Analyst, Sr.

Casey Smitheran
Academic Specialist

Gia Taylor
Assistant Director, Academic Services

Martha Vander Berg
Academic Specialist

Wayne Woodland
Systems Programmer, Prin.

Faculty Associates

Linda Chattin
Ph.D. State University of New York at Buffalo
Research Interests: operations research and stochastic and deterministic modeling.

Yinong Chen
Ph.D. University of Karlsruhe, Germany, 1993
Research Interests: web services testing, embedded systems, fault-tolerant computing and distributed computing.

George Downing
MS, Arizona State University

Cathy Radziemski

Charles Riden
MS, Fresno State College

Alan Skousen
Ph.D. Arizona State University
Research Interests: distributed computing, operating systems, computer architecture, compilers and single address space operating systems.

Charles Slivinsky
Ph.D. University of Arizona, 1969
Research Interests: multimedia, digital systems, digital signal processing, power systems, programming languages, speech processing and automatic control.

Affiliated and Adjunct Faculty

Forouzan Golshani
Ph.D. Computer Science, Warwick University, UK, 1982
Research Interests: multimedia information analysis, assistive systems and learning with disabilities, information assurance and cybersecurity.

Sudhir Kumar
Ph.D. Pennsylvania State University, 1996
Research Interests: evolutionary and developmental bioinformatics, focusing on developing novel algorithms and software tools and analyzing large scale databases.

Anshuman Razdan
Ph.D. Arizona State University, 1995
Research interests: geometric design, visualization and computer graphics.

Rosemary Renaut
Ph.D. University of Cambridge, England, 1985
Research interests: image reconstruction, restoration, analysis of medical image data, classification, ill-posed problems and algorithms for total least squares with regularization.

Bernard P. Zeigler
Ph.D. University of Michigan, 1968
Research interests: modeling and simulation theory, discrete event system specification, distributed simulation-based system testing and model-based data engineering.

Daniel Stanzione
Ph.D. Clemson University, 2000
Research interests: high performance and grid computing, parallel programming, operating systems and scheduling for large-scale parallel computers and grids, Beowulf clusters, alternative architectures for computational grids, reconfigurable/adaptive computing and computer and network security.

Chitta Baral
Professor
E-mail: chitta@asu.edu
Phone: 480-727-6047
Office: BY 512
Ph.D. University of Maryland, 1991

Chitta Baral has been at ASU since 1999.

Principal Areas of Teaching and Research:
Baral's main research interests are threefold: (i) developing language constructs and surrounding building block results for representing knowledge and reasoning with it, (ii) developing a theory of actions and their impact on an environment, and using this in autonomous agent design, planning and diagnosis; and (iii) using (i) and (ii) in modeling cell behavior, reasoning with it; to explain observations and developing a plan of actions so as to alter pathways that could suggest therapeutic procedures.

Honors and Distinctions:
- NSF CAREER Award, 1995
- Member, senior program committee, AAAI 2002 and 2004
- Best paper awards at CoopIS 2000 and ATAL 1999
- Advisor to robot teams that placed 1st (1997) and 3rd (1996) in AAAI robot contests

Selected Publications:
C. Baral, Knowledge representation, reasoning and declarative problem solving, Cambridge University Press, 2003, ISBN 0521818028.

C. Baral, N. Tran and L. Tuan, "Reasoning about actions in a probabilistic setting," Proc. Am. Assoc. Artificial Intelligence (AAAI 2002), pp. 507-512.

C. Baral and Y. Zhang, "The Complexity of Model Checking for Knowledge Update," Proc. 8th Int'l Conf. Principles Knowledge Representation Reasoning (KR 2002), pp. 82-93.

T. Son and C. Baral, "Formalizing sensing actions—a transition function based approach," Artificial Intelligence, vol. 125, nos. 1-2, 2001, pp. 19-93.

C. Baral, "Abductive reasoning through filtering," Artificial Intelligence, vol. 120, no. 1, 2000, pp. 1-28.

C. Baral and M. Gelfond, "Reasoning about effects of concurrent actions," J. Logic Programming, vol. 31, nos. 1-3, May 1997, pp. 85-117.

Rida A. Bazzi
Associate Professor
E-mail: bazzi@asu.edu
Phone: 480-965-2796
Office: BY 430
Ph.D. Georgia Institute of Technology, 1994

Rida Bazzi joined ASU in 1996. Prior to ASU, he was an assistant professor at Florida International University, Miami, FL. In 1995 he was a senior consultant at I-cube, Cambridge, MA.

Principal Areas of Teaching and Research:
Bazzi's research focuses on distributed computing, software engineering for distributed systems, fault-tolerance algorithms and computer vision.

Honors and Distinctions:
- NSF CAREER Award, 1999

Selected Publications:
R.A. Bazzi and G. Neiger, "Simplifying Fault Tolerance: Providing the Abstraction of Crash Failures," Journal of the ACM, vol. 48, no. 3, May 2001, pp. 499-554.

R.A. Bazzi, "Access cost for asynchronous Byzantine quorum systems," Distributed Computing, vol. 14, no. 1, Jan. 2001, pp. 41-48.

R.A. Bazzi, "Planar Quorums," Theoretical Computer Science, vol. 243, nos. 1-2, July 2000, pp. 243-268.

F. Karablieh, R.A. Bazzi, and M. Hicks, "Compiler-Assisted Heterogeneous Checkpointing," Proc. 20th Symp. Reliable Distributed Systems (SRDS 2001).

R.A. Bazzi, "The complexity of almost optimal coordination," Algorithmica, vol. 17, 1997, pp. 308-321.

Tom Boyd
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Ph.D. Arizona State University, 2001

Tom Boyd joined ASU in 2001. Before ASU, he worked for more than 30 years in industries such as banking, telephony, manufacturing and insurance adjudication systems. He has had experiences in software and hardware design, development, sales, support and management.

Principal Areas of Teaching and Research:
Boyd's research interests include distributed computing, computing communities, process migration, software decay and failure prevention. He currently focuses on teaching computer science topics and researching software failure prevention.

Selected Publications:
T. Boyd and P. Dasgupta, "Preemptive Module Replacement Using the Virtualizing Operating System," Proc. Workshop on Self-Healing (SHAMAN '02).

T. Boyd and P. Dasgupta, "Process Migration: A Generalized Approach using a Virtualizing Operating System," Proc. 22nd Int'l Conf. on Distributed Computing Systems, 2002, pp. 385-392.

T. Boyd and P. Dasgupta, "Injecting Distributed Capabilities into Legacy Applications, Through Cloning and Virtualization," Proc. Int'l Conf. on Parallel and Distributed Processing Techniques and Applications 2000.

T. Boyd and P. Dasgupta, "Virtualizing Operating Systems for Seamless Distributed Environments," Proc. IASTED Int'l Conf. on Parallel and Distributed Computing and Systems, vol. 2, 2000, pp. 735-740.

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Ph.D. Purdue University, 1992

Hasan Çam joined ASU in 2001.

Principal Areas of Teaching and Research:
Çam's research interests include wireless cellular and sensor networks, computer networks, low-power processor architectures and interconnection networks.

Honors and Distinctions:
- Editorial Board Member, Computer Communications and International Journal of Communication Systems

Selected Publications:
H. Çam, "Nonblocking OVSF Codes and Enhancing Network Capacity for 3G Wireless and Beyond Systems," Computer Communications, vol. 26, no. 17, Nov. 2003, pp. 1907-1917.

H. Çam, "Rearrangeability of (2n-1)-Stage Shuffle-Exchange Networks," SIAM Journal on Computing, vol. 32, no. 3, Mar. 2003, pp. 557-585.

H. Çam and J.A.B. Fortes, "Work-Efficient Routing Algorithms for Rearrangeable Symmetrical Networks," IEEE Transactions on Parallel and Distributed Systems, vol. 10, no. 7, July 1999, pp. 733-741.

H. Çam and J.A.B. Fortes, "Frames: a simple characterization of permutations realized by frequently used networks," IEEE Transactions on Computers, vol. 44, May 1995, pp. 695-697.

H. Çam and J.A.B. Fortes, "A fast VLSI-efficient self-routing permutation network," IEEE Transactions on Computers, vol. 44, March 1995, pp. 448-453.

H. Çam, "A Multiclass Priority-Based Slotted-Ring Network for LAN-ATM Interworking," Computer Communications, vol. 20, no. 13, Nov. 1997, pp. 1216-1224.

Debra Calliss
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Ph.D. Arizona State University, 1991
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Debra Calliss joined ASU in 1984 and rejoined in 2004. In 1995, she changed careers, acquiring industry experience as a software engineer, test manager and project manager. In 2001, she returned to teaching as a faculty member at Mesa Community College; she rejoined ASU as a lecturer.

Principal Areas of Teaching and Research:
Calliss' research focuses on computer science education, programming languages and software maintenance. She has taught many of the courses in the computer science curriculum that focus on program development, programming languages, data structures and algorithms and computer organization

Honors and Distinctions:
- ASU Computer Science Summer Program, 2005

Selected Publications:
F.W. Calliss and D.T. Calliss, "Suggested Scenarios of Software Maintenance Education," Proc. 7th SEI CSEE Conf. Software Eng. Edu., Springer Verlag, 1994, pp. 329-340."

D.T. Calliss and F.W. Calliss, "Criteria for Selecting a Family of Software Indicators," Proc. Int'l. Computer Software and Applications Conf., 1993, pp. 408-413.

F.W. Calliss and D. Trantina, "A Controlled Software Maintenance Project," Proc. SEI Conf. Software Eng. Edu., Springer Verlag, 1991, pp. 25-32.

Kasim Selçuk Candan
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Ph.D. University of Maryland, 1997

Kasim Candan joined ASU in 1997.

Principal Areas of Teaching and Research:
Candan's research focuses on database systems; storage/querying/retrieval of multimedia and Web data; integration of database and Internet technologies; heterogeneous information integration and retrieval; distributed multimedia systems; and multimedia document authoring and presentation.

Honors and Distinctions:
- NSF grant, Quality-Adaptive Media-Flow Architectures to Support Sensor Data Management, 2003-2006
- NSF ITR Medium grant, iLearn: IT-enabled Ubiquitous Access to Educational Opportunities for Blind Individuals, 2003-2008
- NSF PPD-FRI grant, Ubiquitous Environment to Facilitate Engineering Education for Blind Persons, 2003-2005
- NSF grant, Replication of Heterogeneous Multimedia Data, 2001-2004
- DOD-AFOSR grant, Code Hiding Techniques for Mobile Applications, 1999-2001
- ARO grant, International Workshop on Multimedia Information Systems, 2002-2003

Selected Publications:
K.S. Candan and W.-S. Li, "Reasoning for Web Document Associations and Its Applications in Site Map Construction," International Journal of Data and Knowledge Engineering, vol. 43, no. 2, 2002, pp. 121-150.

W.-S. Li, K.S. Candan, K. Hirata, and Y. Hara, "SEMCOG Multimedia Database System," IEEE Trans. on Knowledge and Data Engineering, 2002.

K.S. Candan and W.-S. Li, "On Similarity Measures for Multimedia Database Applications," Knowledge and Information Systems, vol. 3, no. 1, 2001, pp. 30-51.

W.-S. Li, K.S. Candan, K. Hirata, and Y. Hara, "Supporting Efficient Multimedia Database Exploration," VLDB Journal, vol. 9, no. 4, 2001, pp. 312-326.

K.S. Candan, E. Lemar and V.S. Subrahmanian, "View Management in Multimedia Databases," VLDB Journal, vol. 9, no. 2, 2000, pp. 131-153.

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Ph.D. University of Cincinnati, 2001

Karamvir Chatha joined ASU in 2001.

Principal Areas of Teaching and Research:
Chatha's research interests are in system-level design methodologies and computer-aided design tools for embedded and VLSI systems. In particular, he has focused on hardware-software co-synthesis and low power design of System-on-Chip (SoC) architectures. He is currently engaged in development of novel computer-aided performance evaluation and design tools for Network-on-Chip based SoC architectures. His research is funded by NSF and Consortium for Embedded and Inter-Networking Technologies (CEINT).

Honors and Distinctions:
- Best Paper Award for "Hardware Software Co-design for Dynamically Re-configurable Architectures" at the Field Programmable Logic and Applications Conference, 1999

Selected Publications:
N. Banerjee, P. Vellanki, and K.S. Chatha, "A Power and Performance Model for Network-on-Chip Architectures," Proc. Design, Automation and Test in Europe Conf. 2004.

K. Srinivasan and K.S. Chatha, "An ILP Formulation for System Level Throughput and Power Optimization in Multiprocessor SoC Architectures," Proc. Int'l Conf. on VLSI Design (2004).

K.S. Chatha and R. Vemuri, "Hardware-Software Partitioning and Pipelined Scheduling of Transformative Applications," IEEE Transactions on VLSI Systems, vol. 10, no. 3, 2002, pp 193-208.

K.S. Chatha and R. Vemuri, "MAGELLAN: Multiway Hardware-Software Partitioning and Scheduling for Latency Minimization of Control-Dataflow Task Graphs," Proc. 9th Int'l Symp. on Hardware/Software Codesign (CODES 2001).

K.S. Chatha and R. Vemuri,"Hardware Software Codesign for Dynamically Reconfigurable Architectures," Proc. 9th Int'l Conf. on Field Programmable Logic and Applications, 1999.

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Ph.D. University of Toronto, 1980

Charlie Colbourn joined ASU in 2001. He has authored more than 260 refereed journal papers and three books and has graduated 15 Ph.D. students.

Principal Areas of Teaching and Research:
Colbourn's research employs combinatorial mathematics and combinatorial algorithms to address problems in diverse areas including software testing, networking (optical, wireless, wireline), computational molecular biology, communications and information theory and experimental design. He develops deep combinatorial results with real applications.

Honors and Distinctions:
- Euler Medal for Lifetime Achievement in Research, Institute for Combinatorics and Its Applications, 2004
- Outstanding Teaching Award, University of Waterloo, 1995
- Keynote/invited speaker in China, Japan, Korea, Australia, New Zealand, Chile, Brazil, Mexico, England, Italy, United States, Germany, Czech Republic, Finland, Greece, Israel, Iran and Canada
- Editor of Networks; Journal of Combinatorial Designs; Journal of Combinatorial Theory (A); Designs, Codes and Cryptography; and Discrete Mathematics

Selected Publications:
J.-C. Bermond, C.J. Colbourn, D. Coudert, G. Ge, A.C.H. Ling, and X. Munoz, "Traffic grooming in unidirectional WDM rings with grooming ratio C=6," to appear in SIAM Journal on Discrete Mathematics, 2005.

C.J. Colbourn, S.S. Martirosyan, G.L. Mullen, D.E. Shasha, G.B. Sherwood, and J.L. Yucas, "Products of Mixed Covering Arrays of Strength Two," to appear in Journal of Combinatorial Designs, 2005.

W. Chu, C.J. Colbourn, and V.R. Syrotiuk, "Slot Synchronized Topology-Transparent Scheduling for Sensor Networks," to appear in Computer Communications, 2005.

C.J. Colbourn, A.C.H. Ling, and V.R. Syrotiuk, "Cover-free families and topology-transparent scheduling in MANETs," Designs, Codes and Cryptography, vol. 32, 2004, pp. 65-95.

James S. Collofello
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Ph.D. Northwestern University, 1978

James Collofello joined ASU in 1979 and was instrumental in the start of the computer science degree program. For his entire career, he has maintained a close relationship with software development firms in the state working on joint research projects, developing industry training programs and serving as a software engineering consultant.

Principal Areas of Teaching and Research:
Collofello's research interests lie in the software engineering area. Within software engineering, his primary emphasis is software process modeling, software quality assurance and software project management. He is also very active in software engineering education projects and outreach to local high schools.

Selected Publications:
C. Colbourn, J. Collofello, M. Cohen, P. Gibbons, and W. Mugridge, "Variable Strength Interaction Testing of Components," Proc. 27th Int'l. Computer Software and Applications Conf. (COMPSAC 2003), IEEE CS Press, 2003, pp. 413-418.

J. Collofello, J. Urban, M. Anderson-Rowland, F. Navabi, and D. Roman, "COOL (Computer Outreach Opportunities for Learning) Development and Assessment," Proc. 33rd ASEE/IEEE Frontiers in Eng. Education Conf., 2003.

D. Houston, J. Collofello, and G. Mackulack, "Simulating Risk Factors for Software Development Risk Management," Journal of Systems and Software, vol. 59, no. 3, Dec. 2001, pp. 247-257.

D. Houston, J. Collofello, et al., "Finding the Influential Factors in Software Process Simulation Models," Journal of Systems and Software, vol. 59, no. 3, Dec. 2001, pp. 259-270.

I. Rus and J. Collofello, "Integrating Process Simulation and Reliability Models," CrossTalk: The Journal of Defense Software Engineering, vol. 14, no. 1, Jan. 2001, pp. 15-18.

J. Collofello and C. Ng, "Assessing the Process Maturity Utilized in Software Engineering Team Project Courses," Journal of Engineering Education, vol. 90, no. 1, Jan. 2001.

Partha Dasgupta

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Ph.D. State University of New York at Stony Brook, 1984

Partha Dasgupta joined ASU in 1991. Prior to ASU, he had an appointment with Georgia Tech. He held visiting faculty positions at New York University in 1993-1994 and 1998-1999. NSF, DARPA and other sources have consistently funded Dasgupta's research.

Principal Areas of Teaching and Research:
Dasgupta's work focuses on security and distributed operating systems.

Honors and Distinctions:
- Best paper awards, Conference on Parallel and Distributed Computing Systems, 2004, and Conference on Distributed Computing Systems, 1995
- Department of Computer Science and Engineering Outstanding Teaching Award, 1998
- IEEE Computer Society Certificates of Appreciation, 1999, 1994, 1993

Selected Publications:
L. Tari, C. Baral, and P. Dasgupta, "Understanding the Global Properties of Functionally-Related Gene Networks Using the Gene Ontology," Pacific Symp. on Biocomputing, 2005.

S. Krishnamoorthy and P. Dasgupta, "Tackling Congestion to Address Distributed Denial of Service: A Push-Forward Mechanism," Proc. IEEE Global Communications Conf. (Globecom 2004), IEEE Press, 2004, pp. 2055-2060.

P. Dewan, P. Dasgupta, "Securing Reputation Data in Peer-to-Peer Networks," Proc. 16th IASTED Int'l. Conf. on Parallel and Distributed Computing and Systems (PDCS 2004) , 2004.

M. Khambatti, K. Ryu, and P. Dasgupta, "Efficient Discovery of Implictly Formed Peer-to-Peer Communities," Int'l J. Parallel and Distributed Systems and Networks, vol. 5, no. 4, 2002, pp. 155-164.

A. E. Motter, A.P.S. de Moura, Y.-C. Lai, and P. Dasgupta, "Topology of the Conceptual Network of Language," Physical Review E, vol. 65, 2002.

Hasan Davulcu

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Ph.D. State University of New York at Stony Brook, 2002

Hasan Davulcu joined ASU in August 2002. Prior to ASU, Davulcu performed research and development in intelligent Web agent technologies at a technology start-up.

Principal Areas of Teaching and Research:
Davulcu's main research interest is using ontology-directed data mining techniques for structuring and organizing unstructured data, such as Web, text documents and gene sequences. Semantic Web enables information to be machine processable so that machines can distinguish between words and meanings and "do the right thing" with the data on the Web. Davulcu's research focuses on (i) mining ontologies from Web documents, (ii) ontology-directed annotation of web sources, (iii) enriching and maintaining ontologies and (iv) techniques for merging ontologies to achieve information integration. This ontology-directed Web mining approach enables rapid creation of domain-specific search engines and extraction of structured and organized knowledge bases from heterogeneous documents and data sources. One current project aims to establish a Toxin Knowledge Base, a resource for the fight against bioterrorism.

Honors and Distinctions:
- U.S. Army Medical Research Institute of Infectious Disease and Department of Defense grant, "A System for Discovering Bioengineered Threats by Knowledge Base Driven Mining of Toxin Data" (subcontract from BNL), 2003-2005

Selected Publications:
H. Davulcu, S. Vadrevu, S. Nagarajan, and I.V. Ramakrishnan, "OntoMiner: Bootstrapping and Populating Ontologies From Domain Specific Web Sites," IEEE Intelligent Systems, vol. 18, no. 5, Sept./Oct. 2003, pp. 24-33.

H. Davulcu, S. Mukherjee, and I.V. Ramakrishnan, "Extraction Techniques for Mining Services from Web Sources," Proc. 2002 IEEE Int'l. Conf. on Data Mining (ICDM 2002), IEEE CS Press, 2002, pp. 601-604.

H. Davulcu, G. Yang, M. Kifer, and I.V. Ramakrishnan, "Computational Aspects of Resilient Data Extraction from Semistructured Sources," ACM Symp. on Principles of Database Systems (PODS 2000), ACM Press, 2000, pp. 136-144.

Joseph DeLibero

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M.S. Purdue University, 1972

Joseph DeLibero joined ASU in 1991 and teaches lower division and service courses. Before coming to ASU, he had extensive teaching experience and leadership positions in education and corporate training. He is a member of IEEE, ACM and ASEE.

Principal Areas of Teaching and Research:
DeLibero's interests are in lower division education and how to make technology and its implications more relevant to students. As advisor to the Windows Interest Group (WIG), DiLibero supports several hundred students each year. WIG provides regular presentations and hands-on activities associated with topics in the current curriculum. Microsoft has funneled more than $200,000 in kind to these students.

Honors and Distinctions:
- Department of Computer Science and Engineering Outstanding Teaching Award, 2000
- Associated Students of ASU Centennial Professorship Award Finalist, 2001; Nominee, 2002
- ASU Student Affairs Honors, 1998, 2000, 2001, 2002
- ASU Upward Bound Program Honors, 2000
- Scottsdale Community College Adjunct Faculty of the Year, 1999-2000
- Fellowship in Biochemistry, Massachusetts Institute of Technology, 1972

Selected Publications:
J. DeLibero, Introduction to the Macintosh, Freedom TLC, 2001.

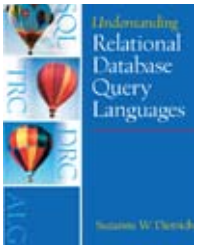
J. DeLibero, Introduction to Windows 2000, Freedom TLC, 2001.

J. DeLibero, Introduction to FileMaker Pro, v. 5, Freedom TLC, 2001.

J. DeLibero, Introduction to Word 2000, Freedom TLC, 2001.

J. DeLibero, Introduction to Excel 2000, Freedom TLC, 2001.

DeLibero has also created PowerPoint presentations for:
G. Bronson, A First Book of C++, Brooks/Cole, 2000.



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Ph.D. State University of New York at Stony Brook, 1987

Suzanne W. Dietrich joined ASU in 1987. Her educational and research efforts have been supported by grants from the National Science Foundation. She is a member of ACM, SIGMOD and SIGCSE.

Principal Areas of Teaching and Research:
Dietrich focuses on the educational, theoretical and practical aspects of databases. Her research currently investigates the design and evaluation of an active integration rule language and the development of a middle-tier, rule-processing framework that uses events and active rules for the integration of enterprise applications. Her educational efforts are focused on the ongoing development of the WinRDBI educational tool for understanding relational database, query languages and the development of a national model for an advanced database course for undergraduates, including object-oriented conceptual data models (EER and UML), object-oriented databases, object-relational databases and databases and the web (JDBC and XML).

Honors and Distinctions:
- Department of Computer Science and Engineering Outstanding Teaching Award, 2001
- Office of Naval Research Graduate Fellowship, 1983-1987
- Valedictorian, State University of New York at Stony Brook, 1983

Selected Publications:
S.W. Dietrich, Understanding Relational Database Query Languages, Prentice Hall, 2001.

S.W. Dietrich and S.D. Urban, An Advanced Course in Database Systems: Beyond Relational Databases, Prentice Hall, 2005, to appear.

S.W. Dietrich, S.D. Urban, A. Sundermier, Y. Na, Y. Jin, and S. Kambhampati, "A Language and Framework for Supporting an Active Approach to Component-Based Software Integration," Informatica, vol. 25, no. 4, Nov. 2001, pp. 443-454.

Leonard Faltz
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Ph.D. University of California, Berkeley, 1977

Faltz joined ASU in 1979 and the Department of Computer Science and Engineering in 1985. His educational background is in mathematics and linguistics.

Principal Areas of Teaching and Research:
Faltz's research examines the formal aspects of natural language morphology, syntax, semantics and lexicon.

Selected Publications:
L. Faltz and E. L. Keenan, Boolean Semantics for Natural Language, Reidel, 1985.

L. Faltz, The Navajo Verb, UNM Press, 1998.

Gerald E. Farin
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Ph.D. Technical University of Braunschweig, 1979

Gerald Farin joined ASU in 1987. He has also worked at the University of Utah and spent four years in CAD/CAM development at Mercedes-Benz, Stuttgart, Germany. He has taught CAGD tutorials worldwide and has given more than 100 invited lectures worldwide.

Principal Areas of Teaching and Research:
Farin's primary research interest is in computer aided geometric design, an interdisciplinary area concerned with computational aspects of modeling 3D objects.

Honors and Distinctions:
- CAGD conference honoree, Athens, Greece, 1994
- Executive board, PRISM, 1995-present
- Internal scientific advisory board, Arizona Alzheimer Research Center, 1996-present
- Department of Computer Science and Engineering Outstanding Teaching Award, 1999
- Chair, SIAM special interest group on Geometric Design, 2002-present
- Schloss Dagstuhl award for achievements in CAGD, 2002
- Scientific advisory board, Mathematics for key technologies, Berlin, 2003-present
- Editor-in-chief of the journal Computer Aided Geometric Design, published by Elsevier
- Editorial board member, Springer-Verlag series on Mathematics and Visualization

Selected Publications:
G. Farin and D. Hansford, Practical Linear Algebra, AK Peters, 2005.

G. Farin and D. Hansford, Lineare Algebra: ein geometrischer Zugang. Springer-Verlag, Heidelberg, 2003.

G. Farin, J. Hoschek, and M.S. Kim, eds., Handbook of CAGD, Elsevier, 2002.

G. Farin, B. Hamann, and H. Hagen, eds., Hierarchical and Geometrical Methods in Scientific Visualization, Springer-Verlag, 2002.

G. Brunnett, H. Bieri, and G. Farin, eds., Geometric Modeling, Springer-Verlag, 2001.

Nicholas V. Findler

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Ph.D. Budapest University of Technical Sciences, 1956

Nicholas Findler joined ASU as a research professor in 1982. Since 1996, he has been Professor Emeritus of Computer Science and Engineering, and Mathematics, as well as Director Emeritus of the Artificial Intelligence Lab. Findler has authored or co-authored more than 220 refereed articles, written/edited/contributed to 45 books and visited 119 countries for lectures and conferences.

Principal Areas of Research:
Findler's research interests include artificial intelligence; automatic analysis and synthesis of strategies; simulation of human cognitive behavior; man-machine systems; pattern recognition; self-adaptive systems; computational linguistics; information, fact and knowledge retrieval; multi-agent systems; and complex systems.

Honors and Distinctions:
- Medal of Merit from the Rector of the University of Helsinki, Finland, 1980
- Consultant at the RAND Corporation, Santa Monica, California, 1981
- Member, USIA Advisory Committee for Selecting Senior Fulbright Scholars, 1982-90
- Participant in the U.S.-India Exchange of Scientists Program, 1984
- Recognition of Service Award, Council for International Exchange of Scientists, 1985
- Member of editorial boards and contributor to several encyclopedias on computing
- Centennial Award of Merit from the ASU President for organizing the Nobel Symposium, 1986
- Fellow, British Computer Society, 1986
- Senior Member, IEEE, 1986
- ACM Recognition of Service Award, 1986
- Special Award by the South-East Asia Computer Confederation, 1986
- Member, Nominating Committee for the Kyoto Prize, Inamori Foundation, Japan, 1987-present
- Life-long Honorary Member of the Computer and Automation Research Institute, Hungarian Academy of Sciences, 1989-present
- Referee for the NATO Scientific Exchange Programs, 1990-present
- NATO lectures in Estonia, Latvia, Lithuania, Poland and Czech Republic, 1996
- Award and Golden Diploma for Life-long Achievements, Technical Univ. of Budapest, 2003

Gerald C. Gannod

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Ph.D. Michigan State University, 1998

Gerald Gannod joined ASU in 1998.

Principal Areas of Teaching and Research:
Gannod's research interests fall generally in the area of software engineering and specifically in the areas of software product lines, reverse engineering, formal methods for software analysis and design and software for embedded systems. In addition to performing basic research, he also has interests in technology transfer, especially in the area of tools and methodologies that can assist practitioners in developing high-integrity and high-consequence systems (e.g. systems whose failure results in catastrophic loss).

Honors and Distinctions:
- NSF CAREER Award, 2002-2007
- Motorola Summer Faculty Fellowship, Motorola Computer Group, 2000
- NASA/ASEE Summer Faculty Fellowship, NASA/Cal Tech Jet Propulsion Laboratory, 1999
- NASA Graduate Student Researchers Program Fellowship, 1994-97

Selected Publications:
G. Gannod and R.R. Lutz, "Analysis of a Software Product Line Architecture: An Experience Report," Journal of Systems and Software (Special Volume on Software Architecture - Engineering Quality Attributes), Elsevier Scientific Publishers, 2003.

G. Gannod, S.V. Mudiam and T.E. Lindquist, "Automated Support for Service-Based Software Development and Integration," Journal of Systems and Software (Special Volume on Automated Component-Based Software Engineering), vol. 74, no.1, Jan. 2005, pp. 65-71.

Sandeep K. S. Gupta

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Ph.D. Ohio State University, 1995

Sandeep K. S. Gupta joined ASU in 2001. Prior to ASU, he held teaching and/or research positions at Duke University, Ohio University and Colorado State University.

Principal Areas of Teaching and Research:
Gupta's research interests include mobile and pervasive computing (location management, data caching, context-aware computing, middleware, etc.) and wireless sensor networking (energy-efficient and reliable data dissemination and aggregation protocols, security, biomedical applications, etc.).

Honors and Distinctions:
- NSF ITR/SII grant, Wireless Networking Solutions for Smart Sensor Biomedical Applications (with Wayne State University), 2000-2004
- Workshop Chair, Workshop on Wireless Security and Privacy (WiSPR'03), Kaoshiung, Taiwan, Oct. 2003

Selected Publications:
G. Vasamapoulos and S. K. S. Gupta, "Optimal Online and Offline Registration Techniques for Location Management with Overlapping Registration Areas," to appear in IEEE Trans. on Mobile Computing, 2005.

G. Vasamapoulos and S. K. S. Gupta, "Dynamically Adapting Registration Areas to User Mobility and Call Patterns for Efficient Location Management in PCS Networks," IEEE/ACM Trans. on Networking, vol. 12, no. 5, Oct. 2004, pp. 837-850.

L. Schwiebert, S. K. S. Gupta, et al., "Research Challenges in Wireless Networks of Biomedical Sensors," Proc. 7th Ann. ACM/IEEE Int'l Conf. on Mobile Computing and Networking (2001), ACM Press, pp. 151-165.

A. Kahol, S. Khurana, S. K. S. Gupta, et al., "A Strategy to Manage Cache Consistency in a Distributed Mobile Wireless Environment," IEEE Trans. on Parallel and Distributed Systems, pp vol. 12, no. 7, July 2001, pp. 686-700.

S. K. S. Gupta, S. D. Kaushik, C.-H. Huang and P. Sadayappan, "On compiling array expressions for efficient execution on distributed-memory machines," J. Parallel and Distributed Computing, vol. 32, no. 2, Feb. 1996, pp. 155-172.

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Ph.D. University of Arizona, 1975

Ben Huey joined ASU in 1979. Since 1984, he has served the department as assistant chair, acting chair and associate chair. In 1999, he became associate dean for Planning and Administration in Ira A. Fulton School of Engineering. Huey is a member of ASEE, Eta Kappa Nu, Upsilon Pi Epsilon and Alpha Chi.

Principal Areas of Teaching and Research:
Huey's interests include language-based models for architecture, silicon compilation, design verification and automatic test generation.

Honors and Distinctions:
- Institute of Electrical and Electronics Engineers, Senior Member
- IEEE EAB Accreditation Policies Committee, 2003-present
- IEEE Phoenix Section Executive Committee, 1981-1989; Chair 1988
- IEEE Computer Society, Phoenix Section, President, 1981; Vice President, 1980; Treasurer, 1982
- ABET Computing Accreditation Commission, 2000-present; Executive Committee 2000-2003; Chair 2001-2002
- Computer Science Accreditation Board, Visiting Team Chair, CSAC Commissioner, 1993-present; Visitor 1990-1992
- ASU Corporate Leaders Program Professor of the Year, 1994

Selected Publications:
B. Huey, "Engineering 2020," Proc. ABET Annual Meeting, Oct. 2003.

G. Gannod, F. Golshani, B. Huey, Y.-H. Lee, S. Panchanathan, and D. Pheanis, "A Consortium based Model for the Development of a Concentration Track in Embedded Systems," July 2002.

S. Pri-Tal, J. Robertson, and B. Huey, "An Arizona Ecosystem for Embedded Systems," Proc. "IEEE Int'l. Performance Computing and Communications Conf., IEEE CS Press, April 2001, pp. 131-134.

Subbarao Kambhampati
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Ph.D. University of Maryland, 1989

Subbarao Kambhampati joined ASU in 1991.

Principal Areas of Teaching and Research:
Kambhampati's research interests include artificial intelligence (automated planning, scheduling, speedup learning, CSP, SAT, etc.) and databases (data/information integration, query planning, statistics gathering, Web services, etc.).

Honors and Distinctions:
- NSF Young Investigator, 1994
- College of Engineering and Applied Sciences Teaching Excellence Award, 2001-2002

Selected Publications:
Z. Nie and S. Kambhampati, "A frequency-based approach for mining coverage statistics in Data Integration," Proc. 20th Intl' Conf on Data Eng. (ICDE 2004), IEEE Cs Press, 2004, pp. 387-398.

T. Zimmerman and S. Kambhampati, "Learning-assisted automated planning: Looking back, taking stock, going forward," AI Magazine, vol. 24, no. 2, Summer 2003, pp. 73-96.

M.B. Do and S. Kambhampati, "Sapa: A Scalable Multi-Objective Metric Temporal Planner," J. of Artificial Intelligence Research, vol. 20, 2003.

R. Sanchez and S. Kambhampati, "AltAlt-p: Online parallelization of plans with heuristic state search," Journal of Artificial Intelligence Research, vol. 19, Dec. 2003.

Seungchan Kim
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Ph.D. Texas A&M University, 2001

After spending two years as a post-doctoral fellow at National Institutes of Health (2001-2003), Seungchan Kim joined the Translational Genomics Research Institute (TGen). In 2004, he was appointed an assistant professor at ASU while still holding a position at TGen.

Principal Areas of Teaching and Research:
Kim's research focuses on computational systems biology, an effort to incorporate mathematical and computational tools into the study of cellular systems. Currently, in collaboration with biomedical scientists at TGen, he works on 1) discovery of subtypes of tumors and the identification of molecular markers and 2) mathematical modeling of regulatory mechanisms of tumorigenesis.

Honors and Distinctions:
- AACR-AstraZeneca Scholarship-in-Training Award, 2002
- Student Travel Award for SPIE Conference (Jan. 2000)
- ASAE Honorable Mention Paper Award, 1998
- 3 patents pending

Selected Publications:
S. Kim, et al., "Multivariate measurement of gene-expression relationships," Genomics, vol. 67, 2000, pp. 201-209.

S. Kim, et al., "Strong feature sets from small samples," J Comput Biol, vol.9, no. 1, 2002, pp. 127-46.

S. Kim., et al., "Can Markov chain models mimic biological regulation?," J. Biol Systems, vol. 10, no. 4, 2002, pp. 337-358.

I. Shmulevich, et al., "Probabilistic Boolean Networks: a rule-based uncertainty model for gene regulatory networks," Bioinformatics, vol. 18, no. 2, 2002, pp. 261-74.

R.F. Hashimoto, et al., "Growing genetic regulatory networks from seed genes," Bioinformatics, vol. 20, no. 8, 2004, pp. 1241-7.

J. Goutsias and S. Kim, "A Nonlinear Discrete Dynamical Model for Transcriptional Regulation: Construction and Properties," Biophys. J., vol. 86, no. 4, 2004, pp. 1922-1945.

Goran Konjevod

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Ph.D. Carnegie Mellon University, 2000

Goran Konjevod has been at ASU since 2000.

Principal Areas of Teaching and Research:
Konjevod's main research interests are theoretical computer science and discrete mathematics, in particular the design of efficient algorithms for difficult computational problems. He has also been collaborating with the Los Alamos National Laboratory since 1998 on research in transportation and simulation science.

Honors and Distinctions:
- NSF CCR-Theory of Computing Grant for research on set-covering problems in combinatorial optimization, 2002

Selected Publications:
N. Garg, G. Konjevod and R. Ravi, "A polylogarithmic approximation algorithm for the group Steiner problem," Journal of Algorithms, vol. 37, 2000, pp. 66-84.

G. Konjevod, R. Ravi and A. Srinivasan, "Approximation algorithms for the covering Steiner problem," Random Structures and Algorithms, vol. 20, 2002, pp. 465-482.

C. Barrett, K. Bissett, R. Jacob, G. Konjevod and M. Marathe, "Classical and contemporary shortest path problems in road networks: implementation and experimental analysis of the TRANSIMS router," Proc. 10th European Symp. Algorithms (ESA 2002), LNCS vol. 2461, pp. 126-138.

R. Carr, T. Fujito, G. Konjevod and O. Parekh, "A 2.1-approximation algorithm for a generalization of the weighted edge-dominating set problem," Journal of Combinatorial Optimization, vol. 5, 2001, pp. 317-326.

G. Konjevod, R. Ravi and F. S. Salman, "On approximating planar metrics by trees," Information Processing Letters, vol. 80, 2001, pp. 213-219.

Yann-Hang Lee

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Ph.D. University of Michigan, Ann Arbor, 1985

Yann-Hang Lee joined ASU in 2000. Before ASU, he was a professor at the University of Florida-Gainesville.

Principal Areas of Teaching and Research:
Lee's research interests have centered on real-time embedded systems over the past few years. These systems have been a focus of growing interest in science and engineering disciplines. They have emerged as intelligent controllers in many large-scale infrastructure networks and coordinated subsystems on which our society and daily lives depend. Lee's research explores scientific principles and technology to renew the development approaches for real-time embedded systems of a broad range of applications, including effective analysis, design and implementation methods to meet system requirements and application characteristics.

Honors and Distinctions:
- Program Co-Chair, 1995 IEEE Real-time Systems Symposium, Italy, Dec. 1995
- General Co-Chair, 1996 IEEE Real-time Systems Symposium, Washington D. C., Dec. 1996
- Co-Editor, Special Issue on Real-time Computing (Real-Time Systems Revisited: New Approaches & Applications), IEEE Proceedings, Sept. 2003

Selected Publications:
Y.-H. Lee and C. M. Krishna, "Scheduling of Voltage-clock Modes in Fixed Priority Real-time Systems," Real-time Systems Journal, vol. 24, no. 3, May 2003, pp. 303-317.

Y. Huang and Y.-H. Lee, "System and Software Designs for Transaction Processing in Asymmetric Communication Environments," Software: Practice and Experience (SPE), vol. 33, no. 14, Nov. 2003, pp. 1359-1376.

D. Kim and Y.-H. Lee, "Software Architecture Supporting Integrated Real-time Systems," The Journal of Systems and Software, vol. 65, no. 1, 2003, pp. 71-86.

C. M. Krishna and Y.-H. Lee, "Voltage-Clock-Scaling Adaptive Scheduling Techniques for Low Power in Hard Real-Time Systems," IEEE Trans. Computers, vol. 52, no. 12, Dec. 2003, pp. 1586-1593.

William E. Lewis

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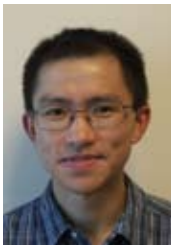
Ph.D. Northwestern University, 1966

Bill Lewis joined ASU in 1965 and became the founding chair of the Department of Computer Science and Engineering in the fall of 1980. He assumed the role of Associate Dean of the College of Engineering and Applied Sciences in the fall of 1985. In July 1993, he accepted the position of Vice Provost for Information Technology. Lewis assumed his current position of Chief Information Officer and Vice Provost in January of 2003 and continues to hold the rank of professor in the Department of Computer Science and Engineering.

Principal Areas of Teaching and Research:
Lewis' primary research interests are computer science; operations research; performance evaluation and advanced systems concepts; and intra- and internets.

Honors and Distinctions:
- Outstanding Teacher Award, Alpha Pi Mu, Arizona State Chapter, 1976
- Editor of COGWHEEL, the Alpha Pi Mu national publication, 1970-1976
- Arizona State University Faculty Senate, 1968-1973
- GSA/FAI grant, "21st Century Distributed Learning Environment" (co-PI), 1998-2003
- NSF grant, "Enabling and Extending the Arizona Infrastructure for Advanced Networking and Applications Research Via the vBNS" (co-PI), 1998-2000
- U.S. West Foundation grant, "US West/NEA Teacher Network" (co-PI), 1997-2001
- Best Western grant, "Best Western International, Inc.," internship program, 1997-98



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Ph.D. University of Maryland, College Park, 2000

Baoxin Li joined ASU in 2004. Prior to that he was a Senior Researcher with SHARP Laboratories of America, Camas, Washington. He was also an adjunct assistant professor at Portland State University from 2003 to 2004.

Principal Areas of Teaching and Research:
Li's research focuses on image and video processing, computer vision, statistical inference and multimedia content indexing and analysis.

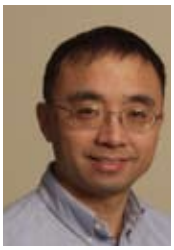
Honors and Distinctions:
- SHARP Laboratories President's Award, 2001, 2004
- SHARP Laboratories Inventor of the Year Award, 2002

Selected Publications:
B. Li, J. Errico, H. Pan, and I. Sezan, "Bridging the Semantic Gap in Sports Video Retrieval and Summarization," Journal of Visual Communication and Image Representation, vol. 15, Sept 2004, pp. 393-424.

B. Li and I. Sezan, "Semantic Sports Video Analysis: Approaches and New Applications," Proc. 2003 IEEE Int'l. Conf. Image Processing, (ICIP 2003), IEEE Press, 2003, pp. 17-20.

B. Li and R. Chellappa, "A Generic Approach to Simultaneous Tracking and Verification in Video," IEEE Trans. Image Processing, vol., 11, no. 5, May 2002, pp. 530-544.

B. Li and R. Chellappa, "Face Verification through Tracking Facial Features," J. of Optical Society of America – A, vol. 18, no. 12, Dec. 2001.



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Ph.D. University of Southern California, 1989

Huan Liu joined ASU in 2000 after conducting research in Telecom (Telstra) Australia Research labs and teaching at the National University of Singapore. He has extensive experience in research and development.

Principal Areas of Teaching and Research:
Liu's research and teaching focuses on machine learning (ensemble methods, active learning, rule extraction, feature selection and discretization, subspace clustering), data mining (data quality and integration, stream data reduction, bioinformatics, algorithm scaling-up), and real world applications (CRM, Egeria detection in imagery, intelligent driving data analysis, recommender systems).

Honors and Distinctions:
- IEEE, Senior Member since 1997
- Conference Co-chair, Austrasia Joint Conference on AI, Melbourne, Australia, 1993
- Program Co-chair, Conference of Pacific-Asia Knowledge Discovery and Data Mining (PAKDD), Japan, 2003
- Program Co-chair, Conference of PAKDD, Vietnam, 2005
- Editorial Board/Associate Editor, Informatica, 1999; KAIS, 2003; IJCSA, 2004; IJSIT, 2004
- Advisory Board, Handbook of Data Mining, 2003; Encyclopedia of Data Warehousing and Data Mining, 2004

Selected Publications:
H. Liu and L. Yu. "Toward Integrating Feature Selection Algorithms for Classification and Clustering," IEEE Trans. on Knowledge and Data Engineering, vol. 17, no. 4, April 2005, pp. 491-502.

H. Liu, H. Motoda, and L. Yu. "A Selective Sampling Approach to Active Feature Selection," Artificial Intelligence, vol. 159, nos. 1-2, Nov. 2004, pp. 49-74.

L. Yu and H. Liu. "Feature Selection for High-Dimensional Data: A Fast Correlation-Based Filter Solution," Proc. 20th Int'l Conf. on Machine Learning, Morgan Kaufmann, 2003.

H. Liu, F. Hussain, C.L. Tan, and M. Dash, "Discretization: An Enabling Technique," J. of Data Mining and Knowledge Discovery, vol. 6, no. 4, 2002, pp. 393-423.

Donald S. Miller
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Ph.D. University of Southern California, 1972

Donald Miller has been at ASU since 1981. From 1977 to 1981 he was an assistant professor at Washington State University. Prior to that he worked in industry in California. He has received research and equipment funding from IBM, Motorola, Honeywell, NSF and Sun, and has written more than 50 research papers.

Principal Areas of Teaching and Research:
Miller's primary research interest is distributed single address space operating systems. His work focuses on operating system internals and related computer architecture and computer network issues.

Honors and Distinctions:
- Recent grants funded the setup of an Embedded Linux course sequence in 2001 and 2002 and research into OS and Network Software for Embedded Systems in 2001.

Selected Publications:
R. Feigen, A. Skousen and D. Miller, "Reduction of Software Development Costs under the Sombrero Distributed Single Address Space Operating System," Proc. Int'l Conf. on Parallel and Distributed Processing Techniques and Applications (PDPTA'2002).

A. Skousen and D. Miller, "The Sombrero Single Address Space Operating System Prototype A Testbed for Evaluating Distributed Persistent System Concepts and Implementation," Int'l Conf. on Parallel and Distributed Processing Techniques and Applications (PDPTA'2000).

A. Skousen and D. Miller, "Using a Single Address Space Operating System for Distributed Computing and High Performance," Proc. IEEE Int'l Performance, Computing and Communications Conf. (IPCCC 1999), IEEE CS Press, 1999, pp. 8-14.

A. Skousen and D. Miller, "Using a Distributed Single Address Space Operating System to Support Modern Cluster Computing," Hawaii Int'l Conf. on System Sciences (HICSS-32), 1999.

A. Skousen and D. Miller, "Operating System Structure and Processor Architecture for a Large Distributed Single Address Space," Int'l Parallel and Distributed Computing and Systems Conf. (PDCS'98).

Mutsumi Nakamura

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Ph.D. University of Texas at Arlington, 2001

Mutsumi Nakamura joined ASU in 2000.

Principal Areas of Teaching and Research:
Nakamura's research focuses on active and web-based database systems. She has taught courses in data structures and algorithms, automata theory and Java programming language.

Honors and Distinctions:
- ASU Student Affairs Honors, 2002
- Ira A. Fulton School of Engineering Teaching Excellence Award Nominee, 2004

Selected Publications:
M. Nakamura and R. Elmasri, "Using Smodels (Declarative Logic Programming) to Verify Correctness of Certain Active Rules," Proc. 18th Int'l Conf. on Data Eng., vol. 1, IEEE Computer Society, p. 270.

M. Nakamura, C. Baral, and M. Bjareland, "Maintainability: a weaker stabilizability like notion for high level control," Proc. 17th Natl. Conf. On Artificial Intelligence and 12th Conf. On Innovative Applications of Artificial Intelligence (AAAI 2000), AAAI Press/The MIT Press, pp. 62-67.

M. Nakamura and C. Baral, "Invariance, maintenance and other declarative objectives of triggers—a formal characterization of active databases," Proc. 1st Int'l Conf. on Computational Logic, DOOD track (CL'2000), Springer, pp. 1210-1224.

Faye Navabi

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M.S. University of Louisiana at Lafayette, 1991

Faye Navabi joined ASU as a lecturer in 1997. Before ASU, she served as a full time faculty member at the University of Louisiana at Monroe for four years.

Principal Areas of Teaching and Research:
Navabi is interested in improving the undergraduate program curriculum. She works on developing strategies to help students succeed in introductory courses and to retain students in the program.

Honors and Distinctions:
- ASU SUN award, 2001
- Ira A. Fulton School of Engineering Teaching Excellence Award Nominee, 2004

Selected Publications:
F. Tadayon-Navabi, M.R. Anderson-Rowland, J.S. Collofello, and D. Banks, "Increasing the Probability of Success in the First Computer Science Course," Proc. 34th Ann. ASEE/IEEE Frontiers in Education Conf. (FIE 2004), IEEE Press, 2004, pp. 16-20.

J. Collofello, J. Urban, M. Anderson-Rowland, F. Navabi, and D. Roman, "COOL (Computer Outreach Opportunities for Learning) Development and Assessment," Proc. 33rd ASEE/IEEE Frontiers in Eng. Education Conf., 2003.

F. Navabi and W.R. Edwards, "Analysis of the Behavior of Stack-Based Markov Model," Proc. 22nd Southeastern Int. Conf. on Combinatory, Graph Theory, and Computing 1991.

F. Navabi, tech. report 90-4-8, CACS.

Gregory M. Nielson

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Ph.D. University of Utah, 1970

Gregory Nielson joined ASU in the Department of Mathematics in 1970. He moved to CSE in 1985. Before coming to ASU he worked as a visiting research scientist at Lawrence Livermore National Laboratory.

Principal Areas of Teaching and Research:
Nielson's research interests include computer graphics, scientific visualization, computer aided geometric design and scientific computing.

Honors and Distinctions:
- IEEE Meritorious Service Award, 1993
- CS Golden Core Member, 1994
- IEEE Outstanding Contribution Award, 1995
- John Gregory Memorial Award in Geometric Modeling, 1996
- ASU Mentor Award, 2000

Selected Publications:
G.M. Nielson, "On Marching Cubes," Trans. on Visualization and Computer Graphics, vol. 9, no. 3, 2003, pp. 283-297.

G.M. Nielson, J. Hu, P. Baluch, A. Razdan, G. Farin and D. Capco, "Case study: Cellular scaffold extraction using crest point for volume rendering," Proc. 5th Joint Eurographics-IEEE TCVG Symp. on Visualization (VisSym '03), pp. 123-128.

G.M. Nielson, J. Hu, A. Razdan, and G. Farin, "Segmenting Linear Parts using Layered Region Growing," 3D Modelling, 2003, pp. 23-24.

G.M. Nielson, J. Hu, A. Razdan, G. Farin, P. Baluch, and G. Capco, "Volumetric Segmentation Using Weibull E-SD Fields," IEEE Trans. on Visualization and Computer Graphics, vol. 9, no. 3, July-Sept. 2003, pp.320-328.

G.M. Nielson, G. Graf, A. Huang, M. Phliepp, and R. Holmes, "Shrouds: Optimal Separating Surface for Enumerated Volumes," Proc. 5th Joint Eurographics-IEEE TCVG Symp. On Visualization (VisSym '03), pp. 75-84.

G.M. Nielson, A. Huang, A. Razdan, G. Farin, D. Capco, and P. Baluch, "Line and net pattern segmentation using shape modeling," Proc. of Visualization and Data Analysis 2003, SPIE vol. 5009, 2003, pp. 171-180.

E. Pearse O'Grady
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Ph.D. University of Arizona, 1969

Pearse O'Grady joined the ASU faculty in 1977. Prior to ASU, he worked for McDonnell-Douglas Astronautics Company in Houston, Texas, and the Defense Communications Agency in Virginia. He also taught at the University of Maryland in College Park, MD. O'Grady was a NASA-ASEE Faculty Fellow at Goddard Space Flight Center and spent a year at University College, Cork, Ireland, as a Fulbright Lecturer.

Principal Areas of Teaching and Research:
O'Grady's teaching and research interests are in the areas of computer architecture, parallel processing and continuous system simulation.

Honors and Distinctions:
- Faculty Recognition Award, CEAS–Student Outreach and Retention Programs (SORP), 2002
- Recognition for contributing in a significant way to students, ASU Office of the Vice President for Student Affairs, 2000

Selected Publications:
P. O'Grady and M. Watson, "Modeling and Simulation of Fast Floating-Point Function Generation," Proc. of IASTED Int'l Conf. on Modeling, Simulation, and Optimization (2003), pp. 72-77.

E. P. O'Grady and B.-K. Young, "Hardware Support for Multivariable Floating Point Function Generation," SIMULATION, vol. 72, June 1999, pp. 384-390.

E. P. O'Grady, "Hardware Support for Floating Point Map Function Generation," Proc. 32nd Ann. Simulation Symp. (1999), pp. 145-152.

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Ph.D. University of Ottawa, Canada, 1989

Sethuraman Panchanathan has been at ASU since 1997. He is currently professor and chair of the Department of Computer Science and Engineering as well the director of the Institute for Computing and Information Sciences and Engineering (InCISE) and director of the Center for Cognitive Ubiquitous Computing (CUbiC).

Principal Areas of Teaching and Research:
Panchanathan's research focuses on ubiquitous multimedia computing; visual computing and communications; media processor designs; content-based and compressed domain indexing and retrieval of images and video; multimedia communication, face/gait analysis and recognition; genomic signal processing; and ubiquitous computing environments for blind persons.

Honors and Distinctions:
- Fellow, Institute of Electrical and Electronics Engineers (IEEE), 2001
- Fellow, Society for Photo-Optical Instrumentation Engineers (SPIE), 1999
- Academic Collaboration Award, Disability Resources for Students, ASU, 2004

Selected Publications:
K. Kahol, P. Tripathi, and S. Panchanathan, "Gesture Segmentation in Complex Motion Sequences," to appear in IEEE Multimedia Journal, 2005.

R. Gurunathan, B. Van Emden, S. Panchanathan, S. Kumar, "Identifying Spatially Similar Gene Expression Patterns in Early Stage Fruit Fly Embryo Images: Binary Feature Versus Invariant Moment Digital Representations," BMC Bioinformatics Journal, vol. 5, Dec. 2004, pp. 202.

A. Dasu and S. Panchanathan, "A Wavelet Based Sprite Codec," IEEE Trans. Circuits and Systems for Video Technology, vol. 14, no. 2, Feb. 2004, pp. 244-255.

K. Kahol, P. Tripathi, and S. Panchanathan, "Tactile Cueing in Haptic Visualization," to appear in Proc. ACM Workshop on Haptic Visualization at AMC Computer Human Interface Conference (CHI 2005).

David C. Pheanis
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Ph.D. Arizona State University, 1974

David C. Pheanis joined ASU in 1975. He has performed research and held consulting positions for NASA, Sperry Flight Systems, Goodyear Aerospace, Motorola, Allied Signal, Inter-Tel, General Motors and many others. He directs the CES internship program, and he also gives public lectures to explain how everyone can achieve wealth. More than 125 students have earned graduate degrees under his direction.

Principal Areas of Teaching and Research:
Pheanis works primarily with applications of microprocessors and microcontrollers. His current projects include VoIP telephone systems, portable data-acquisition systems and calibration of data-acquisition systems.

Honors and Distinctions:
- Burlington Award for Outstanding Faculty Achievement, 1993
- ASU Corporate Leaders Program Professor of the Year, 2000
- ASU College of Engineering and Applied Sciences Award for Outstanding Undergraduate Teaching, 1992
- ASASU Outstanding Teacher Honor Roll, 1978
- IEEE Teaching Excellence Award, 2003
- Vice President of the ISCA, 2002-2003
- Conference Chair, ISCA CATA-97, 1997

Selected Publications:
D. Pheanis and J.A. Tenney, "Vehicle-Bus Interface with GMLAN for Data Collection," Proc. ISCA 18th Int'l Conf. on Computers and their Applications (CATA-2003), pp. 88–92.

D. Pheanis and J.A. Jackson, "DynaTest: Dynamic Software Tester," Proc. Int'l Conference on Computer Science, Software Eng., Information Technology, e-Business, and Applications (CSITeA-03), pp. 505–508.

D. Pheanis, "CEINT Internship Program," IEEE/ASEE Frontiers in Education Conference (FIE-2003), pp. F4B1–F4B6.

D. Pheanis and C. Johnson, "Flash Memory in an Educational Environment," ISCA 17th Int'l Conf. on Computers and their Applications (CATA-2002), pp. 241–244.

D. Pheanis and B.D. Beyeler, "Communication Framework for Remote Vehicle Access," Proc. SAE 2000 Congress (2000), paper 2000-01-150.

Andréa W. Richa
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Ph.D. Carnegie Mellon University, 1998

Andréa Richa joined ASU in 1998. Her seminal work on distributed hash tables for peer-to-peer network scenarios has been cited by more than 115 academic journals and conferences in the past four years.

Principal Areas of Teaching and Research:
Richa's research interests lie primarily in the design and analysis of algorithms for distributed, wireless, and mobile networks. For example, some of her previous work focuses on algorithms related to routing, load balancing, name lookup and data tracking in a distributed environment. She is also interested in algorithms in general (e.g., graph algorithms, randomized algorithms, approximation algorithms), combinatorial optimization, distributed resource allocation and parallel network architectures.

Honors and Distinctions:
- NSF CAREER Award, 2000
- Guest Editor, ACM Baltzer Journal on Mobile Networks and Applications (MONET), Special Issue on Foundations of Mobile Computing, 2004
- Program Chair, ACM DIALM-POMC Joint Workshop on Foundations of Mobile Computing, 2003

Selected Publications:
C.G. Plaxton, R. Rajaraman, and A.W. Richa, "Accessing Nearby Copies of Replicated Objects in a Distributed Environment," Theory of Computing Systems, vol. 32, 1999, pp. 241-280. A preliminary version of this paper appeared in Proc. of Parallel Algorithms and Architectures (SPAA 1997), pp. 311-320.

H. Huang, A.W. Richa, and M. Segal, "Approximation Algorithms for the Mobile Piercing Set Problem with Applications to Clustering in Ad-Hoc Networks," to appear in ACM Baltzer Journal on Mobile Networks and Applications (MONET), 2005.

S. Rao and A.W. Richa, "New Approximation Techniques for Some Linear Ordering Problems," to appear in SIAM Journal of Computing, 2005.

M. Mitzenmacher, A. Richa, and R. Sitaraman, "The power of two random choices: A survey of the techniques and results," Handbook of Randomized Computing, vol. I, P. Pardalos, S. Rajasekaran, and J. Rolim, eds., Kluwer Press, 2001, pp. 255-305.

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Ph.D. University of Maryland, 2001

Kyung Dong Ryu joined ASU in 2001. As a Ph.D. candidate, Ryu worked at IBM's TJ Watson Research Center as a research intern. He currently directs the scalable computing systems lab, which consists of several graduate research assistants researching peer-to-peer computing and high-performance grid computing.

Principal Areas of Teaching and Research:
Ryu's interests lie in operating systems, distributed systems, networked embedded systems and high performance computing systems. His funded projects include Sigma-Watch: embedded system performance tool, and ARIA: quality-adaptive media-flow architecture.

Honors and Distinctions:
- Program committee member, IEEE ICDCS 2003, IEEE/ACM SC 2003, IEEE/IPSJ SAINT 2004 and IEEE ICPADS 2004
- Graduated with honors from Seoul Nat'l University in Korea
- Scholarships from IBM Korea and the Il-Joo Scholarship Foundation

Selected Publications:
K.D. Ryu, N. Pachapurkar and L.L. Fong, "Adaptive Memory Paging for Efficient Gang Scheduling of Parallel Applications," Proc. 18th IEEE Int'l Parallel and Distributed Processing Symp. (IPDPS 2004), IEEE CS Press, 2004, pp. 30.

M. Khambatti, K.D. Ryu and P. Dasgupta, "Efficient Discovery of Implicitly Formed Peer-to-Peer Communities," Int'l Journal of Parallel and Distributed Systems and Networks, vol. 5, no. 4, 2002.

K.D. Ryu, J.K. Hollingsworth and P. Keleher, "Efficient Network and I/O Throttling for Fine-Grain Cycle Stealing," Proc. IEEE/ACM Conf. on Supercomputing (SC 2001), 2001.

K.D. Ryu and J. Hollingsworth, "Exploiting Fine Grained Idle Periods in Networks of Workstations," IEEE Trans. Parallel and Distributed Systems, vol. 11, no. 7, July 2000, pp. 683-698.

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Ph.D. University of Arizona, 1995

Hessam Sarjoughian joined ASU in fall 2001. He is co-director of the Arizona Center for Integrative Modeling & Simulation (ACIMS). His recent research has been funded by NSF, Lockheed Martin, Intel and Boeing. Sarjoughian's professional experience has been with Honeywell and IBM.

Principal Areas of Teaching and Research:
Sarjoughian's research aims to develop a framework that supports specification of composable and scaleable simulation models in collaborative settings. The research strands enabling this framework are (i) multi-formalism modeling, (ii) distributed simulation, and (iii) software architecture. His educational goal is to help establish modeling and simulation into a discipline.

Honors and Distinctions:
- Jointly established the Arizona Center for Integrative Modeling & Simulation (ACIMS) in 2001
- Area Editor [Methodology], SIMULATION: Transactions of The Society for Modeling & Simulation International
- Best paper award, Summer Computer Simulation Conference, 2003

Selected Publications:
J. Nutaro and H. Sarjoughian, Design of Distributed Simulation Environments: A Unified System-Theoretic and Logical Processes Approach," SIMULATION: Transactions of the Society for Modeling and Simulation International, vol. 80, no. 11, 2004, pp 577-589.

H. Sarjoughian and R. Singh, "Building Simulation Modeling Environments Using Systems Theory and Software Architecture Principles," Advanced Simulation Technology Conf., 2004, pp. 99-104.

G. Godding, H. Sarjoughian, and K. Kempf, "Multi-Formalism Modeling Approach for Semiconductor Supply/Demand Networks," Proc. of Winter Simulation Conf., Dec. 2004, pp. 99-104.

H. Sarjoughian, X. Hu, D. Hild, and R. Strini, "Simulation-based HW/SW Architectural Design Configurations for Distributed Mission Training Systems," Simulation Trans., vol. 77, nos. 1-2, 2002, pp. 23-38.

Arunabha (Arun) Sen
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Ph.D. University of South Carolina, 1987

Arunabha Sen joined ASU in 1987.

Principal Areas of Teaching and Research:
Sen's teaching focuses on networks and algorithms. His research looks at resource optimization problems in telecommunication networks. He also works on physical design of VLSI circuits, hardware-software co-design and network security.

Selected Publications:
R. Anderson, F.-C. Graham, A. Sen and G. Xue, "On Disjoint Path Pairs with Wavelength Continuity Constraint in WDM Networks," Proc. 23rd Ann. Joint Conf. Of the IEEE Computer and Communications Societies (Infocom 2004), IEEE CS Press, 2004, p.535.

S. Ganguly, A. Sen, G. Xue, B. Hao and B.H. Shen, "Optimal Routing for Fast Transfer of Bulk Data Files in Time Varying Networks," Proc. IEEE Int'l Conf. On Communications (ICC 2004), IEEE CS Press, 2004, pp. 1182-1186.

S. Murthy and A. Sen, "A Peer-to-Peer Network Based on Multi-Mesh Architecture," Proc. IEEE With Global Communications Conf. (Globecom 2003), IEEE CS Press, 2003, pp. 3840-3844.

A. Sen, B. Hao, B.H. Shen, H. Jayakumar and S. Bandhyopadhyay, "On a Preemptive Multi-Class Routing Scheme with Protection Paths for WDM Networks," Proc. IEEE Int'l Conf. On Communications (ICC 2003), IEEE CS Press, 2003, pp. 1417-1422.

A. Sen, B. Hao, B.H. Shen and G.H. Lin, "Survivable routing in WDM networks–logical ring in arbitrary physical topology," Proc. IEEE Int'l Conf. On Communications (ICC 2002), IEEE CS Press, 2002, pp. 2771-2775.

A. Sen, S. Bandyopadhyay and B.P. Sinha, "A new architecture and a new metric for lightwave networks," IEEE/OSA Journal on Lightwave Technology, vol. 19, no. 7, July 2001, pp. 913-925.

Hari Sundaram
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Ph.D. Columbia University, 2002

Hari Sundaram joined ASU in 2002. He holds a joint appointment with the department of Computer Science and Engineering and the Arts, Media and Engineering Program (AME).

Principal Areas of Teaching and Research:
Sundaram is interested in problems relating to multimedia, including segmentation, databases, structure discovery and summarization. His current work focuses on the development of computational models for experiential systems. He is also interested in investigating relationships between natural language, vision, audition and comprehension, as well as representational and algorithmic approximations for real-time multimedia content analysis.

Honors and Distinctions:
- Associate editor, ACM Transactions on Multimedia Computing, Communications and Applications (TOMCCAP)
- Best Student Paper Award for "A Utility Framework for the Automatic Generation of Audio-Visual Skims," 10th SIG ACM Conf. On Multimedia, 2002
- Best paper award for "A Fully Automated Content Based Video Search Engine Supporting Spatio-Temporal Queries," IEEE Trans. on Circuits and Systems for Video Technology, 1998.
- Eliahu I. Jury Award for best Ph.D. dissertation, 2002

Selected Publications:
H. Sridharan, H. Sundaram and T. Rikakis, "Context, memory and Hyper-mediation in Experiential Systems," Proc. 1st ACM Workshop on Experiential Telepresence, in conjunction with ACM Multimedia 2003, ACM Press, 2003, pp. 31-44.

H. Sundaram and S.-F. Chang, "Computable scenes and structures in films," IEEE Transactions on Multimedia, vol. 4, no. 4, 2002, pp. 482-491.

H. Sundaram, L. Xie, and S.F. Chang, "A Utility Framework for the Automatic Generation of Audio-Visual Skims," Proc. 10th ACM Conference On Multimedia, ACM Press, 2002, pp. 189-198.

Violet R. Syrotiuk
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Ph.D. University of Waterloo (Canada) 1992

Violet Syrotiuk joined ASU in 2002. Under her leadership, the MARS lab is conducting research on three NSF funded projects and contracts with Los Alamos National Laboratory and the Defence Science and Technology Organisation (Australia).

Principal Areas of Teaching and Research:
Syrotiuk's research interests are in mobile ad hoc networks including adaptive medium access control protocols, scalable protocol assessment, characterizing protocol interaction, energy efficient cross-layer design and dynamic spectrum management.

Honors and Distinctions:
- Editorial board, Computer Networks

Selected Publications:
W. Chu, C. J. Colbourn, and V. R. Syrotiuk, "Slot Synchronized Topology-Transparent Scheduling for Sensor Networks," to appear in Computer Communications (accepted May 2004).

V. R. Syrotiuk, M. Cui, S. Ramkumar, and C. J. Colbourn, "Dynamic Spectrum Utilization in Ad Hoc Networks," Computer Networks, vol. 46, no. 5, Dec. 2004, pp. 665-678.

K. K. Vadde and V. R. Syrotiuk, "Factor Interaction on Service Delivery in Mobile Ad Hoc Networks," IEEE J. on Selected Areas in Communications, vol. 22, no. 7, Sept. 2004, pp. 1335-1346.

V. R. Syrotiuk and A. Bikki, "Modeling Cross Layer Interaction using Inverse Optimization," Ad Hoc Networking, S. Basagni, M. Conti, S. Giordano, and I. Stojmenovic, eds., John Wiley and Sons, 2004, pp. 411-426.

C. J. Colbourn, A. C. H. Ling, and V. R. Syrotiuk, "Cover-free Families and Topology-Transparent Scheduling for MANETs," Designs, Codes, and Cryptography, vol. 32, nos. 1-3, May-July 2004, pp. 65-96.

A. Faragó and V.R. Syrotiuk "MERIT: A Scalable Approach for Protocol Assessment," Mobile Networking and Applications, vol. 8, no. 5, Oct. 2003, pp. 567-577.

W. T. Tsai
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Ph.D. University of California, Berkeley, 1985

Wei-Tek Tsai has been at ASU since 2000.

Principal Areas of Teaching and Research:
Tsai's main research interests are software testing, software engineering and embedded system development.

Honors and Distinctions:
- Associate Editor, IEEE Transactions on Knowledge and Data Engineering, 2002-present
- IEEE Computer Society Distinguished Lecturer, 1990-1993

Selected Publications:
W. T. Tsai, R. Paul, L. Yu, A. Saimi, and Z. Cao, "Scenario-Based Web Service Testing with Distributed Agents," Institute of Electronics, Information and Communication Engineers (IEICE) Trans., 2003, E86-D (10), pp. 2130-2144.

W. T. Tsai, R. Paul, Z. Cao, L. Yu, A. Saimi, and B. Xiao, "Verification of Web Services Using an Enhanced UDDI Server," Proc. 8th Ann. IEEE Workshop on Object-Oriented Real-Time Dependable Systems (IEEE WORDS), IEEE CS Press, 2003, pp. 131-138.

W. T. Tsai, L. Yu, F. Zhu, R. Paul, "Rapid Verification of Embedded Systems Using Patterns," Proc. 27th Ann. Int'l Computer Software and Applications Conf. IEEE COMPSAC, 2003, pp. 466-471.

W. T. Tsai, L. Yu, R. Paul, C. Fan, X. Liu, Z. Cao, "Rapid Scenario-Based Simulation and Model Checking for Embedded Systems," Proc. 7th IASTED Int'l Conf. on Software Eng. and Applications (SEA2003), 2003, pp. 568-573.

W. T. Tsai, L. Yu, A. Saimi, R. Paul, "Scenario-based Object-Oriented Test Frameworks for Testing Distributed Systems," Proc. IEEE Future Trends of Distributed Computing Systems, IEEE CS Press, 2003, pp. 288-294.

Renee Turban
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Office: BY 474
M.S. Rensselaer Polytechnic Institute, 2000

Turban has been a lecturer at ASU since 2001. She teaches undergraduate courses and also serves as a faculty advisor for the Women in Computer Science group at ASU.

Honors and Distinctions:
- CSE Instructor of the Year Award, 2001
- ASU Women in Science and Engineering Investments award for contributions to the program, 2002
- American Indian Science and Engineering Society award for contributions to their summer engineering camp, 2003

Selected Publications:
R.Turban, C.J. Colbourn, and M.B. Cohen, "A Framework of Greedy Methods for Constructing Interaction Tests," to appear in Proc. 27th Int'l Conf. on Software Eng. (ICSE 2005).

D. Hoskins, R. Turban, and C.J.Colbourn, "Experimental Designs in Software Engineering: D-Optimal Designs and Covering Arrays," Proc. SIGSOFT 2004/Foundations on Software Engineering (FSE-12): Workshop on Interdisciplinary Software Engineering Research (WISER), 2004, pp. 55-66.

C.J. Colbourn, M.B. Cohen, and R. Turban, "A Deterministic Density Algorithm for Pairwise Interaction Coverage," Proc. 8th Ann. IASTED Int'l Conf. on Software Engineering, 2004.

R. Turban, "Automatic Generation of High Coverage Usability Tests," to appear in Proc. ACM Conf. Human Factors in Computer Science (CHI 2005).

Joseph E. Urban
Professor
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Ph.D. University of Louisiana at Lafayette, 1977

Joseph E. Urban worked at the University of Miami, the University of Southwestern Louisiana and part-time at the University of South Carolina while with the US Army Signal Center before joining ASU. He currently serves the Ira A. Fulton School of Engineering as Inclusive Learning Communities program director in addition to being a CSE professor. Urban leads the Software Process, Environment and Automation Research Group. He has authored more than 90 technical papers and has supervised the development of seven software specification languages.

Principal Areas of Teaching and Research:
Urban's research areas include software engineering, computer languages, data engineering and distributed computing.

Honors and Distinctions:
- IEEE Computer Society's Meritorious and Distinguished Service Awards
- Distinguished Professor Award, University of Louisiana at Lafayette
- Association for Computing Machinery Doctoral Forum Award, 1977-1978
- Chair of the IEEE Computer Society's Technical Committee on Computer Languages
- Computer Entrepreneur Award Committee chair
- International Federation for Information Processing (IFIP) Technical Committee (TC) 2 - Software: Theory and Practice representative
- Vice chair, IEEE Computer Society Press Activities Board
- Chair, IEEE Annals of the History of Computing Editor in Chief Search Committee
- Editorial board, International Journal of Software Engineering & Knowledge Engineering.
- Chair, IEEE Computer Society Technical Committee on Distributed Processing
- IEEE Computer Society Board of Governors
- Chair, IEEE Computer Society Awards Committee
- IEEE Computer Society representative on the IEEE Publications Board and the Technical Activities Board's Finance Committee
- IEEE Computer Society's second and first vice president responsible for conferences and tutorials

Susan D. Urban
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Ph.D. University of Louisiana at Lafayette, 1987

Susan D. Urban joined ASU in 1989. Before ASU, she was at the University of Miami.

Principal Areas of Teaching and Research:
Urban's research combines techniques for event, rule and transaction processing to address execution environments and semantic correctness of concurrent processes in Web/Grid Service composition. She is also investigating semantic web issues for service-oriented computing.

Honors and Distinctions:
- Editorial Board Member, Journal of Computing and Information Science in Engineering
- Certificate of Honor for Outstanding Achievement and Contribution Towards Advancing the Status of Women, ASU Commission on the Status of Women, 2003

Selected Publications:
S.W. Dietrich and S.D. Urban, An Advanced Course in Database Systems: Beyond Relational Database Systems, Prentice Hall, 2005.

H. Ma, S. D. Urban, Y. Xiao, and S. W. Dietrich, "GridPML: A Process Modeling Language and History Capture Systems for Grid Service Composition," to appear in Proc. Int'l. Conf. e-Business Eng., 2005.

S. D. Urban, V. Vasantha, and S. W. Dietrich, "A Prototype for Integration of Web Services into the IRules Approach to Component Integration," Proc. Int'l. Conf. Enterprise Info. Sys., 2005, pp. 3-10.

S. D. Urban, S. Kambhampati, S. W. Dietrich, Y. Jin, A. Sundermier, "An Event Processing System for Rule-Based Component Integration," Proc. Int'l. Conf. Enterprise Info. Sys., 2004, pp. 312-319.

S.D. Urban, T.B. Abdellatif, S.W. Dietrich, and A. Sundermier, "Delta Abstractions: A Technique for Managing Database States in Active Rule Processing," IEEE Trans. on Knowledge and Data Engineering, vol. 15, no. 3, 2003, pp. 597-612.

Sarma Vrudhula
Professor
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Ph.D. University of Southern California, 1985

Sarma Vrudhula joined ASU in 2005 as the Consortium for Embedded Systems (CES) Chair Professor in the Department of Computer Science and Engineering. He is also the Director of the NSF Center for Low Power Electronics, which he established in 1996. CLPE is supported by the NSF, the State of Arizona and companies in the microelectronics industry.

Principal Areas of Teaching and Research:
Vrudhula's research and teaching interests are in VLSI CAD for low power; energy management and energy efficient computer design; thermal management in computer systems; logic synthesis and verification; statistical performance and power optimization for VLSI; and graph theoretic techniques for VLSI layout. He has published more than 120 papers in peer-reviewed conferences and journals.

Honors and Distinctions:
- CES Chair Professor, ASU
- NSF Center Director 1996-2006
- Active Grants: NSF ITR (with Michigan) $2.5M ('02-'06), NSF CLPE $7M-$8M ('96-'06), NSF CSR $400K ('05-'07)
- Outstanding Paper Award, MIXDES 2001
- IEEE Design Automation Conf. TPC (2002-2004), Chair (2005-2007), TPC for IEEE ISQED
- Associate Editor, IEEE Transactions on VLSI (1996-1998)
- Distinguished Speaker, Silesian Institute of Technology, Poland, 2001, Seoul National University 2003, Visting Scientist, Motorola 2000-2001.

Selected Publications:
S. Bhardwaj and S. Vrudhula, "Probability Distribution of Signal Arrival Times using Bayesian Networks," to appear in IEEE Trans. on Computer Aided Design, 2005.

K. Chopra and S. Vrudhula, "Efficient Symbolic Algorithms for Computing the Minimum and Bounded Leakage States," to appear in IEEE Trans. on CAD, 2005.

S. Dasika, S. Vrudhula, and K. Chopra, "Battery-Aware Energy Management of Wireless Sensor Networks," to appear in Sensor Networks, IEEE Press, 2005.

Peter Wonka
Assistant Professor
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Ph.D. Technical University of Vienna, 2001

Peter Wonka joined the CSE faculty in 2004 after two years as a post-doctoral researcher at the Georgia Institute of Technology. He is a member of the PRISM lab.

Principal Areas of Teaching and Research:
Wonka's research and teaching include various topics in computer graphics, particularly real-time rendering and procedural modeling.

Honors and Distinctions:
- Erwin Schroedinger Fellowship for postdoctoral work at Georgia Tech
- Pacific Graphics program committee, 2004

Selected Publications:
P. Wonka, M. Wimmer, F. Sillion, and W. Ribarsky, "Instant Architecture," Proc BLAH.

J. Bittner, P. Wonka and M. Wimmer, "Fast Exact From Region Visibility in Urban Scenes," to appear in Proc. Eurographics Symp, on Rendering, 2005.

Guoliang Xue
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Ph.D. University of Minnesota, 1991

Guoliang Xue joined ASU as an associate professor in 2001. He previously worked at the University of Vermont and completed his postdoctoral training at the Army High Performance Computing Research Center. He has published 57 journal papers and 53 conference papers.

Principal Areas of Teaching and Research:
Xue's research interests are in algorithms, bioinformatics and computer networks.

Honors and Distinctions:
- NSF Research Initiation Award, 1994
- NSF-ITR award, 2003
- Associate Editor, Journal of Global Optimization
- Associate Editor, IEEE Transactions on Circuits and Systems, Part I

Selected Publications:
R. Andersen, F. Chung, A. Sen, and G. Xue, "On disjoint path pairs with wavelength continuity constraint in WDM networks," Proc. 23rd Ann. Joint Conf. IEEE Communications Soc. (Infocom 2004), IEEE CS Press, 2004, pp. 535.

X. Cheng, A. Thaeler, G. Xue, and D. Chen, "TPS: A time-based positioning scheme for outdoor wireless sensor networks," Proc. 23rd Ann. Joint Conf. IEEE Communications Soc. (Infocom 2004), IEEE CS Press, 2004, pp. 2685-2696.

G. Xue, L. Chen, and K. Thulasiraman, "Quality of service and quality of protection issues in preplanned recovery schemes using redundant trees," IEEE J. on Selected Areas in Communications, vol. 21, 2003, pp. 1332-1345.

G. Xue, "Minimum cost QoS multicast and unicast routing in communication networks," IEEE Trans. on Communications, vol. 51, 2003, pp. 817-824.

G. Xue and K. Thulasiraman, "Computing the shortest network under a fixed topology," IEEE Trans. on Computers, vol. 51, 2002, pp. 1117-1120.

G. Xue, "An improved random walk model for PCS networks," IEEE Trans. on Communications, vol. 50, 2002, pp. 1224-1226.

Stephen S. Yau
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Ph.D. University of Illinois, Urbana-Champaign, 1961

Stephen S. Yau joined ASU in 1994 as professor and chair of the CSE department. He was professor and chair of the Department of Computer and Information Sciences at the University of Florida from 1988 to 1994. In 1961, he joined the faculty of Northwestern University, Evanston, Illinois, and later became the Walter P. Murphy Professor and Chair of the Department of Electrical Engineering and Computer Science there. He has published more than 170 journal and conference papers, and his research has been supported by NSF, AFOSR, ONR, ARO and companies including Hitachi and Fujitsu.

Principal Areas of Teaching and Research:
Yau's research focuses on software engineering, distributed computing systems, middleware, information assurance and security.

Honors and Distinctions:
- IEEE Computer Society Tsutomu Kanai Award, 2002
- The IEEE Third Millennium Medal, IEEE Computer Society, 2000
- Special Award of the American Federation of Information Processing Societies for inspired leadership of the 1989 World Computer Conference, 1990
- Silver Core Award of International Federation for Information Processing, 1989
- IEEE Computer Society Outstanding Contribution Award, 1985

Selected Publications:
S.S. Yau, D. Chandrasekar, and D. Huang, "An Adaptive, Lightweight and Energy-Efficient Context Discovery Protocol for Ubiquitous Computing," Proc. 10th IEEE Int'l. Workshop on Future Trends of Distributed Computing Systems (FTDCS 2004), IEEE CS Press, 2004, pp. 261-267.

S. S. Yau and F. Karim, "An Adaptive Middleware for Context-Sensitive Communications for Real-Time Applications in Ubiquitous Computing Environments," Real-Time Systems, vol. 26, no. 1, 2004, pp. 29-61.

S. S. Yau and F. Karim, "A Context-Sensitive Middleware-based Approach to Dynamically Integrating Mobile Devices into Computational Infrastructures," J. Parallel and Distributed Computing, vol. 64, no. 2, Feb. 2004, pp. 301-317.

2005 - 2006 New Faculty

CSE would like to welcome the new faculty members who have joined CSE in Fall 2005.

Yi Chen
Assistant Professor
Ph.D., University of Pennsylvania
Research interests: database and data stream management for web data and scientific data.

Dijang Huang
Assistant Professor
Ph.D., University of Missouri, Kansas City
Research interests: Security: key management, authentication protocol, secure key agreement protocol, attacks analysis, and attack resilient network design; and computer networking: network routing protocol, mobile user mobility model, Ad Hoc/sensor network and network infrastructure survivability design.

Marco Janssen
Assistant Professor
Ph.D., Maastricht University, Netherlands
Research interests: computational models to study emergent phenomena in social and social-ecological system.

Joohyung Lee
Assistant Professor
Ph.D., University of Texas, Austin
Research interests: artificial intelligence, knowledge representation, logic programming, answer set programming, commonsense reasoning and nonmonotonic logics.

Jeiping Ye
Assistant Professor
Ph.D., University of Minnesota, Twin Cities
Research interests: bioinformatics, data mining, machine learning and pattern recognition.

Faculty on Editorial Boards

Hasan Çam
- Editorial Board Member Computer Communications: International Journal of Communication Systems

Kasim Selçuk Candan
- Guest Editor: ACM Transactions on Multimedia Computing, Communications and Applications Journal
- Editorial Board Member: ACM SIGMOD (Special Interest Group on Management of Data) Digital Symposium Collection

Charles Colbourn
- Editor-in-Chief: Journal of Combinatorial Designs
- Associate Editor: Networks; J. of Combinatorial Theory, Series A; Design, Codes and Cryptography; Journal of Combinatorics, Information and System Sciences

Suzanne Dietrich
- Associate Editor: ACM (Association of Computing Machinery) Journal of Educational Resources in Computing

Gerald Farin
- Editor-in-Chief: Computer Aided Geometric Design

Sabbarao Kambhambpati
- Editorial Board Member: Journal of AI Research; IEEE Intelligent Systems

Yann-Hang Lee
- Editorial Board Member: International Journal of Business, Process Integration and Management

Huan Liu
- Editorial Board Member: Informatics; Knowledge and Information Systems; International Journal of Software and Information Technology; International Journal of Computer Science and Applications

Gregory Nielson
- Editorial Advisory Board: IEEE Transactions on Visualization and Computer Graphics
- Associate Editor: Computer Aided Geometric Design

Sethuraman Panchanathan
- Guest Editor: Special Issue on Haptic User Interfaces for Multimedia Systems, IEEE Multimedia Magazine; Special Issue on Embedded Processors for Multimedia Communications, Journal of Visual Communication and Image Representation; Special Issue on Video Coding Standard for Multimedia Communications, Journal of Visual Communication and Image Representation
- Associate Editor: IEEE Multimedia Magazine; IEEE Transactions on Multimedia; IEEE Transactions on Circuits and Systems for Video Technology; Journal of Visual Communication and Image Representation; Journal of Electronic Imaging; International Journal on Artificial Intelligence Tools, Architectures, Languages, and Algorithms

Hessam Sarjoughian
- Area Editor: Simulation
- Guest Editor: Special Issue of Simulation

Hari Sundaram
- Editorial Board Member: ACM Transactions on Multimedia Computing
- Web Editorial Board Member: SIG Multimedia

Violet Syrotiuk
- Editorial Board Member: Computer Networks

Wei-Tek Tsai
- Editorial Board Member: IEEE Transactions on Knowledge and Data Engineering

Susan Urban
- Editorial Board Member: Journal of Computing and Information Science and Engineering

Guoliang Xue
- Associate Editor: IEEE Transactions on Circuits and Systems; and Journal of Global Optimization
- Editorial Board Member: Computer Networks; IEEE Networks
- Guest Editor: Computer Communications; Wireless Communications and Mobile Computing

Talks by Faculty

Chitta Baral
- Jet Propulsion Laboratory, NASA
- University of Texas at Austin

Charles Colbourn
- University of Queensland, Australia

Gerald Farin
- Lamar University
- Vanderbilt University

Sandeep Gupta
- Wayne State University

Subbarao Kambhampati
- Information Sciences Institute

Goran Konjevod
- Dagstuhl, Germany
- INFORMS (Institute for Operations Research and Management Sciences)

Andréa Richa
- ETH, Zurich (Eidgenössische Technische Hochschule; In English: Swiss Federal Institute of Technology) Zurich

Sethuraman Panchanathan
- WHO Global Health Forum, Mexico City
- International Conference on Systems, Cybermetics and Informatics (keynote speaker), India
- Harvard University, Unite for Sight International Conference

Arunabha Sen
- University of Passau, Germany
- University of Paris VII, France

Hari Sundaram
- Ricoh
- NEC (Nippon Electric Company)
- IBM

Violet Syrotiuk
- University of Queensland, Australia
- Colorado School of Mines

Wei-Tek Tsai
- IEEE COMPSAC (Computer Software and Applications Conference)
- IEEE Workshop on Quality Assurance and Testing of Web-based Applications

Faculty Organized Conferences

Chitta Baral
- General Chair; International Conference on Information Technology
- Program Chair; International Conference on Logic Programming and Non-monotonic Reasoning

Kasim Selçuk Candan
- Program Co-Chair; International Workshop on Multimedia Information Systems

Sethuraman Panchanathan
- Conference Chair: Embedded Processors for Multimedia and Communication
- Conference Chair: Internet Multimedia Management Systems

Arunabha Sen
- Co-Program Chair, IEEE Workshop on High Performance Switching and Routing
- Co-Program Chair, International Workshop on Distributed Computing

Hari Sundaram
- Workshops on (a) Experimental Telepresence and (b) Continuous Archival in association with ACM Multimedia

Stephen Yau
- IEEE International Computer Software and Applications Conference
- IEEE Workshop on Future Trends of Distributed Computing Systems

The Ira A. Fulton School of Engineering provides undergraduate and graduate programs for engineering, computer science and construction students, giving them the knowledge and skills they need for success in a technically oriented career. Our internationally recognized faculty engage in use-inspired research in collaboration with, and for the benefit of, individuals, organizations and society.

We operate in a transdisciplinary, entrepreneurial environment that produces a creative, highly educated workforce and advancements in technical knowledge, driving sustainable growth and improved quality of life in the communities we serve.

"I have an enduring passion for technology, for education, and for the people of Arizona. And I strongly believe you can't have a great city without a great school of engineering." - Ira A. Fulton

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