Ira A. Fulton school of engineering

Department of Computer Science and Engineering

Annual Report 2005-2006

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The Department of Computer Science
and Engineering

at the

Ira A. Fulton School of Engineering

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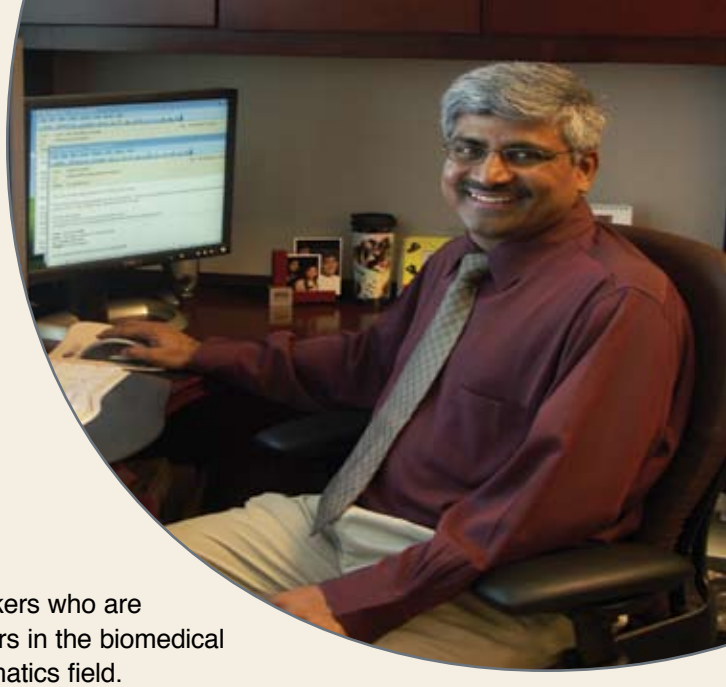
ASU Ira A. Fulton school of engineering

Dear colleagues,



The Department of Computer Science and Engineering in the Ira A. Fulton School of Engineering at Arizona State University has been making rapid strides in the past year and continues to excel in research, education, entrepreneurial and outreach activities. Most importantly, we have launched a new School of Computing and Informatics that houses the CSE department along with a new Department of Biomedical Informatics.

Five new faculty joined our department last year and three more faculty are joining us this year. Five of our faculty are jointly appointed with various entities inside and outside ASU, including the Arts, Media and Engineering program, School of Human Evolution and Social Change, the Department of Psychology, the Biodesign Institute and the Translational Genomics Research Institute (TGen). In addition, the new Biomedical Informatics Department has a joint faculty with the University of Arizona College of Medicine-Phoenix and several clinical faculty with Mayo Clinic, Barrow Neurological Institute and Banner Health. The department has a vibrant academic culture with $ 7.5 million in new research grants secured over the last year, several impactful and high-quality publications in prestigious conferences and journals, books and book chapters. Faculty members continue to earn prestigious awards and professional recognition:

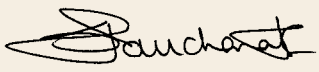
- Professor Karamvir S. Chatha was awarded the CAREER grant for his work on next-generation, high performance microprocessors.
- A number of faculty serve as editor-in-chief and editors of professional journals. For example, Gerald Farin serves as Editor-in-chief of *CAGD*, Charles Colbourn serves as editor-in-chief of the *Journal of Combinatorial Design*, Sethuraman Panchanathan serves as the editor-in-chief of *IEEE Multimedia*. In addition, CSE faculty serve as associate editors of five prestigious journals and transactions. Several faculty continue to organize and serve in the technical program of prestigious conferences in their research areas.
- Two of our faculty have spun-off start-up companies and several of our faculty are involved in intellectual property disclosures and patent applications.

We had a successful distinguished lecture series program last year with twelve outstanding speakers including four National Academy of Engineering members. In January 2006, we hosted a biomedical informatics symposium chaired by Dr. Mark Musen of Stanford University featuring speakers who are leaders in the biomedical informatics field.

We are moving forward on curriculum development with new concentrations in information assurance and biomedical informatics. These augment our existing concentrations in software engineering and Arts, Media and Engineering. We are also creating a new undergraduate information sciences certificate to be launched by the new School of Computing and Informatics. We are implementing a Biomedical Informatics M.S. degree program to commence in Fall 2007. We are also working on a Ph.D. program in Biomedical Informatics to be launched in Fall 2008.

Our students also continue to excel as we support them through academic initiatives and career services. We are working to attract new talent to our department through innovative programs and partnerships. For example, we have launched a partnership with a local high school to attract top quality students to our department. Our student initiatives include a CSE job fair, held for the first time this fall, attracting more than 200 students and 10 major industry partners, including Google and Microsoft. One of our students won the ASU Technology Entrepreneurship Challenge grad prize this year. Two of our doctoral students won best paper awards in international conferences. One student won the distinguished performance award at an international competition.

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.



Announcing

A New School of Computing and Informatics

In January 2006, the Arizona Board of Regents approved the creation of a new School of Computing and Informatics (SCI) at Arizona State University (ASU). The school will support the evolution of computing and informatics as discrete disciplines and will respond to needs for partnership and collaboration between computer and information sciences and a broad range of disciplinary areas at ASU. SCI is producing the next generation of computer scientists, computer engineers, informaticians, software engineers and knowledge workers emphasizing innovative and integrated programs and new teaching and learning environments. This integration of computer and information sciences with other academic disciplines such as biology, anthropology, sustainability, space and earth exploration, geography, medicine, public health, archeology, business, urban planning and arts will provide an academic structure to foster new knowledge.

SCI is home to the Department of Computer Science and Engineering (CSE), the new Department of Biomedical Informatics (BMI) and Information Science/Informatics programs.

Michael Crow, President

"The creation of ASU's new School of Computing and Informatics is a major step for ASU's evolution in this critically important arena of innovation. All major cities that are centers of innovation have a great innovation center in computing and informatics. SCI is a response to the increasingly important role that the acquisition, manipulation, evaluation and utilization of massive amounts of data plays in many aspects of modern life. One aspect of computing and informatics -- biomedical informatics -- is ASU's major contribution to the medical school we are jointly building with the University of Arizona in downtown Phoenix. The application of informatics and computing to bioscience will enable physicians and other health care practitioners to replace 'off-the-shelf' medical treatments with courses of treatment customized for the individual patient."

ASU Ira A. Fulton school of engineering
ARIZONA STATE UNIVERSITY

School of Computing and Informatics

A New Department of Biomedical Informatics

The Department of Biomedical Informatics in collaboration with the University of Arizona (BMI) supports a partnership between academic researchers, clinical practitioners and regional healthcare providers to advance research and education in the science and practice of biomedical informatics. It is our mission to prepare individuals to make major contributions to the creation and evaluation of computational and informatics tools and their application to biomedical or clinical research, health care practice and administration, public health and the education of health professionals and patients. Working with partners such as the Translational Genomics Research Institute (TGEN), Barrow Neurological Institute (BNI), Banner Health, the Mayo Clinic and the University of Arizona College of Medicine - Phoenix, the department will bring together a unique and seamlessly integrated synthesis of biomedical informatics and experimental investigations to provide the highest quality of care.

Biomedical Informatics Symposium, January 19, 2006

The symposium was chaired by Dr. Mark A. Musen, Head, Stanford Medical Informatics, and included a variety of national leaders in biomedical informatics. Speakers and panelists included:

Suzanne Bakken RN, DNSc
Alumni Professor of the School of Nursing and Professor of Biomedical Informatics, Columbia University

J. Robert Beck M.D.
VP Information Technology, Chief Information Officer, Fox Chase Cancer Center

Christopher G. Chute M.D., DrPH
Professor and Chair of Biomedical Informatics, Mayo Clinic Medical School

Charles P. Friedman Ph.D.
Senior Scholar and Program Officer, Extramural Programs Division, National Library of Medicine

Bernadette Mazerek Melnyk RN, Ph.D.
Dean and Distinguished Foundation Professor in Nursing, College of Nursing, Arizona State University

Joyce A. Mitchell Ph.D.
Professor and Chair, Department of Medical Informatics, University of Utah

David W. Mount Ph.D.
Director of Bioinformatics, Arizona Cancer Center and Southwest Environmental Science Center, University of Arizona

Mark A. Musen Ph.D.
Head, Stanford Medical Informatics and Professor of Medicine, Stanford University

Shahram (Shez) Partovi M.D.
Director of Medical Informatics, Barrow Neurological Institute

George Poste DVM, Ph.D., DSc
Director, The Biodesign Institute and Del E. Webb Distinguished Professor of Biology, Arizona State University

Franklyn G. Prendergast M.D., Ph.D.
Director, Mayo Clinic Cancer Center

Eric Reiman M.D.
Executive Director, Banner Alzheimer's Disease Institute

Edward H. Shortliffe M.D., Ph.D.
Rolf H. Scholdager Professor and Chair, Department of Biomedical Informatics, Columbia University

Gustavo Stolovitzky Ph.D.
Manager, IBM Functional Genomics and Systems Biology Group
IBM Research, TJ Watson Research Center

Jeffrey M. Trent Ph.D.
President and Scientific Director, Translational Genomics Research Institute

Madoo Varma Ph.D.
Director, Strategic Marketing and Planning, Biomedical Life Sciences
Digital Health Group, Intel Corporation

Photo: The Arizona Biomedical Collaborative Building will be located in downtown Phoenix on the Phoenix Biomedical Campus near the intersection at Fifth and Van Buren Streets. The first two floors will house BMI researchers. (rendering by SmithGroup)

Welcome

We welcome Dr. Deirdre Meldrum, the new dean of the Ira A. Fulton School of Engineering.

Says Meldrum of her appointment: "I'm taking on the challenge as dean of the Fulton School of Engineering because I want to contribute to President Crow's vision of the New American University. ASU is a dynamic university that is growing rapidly in a variety of ways, including quality, expertise, innovation and size."
(2/07/06 ASU News Release)

Dr. Deirdre Meldrum

New Faculty - Fall 2006

Patrick Langley

Professor

Pat Langley studies interactions among knowledge, reasoning and learning in cognitive systems, both human and artificial. His current research focuses on inferring explanatory models in the biological sciences and on cognitive architectures for embodied agents. Langley is a AAAI Fellow, he was founding editor of the journal *Machine Learning* and he has published 200 papers and five books on artificial intelligence and cognitive science.

Aviral Shrivastava

Assistant Professor

Aviral Shrivastava completed his Ph.D. from the University of California, Irvine in June 2006. He received his master's degree from the University of California, Irvine and a bachelor's degree from IIT Delhi, both in computer science and engineering. Shrivastava's research interests lie at the intersection of compilers, computer architecture and computer-aided design. In his thesis, he proposed a methodology for and demonstrated the need and usefulness of using compilers for processor design.

Winslow Burleson

Assistant Professor, joint hire with Arts, Media and Engineering Program

Winslow Burleson is a Ph.D. candidate in the Affective Computing Group at the MIT Media Lab working on Affective Learning Companions. He has also been highly involved with the Context-Aware Computing Group since its inception in 1999.

New Faculty - Fall 2005

Yi Chen

Assistant Professor

Dr. Yi Chen received her Ph.D. from the University of Pennsylvania in 2005. Her research focuses on database and data stream management for web data and scientific data. She has worked on XML data storage, indexing, query processing and optimization techniques for databases and streams, data model and query language design.

Dijang Huang

Assistant Professor

Dr. Dijang Huang received his Ph.D. from the University of Missouri, Kansas City, in 2004. Huang's main research interests are twofold: (i) Security: key management, authentication protocol, secure key agreement protocol, attacks analysis and attack resilient network design; and (ii) Computer networking: network routing protocol, mobile user mobility model, Ad Hoc/ sensor network and network infrastructure survivability design.

Marco Janssen

Assistant Professor, joint hire with the School of Human Evolution and Social Change

Dr. Marco Janssen received his Ph.D. from Maastricht University in the Netherlands in 1996. Janssen develops computational models to study emergent phenomena in social and social-ecological systems in cooperation with a variety of disciplines (archaeology, psychology, economics, political science and ecology).

Joohyung Lee

Assistant Professor

Dr. Joohyung Lee received his Ph.D. from the University of Texas at Austin in 2005. Lee's research interests include artificial intelligence, knowledge representation, logic programming, answer set programming, commonsense reasoning and nonmonotonic logics. His research focuses on applying mathematical logic to automating intellectual mechanisms in humans.

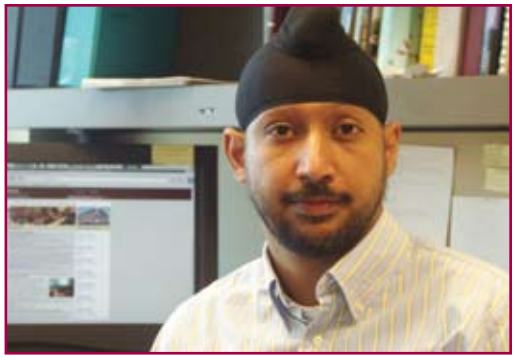
Jieping Ye

Assistant Professor, in collaboration with the EFG Center, the Biodesign Institute

Dr. Jieping Ye received his Ph.D. from the University of Minnesota, Twin Cities, in 2005. His research interests include bioinformatics, data mining, machine learning and pattern recognition. Ye was awarded with the Guidant Fellowship for the best Ph.D. student at the Computer Science and Engineering Department at the University of Minnesota, 2004-2005.

Awards

CSE Professor Receives Career Award



Karamvir S. Chatha, an assistant professor in CSE, received a **National Science Foundation (NSF) Early Career Award** in the spring of 2006. The award brings a five-year $400,000 grant that Chatha will use for research to vastly improve the performance of next-generation microprocessors. Chatha's project will address the development of an energy efficient on-chip communication infrastructure, or Network-on-Chip. Chatha's project includes an education plan to develop a catalogue of course projects that delve into Network-on-Chip design and create industry-focused curriculum on the subject.

Chatha currently has three master's students and three Ph.D. students working on his research with him. With the award money, he will be able to hire two more Ph.D. students.

Chatha explains how the chip architecture is evolving. "The transistor is the basic building block of the chip," said Chatha. "In the past, chip designers depended upon smaller transistors for achieving better performance. However, the designers have now hit a wall since reducing the size of the transistor greatly increases the power consumption of the chip. So, the only way to increase the performance of the chip is to include more processing cores on the chip, in other words designing a System-on-Chip. In the future, most computing chips are going to have System-on-Chip architectures."

Winning the NSF Early Career award reaffirmed Chatha's belief in his research work. "In some ways, when we started, there were not too many people around us who were thinking about this," said Chatha. "When you take on an endeavor like this, there is always this element of self doubt. Recognition such as this [award] basically reconfirms one's faith in one's ability."

Prabhdeep Singh, a CSE doctoral candidate, took home the $20,000 grand prize from the **ASU Technology Entrepreneurship Challenge** business plan competition on Oct. 22, 2005. This marks the second year for the Intel-sponsored event, which is designed to foster new talent and innovation in technology.

Prabhdeep Singh, center, stands behind his first-place award at the ASU Technology Entrepreneurship Challenge. At left, Thomas Duening, the director of the Entrepreneurial Programs Office and, at right, Dean Peter E. Crouch of the Ira A. Fulton School of Engineering.

J. Benton, a CSE Ph.D. student, was presented with the **distinguished performance award** for his planner, YochanPS, at the International Planning Competition in the United Kingdom in 2006.

CSE Ph.D. student **John T.E. Timm** and CSE professor **Gerald Gannod** co-authored a paper called "A Model-Driven Approach for Specifying Semantic Web Services" that won "Best Student Paper" at the **2005 IEEE International Conference on Web Services (ICWS'2005**). Extremely competitive, the 2005's conference had a 19 percent acceptance rate.

A poster titled "Gesture Based Hand Movement Analysis and Haptic Feedback for Surgical Training" was selected as one of the best posters in the conference, "**Medicine Meets Virtual Reality 14**." Two Ph.D. students in CSE, **Kanav Kahol** and **Priyamvada Tripathi**, co-authored the poster and paper with **Dr. Sethuraman Panchanathan** as well as Doctors Mark Smith, Alan Leibowitz and John Ferrara of Banner Good Samaritan. The conference was held in Long Beach, California from Jan. 24 to Jan. 27, 2006.

Ashish Amresh and **Pushpak Karnick**, both Ph.D. students in CSE, won a **teaching award** from the **GPSA Teaching Excellence Awards Program** in recognition for their outstanding achievement designing and teaching the CSE 494, "Introduction to Game Programming," course at ASU.

Ashish Amresh, Dr. Gerald Farin, Pushpak Karnick and Dr. Dianne Hansford.

Daniel Bryce, a Ph.D. student in CSE, was awarded the **Dean's Scholarship** for 2005-2006, totaling $5,000. Bryce was also awarded the **Achievement Rewards for College Scientists (ARCS) scholarship** worth $6,000 from the Phoenix Chapter of the ARCS Foundation for the second year in a row. **Troy L. McDaniel** also won a **scholarship** worth $6,000 from the Phoenix Chapter of the ARCS Foundation.

Kanav Kahol and **Jian Tang**, two CSE Ph.D. students who graduated in the spring of 2006, were nominated to join **Sigma Xi**, the national esearch society, because of their achievements and research abilities exhibited at ASU.

The Arizona State University (ASU) team won for the second consecutive year in a row in the **Ultimate Architect SumoBot Competition** held on May 10 at the Microsoft Mobile and Embedded Developer's Conference (MEDC) 2006 in Las Vegas. **Qian Huang**, Ph.D. student in the Department of Computer Science and Engineering (CSE), worked with **Yinong Chen**, CSE research scientist, to create the winning car.

On April 25, **Joe DeLibero** was honored by the **ASU Dorrance Scholars Program** for mentoring the scholarship recipient, Brian Pullins. A CSE sophomore, Pullins received a $7,000 renewable scholarship and a one-time $4,000 study-travel.

In the spring of 2006, the Arizona State University Commission on the Status of Women gave **Mutsumi Nakamura** the **Outstanding Achievement and Contribution Award** for her work in encouraging and mentoring female students within CSE.

Events

CSE Night ▶

On April 21, student, faculty and staff awards were given out at the annual CSE Night. Outstanding students within CSE were recognized and faculty and staff excellence awards were handed out at the dinner hosted by CSE. Jim Armstrong, founder of JDA Software, was the keynote speaker. *(photo right: Jim Armstrong, JoAnn Armstrong and Sethuraman Panchanathan.)*

◀ CSE Programming Competition

Thirty-one teams comprised of more than sixty students competed in this year's programming competition hosted by the Women in Computer Science organization. Tony Gitter, Tyrus Peace and Nathan Winchester took top honors to win iPod shuffles, $300 cash and a $500 gift certificate towards Wiley textbooks. Ling Zhou and Kevin Gundlach came in second. Prizes for the top 10 teams, top freshman, top sophomore, top female and top undergraduate team were also given.

Successful First Job Fair ▶

CSE held its first job fair at Hatton Hall from 3 to 5 p.m. on March 23, attracting more than 150 CSE students to the event. Eleven companies, such as Google, Microsoft and MediServe, met and gathered resumes from the students about job opportunities at their companies. Overwhelmingly successful, the event also gave raffle tickets out to students for a chance to win free prizes, including an iPod, keyboard, mouse and gift certificates.

Distinguished Lecture Series

The department hosts several distinguished lectures throughout the year, featuring guest speakers from universities and industries around the world. Students and all others are welcome to come and listen to the speakers talk about various subjects pertaining to computer science.

Randy Katz, NAE Member
Electrical Engineering and Computer Science, University of California, Berkeley
The Computer is the Network: The Emergence of Programmable Network Elements

Richard Tapia, NAE Member
Noah Harding Professor,
Department of Computational and Applied Mathematics, Rice University
Inverse, Shifted Inverse and Rayleigh Quotient Iteration as Newton's Method

Raj Reddy, NAE Member
Mozah Bint Nasser University Professor,
Computer Science and Robotics in the School of Computer Science, Carnegie Mellon
Digital Libraries

Linda Petzold, NAE Member
Department of Mechanical and Environmental Engineering
Department of Computer Science and Engineering
University of California, Santa Barbara
Bridging the Scales in Biochemical Simulation

Chris Johnson
Distinguished Professor, School of Computing
Director, Scientific Computing and Imaging Institute
School of Computing, University of Utah
Computing the Future of Biomedicine

Holly Rushmeier
Department of Computer Science, Yale University
Three-Dimensional Scanning and Computer Graphics

Nikil Dutt
Center for Embedded Computer Systems, University of California at Irvine
ADL-Driven Exploration of Programmable Embedded System Architectures

Ramasamy Uthurusamy
General Director of Emerging Technologies Information Systems and Services Division of General Motors Corporation
A Prolegomenon to Search Technologies

Professor Linda Goodwin
Director, Nursing Informatics Program
Duke University
Health Care Informatics: Birds Eye View of the Tower of Babel

Jiajie Zhang
Professor and the Associate Dean for Research in the School of Health Information Sciences, University of Texas Health Science Center
Human-Centered Computing in Biomedical and Health Informatics

Sanjoy Paul
Rutgers University
Digital Media Delivery: Trends, Challenges and Opportunities

Peter F. Stadler
Chair, Bioinformatics, University of Leipzig, Germany
RNA's everywhere: Genome-wide annotation of structured non-coding RNAs

About CSE

The Department of Computer Science and Engineering (CSE) offers undergraduate degrees in Computer Science and Computer Systems Engineering and a M.S., M.C.S. and Ph.D. in Computer Science. It boasts a vibrant student body of about 900 undergraduate and 300 graduate students and a stellar faculty of 41 tenure-track professors and six full-time lecturers.

Our program strives to reflect the depth and breadth of computer science as a science, an art, an engineering discipline and primarily a creative human endeavor. To this end, we have engendered strong collaborations with other engineering departments in the Fulton School as well as academic departments throughout ASU, such as the School of Life Sciences, the W.P. Carey School of Business, the Herberger College of Fine Arts and the College of Liberal Arts and Sciences.

Key research areas in the department include algorithms; artificial intelligence; bioinformatics; computer networks; operating systems and security; embedded systems; geometric modeling, graphics and visualization; information assurance; information and data management; multimedia information systems; and software engineering. Faculty are also collaborating on trans-disciplinary projects with the Translational Genomics Institute (T-Gen), the Biodesign Institute at ASU, the Decision Theater at ASU, Banner Health Systems and Mayo Clinic to name a few.

Undergraduate Degree Programs

The Department of Computer Science and Engineering offers two degree programs at the undergraduate level. A new, streamlined curriculum will be implemented for the 2006-2007 academic year, which reduces the hours to complete both degrees from 128 to 120 credits. The new curriculum will allow students greater flexibility and provide experiential learning through the new two-course, Senior Capstone courses. An integrated Bachelor/Master degree program was also approved, beginning the 2006-2007 academic year.

The Bachelor of Science in Engineering (B.S.E) in Computer Systems Engineering 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, embedded micro systems and digital hardware design. Although the program addresses numerous application areas, its emphasis on embedded systems sets it apart.

The Bachelor of Science (B.S.) in Computer Science provides a solid background in computing principles and enables students to customize their degrees with 21 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. Last year, the department awarded six scholarships.

Student Awards

Outstanding Student - Computer Science
Peter Edwards

Outstanding Student - Computer Systems Engineering
David Hatfield

Outstanding M.S. Student
Preetha Appan

Outstanding Ph.D. Student
Jian Tang

Undergraduate Student Leadership Award
Jessica Stape
Andy Lim

Master's Degree

The Department of Computer Science and Engineering offers two degree programs at the master's level. The Master of Science (M.S.) in Computer Science 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) is offered in collaboration with faculty in the Department of Electrical Engineering and the Herberger College of Fine Arts.

The Master of Computer Science (M.C.S.) is an advanced degree targeted at students with undergraduate education in computer-related disciplines who can benefit from further breadth and background. The M.C.S. 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, such as embedded systems; information assurance and computer security; multimedia and the arts; database systems; algorithm design and analysis; bioinformatics; 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 M.S. 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 M.S. and M.C.S. programs combine academic excellence and relevance to industry.

Faculty & Staff Status

Professors: 16
Associate Professors: 9
Assistant Professors: 16
Lecturers: 7
Emeritus Professors: 6
Affiliated Faculty: 5
Adjunct Faculty: 3
Staff: 17

Doctoral Degree

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. While computers have become essential tools in these areas, the depth of interaction of fundamental computer science with each is rapidly evolving.

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 W. 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. The interdisciplinary strength of the program has been enhanced by a concentration on Arts, Media and Engineering (AME) within the Ph.D. degree.

Trans-disciplinary Faculty

Several CSE faculty members hold joint appointments with both Computer Science and Engineering and another ASU department/institute:

Winslow Burleson - Arts, Media and Engineering Program
Marco Janssen - School of Human Evolution and Social Change
Seungchan Kim - Translational Genomics Research Institute
Patrick Langley - Department of Psychology
Hari Sundaram - Arts, Media and Engineering Program
Jieping Yi - The Biodesign Institute

Research Awards

BARAL

Answering Complex Questions and Performing Deep Reasoning in Advance Question Answering Systems
DOD-NSA/ARDA 5/3/04-10/31/06 $810,977

Gonzalez
Knowledge Representation, Reasoning and Problem Solving in a Cellular Domain*
NSF-CISE 8/1/04-7/31/08 $496,465

BAZZI

Chatha
Curriculum Development For The Compiler Construction Course Sequence
CES 11/1/05-12/31/06 $35,388

CALLISS

Lee, Y
CSE 220 Programming For Computer Engineering
CES 11/1/05-12/31/06 $64,647

CAM

Power-Aware Sensor Nodes for Monitoring and Data Aggregation
CES 8/25/04-12/31/05
$59,087

CANDAN

Panchanathan, Hedgpeth
Ubiquitious Environment To Facilitate Access To Textbooks & Related Materials For Individuals Who Are Blind Or Visually Impaired
AZ Dept. Economic Sec. 1/9/06-12/31/09 $1,212,198

Chatha, Ryu, Sundaram
Development of Quality-Adaptive Media-Flow Architectures to Support Sensor Data Management
NSF-CISE 9/15/03-8/31/07 $470,000

CHATHA

Career: System-Level Design Of Network-On-Chip Architectures
NSF-CISE 3/15/06-2/28/11 $400,000

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

Laboratory Development for CSE 423 Capstone Design Project
CES 1/1/03-1/31/06 $84,069

Graduate Level Course on Co-Design
CES 1/1/04-1/31/06 $49,975

Stanzione
Cri: Collaborative Research: Reconfigurable Computing Cluster
NSF-CISE 3/1/06-2/29/08 $14,415

CHEN

Tsai
Probabilistic Reasoning and Fault Pre-Exemption for Exceptional Prevention
Microsoft 5/1/05-4/30/05 $50,000

Additional funds totaling $50,000 received for research support.

COLBOURN

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

DASGUPTA

Chatha, Gupta
Cns-Sger Integrated Security Infrastructure For Personal Identites And Consumer Computing
NSF-CISE 5/1/06-4/30/08 $199,890

Chatha, Gupta
CEINT: Infrastructure for Identity Assurance
CES 1/03/05-6/30/06 $92,284

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 $115,639

FARIN

Computational Brain Imaging - Year 8
Harrington Arthritis Research Center
7/1/05-6/30/06 $172,811

Spines over Iterated Voronoi Diagrams*
NSF-CISE 12/15/03-11/30/06 $155,253

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 1/1/01-8/31/06 $264,700

Additional funds totaling $170,000 received for research support.

JANSSEN

Dynamics Of Rules In Commons Dilemmas
NSF-SBE 9/1/05-8/31/08 $587,306

KAMBHAMPATI

Scalable Multi-Objective Planning for Metric Temporal Domains: Heuristics, Algorithms and Tradeoffs*
NSF-CISE 7/1/03-10/3106 $472,642

ASU Subcontract Of Lmco Proposal To Darpa Il Program
Lockheed Martin 5/15/06-6/30/07 $414,900

Supporting Partial Satisfaction Planning & Replanning In Expressive & Mixed Initiative Domains
DOD-NAVY-ONR 10/1/05-9/30/08 $300,000

KIM

A Software Environment To Integrate Multiple Data Type For The Analysis Of Genomic Data For Multiple Myeloma
Mayo Clinic 9/15/05-8/30/06 $28,000

KONJEVOD

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

LEE, Y.

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

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

Real-Time Embedded Systems
SAIC 5/17/05-4/30/06 $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

Enhancing Target Discrimination Via 3D Visualization Without 3D Glasses
Intelligent Automation 9/23/05-2/28/06 $33,000

LIU

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

NIELSON

Farin
Geometry Processing For Isosurfaces
NSF-CISE 7/15/05-6/30/08 $340,067

Analysis of Implicit Modeling of Complex Geometric Environments
DOD - Army Research 6/1/05-3/31/08 $242,982

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 $1,224,210

Gannod, Golshani, Huey, Lee, Pheanis
Concentration Track in Embedded Systems
NSF 9/1/01-8/31/06 $490,139

Hansford, Hedgpeth
Sger: Incorporation Of Psychological Basis Of Haptics In The Design Of Assistive Haptic User Interfaces
NSF-CISE 11/15/05-10/31/06 $196,574

Candan, Hedgpeth
PPD-FRI: Ubiquitous Environment to Facilitate Engineering Education for Blind Persons
NSF-EHR 10/1/03-9/30/06 $172,538

Additional funds totaling $60,050 received for research support.

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

A Scalable Approach to Model Validation
Intel 7/1/03-6/30/07 $105,000

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

Additional funds totaling $5,000 received for research support.

SEN

Hardware-Software Co-Design of Network Process System
Motorola Labs 8/15/03-8/14/05 $57,677

SUNDARAM

Context Aware Expertise Closure
Avaya Labs Research 12/1/05-1/15/07 $47,653

Additional funds totaling $77,000 received for research support.

Research Awards

SYROTIUK

Characterizing Protocol Interaction in News: A Network Environment Wireless State Service*
NSF-CISE 6/1/03-5/31/07 $233,324

A Formal Framework for Systematic Protocol Assessment
Univ. of Texas at Dallas 10/1/02-9/30/07 $215,544

Meta-MAC Protocols: A New Dimension to Adaptation 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 1/28/03-1/31/11 $75,000

Colbourn
Vehicle Routing for Probes to Characterize Wireless Networks
DSTO 1/17/06-12/31/06 $37,913

TSAI

Adaptive End-to-End Interpretation Test and Evaluation Using Scenarios, Object-Oriented Test Frameworks and Verification Patterns
Univ. of South Florida 8/1/03-12/16/06 $450,000

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

Dynamic Varification And Validation For Flight Control Softwaree
Scientific Monitoring 8/15/05-8/14/07 $150,00

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

Configurable Business Logic Software
Intel 12/16/03-8/15/05 $60,000

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

End-To-End Scenario And Modeling Tool
Independent Engineering 5/10/05-5/9/06 $42,564

Ontology - Based Policy System (Obps)
Independent Engineering 5/27/05-9/26/06 $33,582

URBAN, J

Intergovernmental Personnel Act Mobility Program Assignment
NSF-EHR 5/22/06-5/21/07 $182,020

VRUDHULA

ITR: Methodologies for Robust Design of Information Systems Under Multiple Sources of Uncertainty
Univ. of Michigan 1/1/05-7/31/07 $381,371

Low Power Electronics - State Funds (AZ Dept of Commerce)
Univ. of Arizona 4/1/05-12/31/06 $124,216

Center for Low Power Electronics
Univ. of Arizona, NSF 2/1/06-12/31/06 $9,886

Additional funds totaling $40,000 received for research support.

XUE

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

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

ITR Collaborative Research: Fault Tolerance in WDM Optical Networks: Multifailure Recovery and Multilayer Survivability*
NSF-CISE 9/15/03-8/31/07 $168,500

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

YAU

Davulcu
Adaptable Situation-Aware Secure Service-Based Systems
DOD-ONR 7/5/04-9/30/06 $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

Xue
Collabortive Research: Ct-T: Security And Survivability Of Real-Time Systems With Manets
NSF-CISE 9/15/04-8/31/07 $200,000

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

Interdisciplinary Research Awards

Arts, Media and Engineering Program

Candan, Panchanathan, Sundaram (CSE 10%)
IGERT: An Arts, Sciences, And Engineering Research And Education Initiative For Experimental Media
NSF-EHR 10/1/05-9/30/10 $3,038,910

Candan, Farin, Panchanathan, Ryu, Sundaram (CSE 20%)
Cise Ri: An Interdisciplinary Research Environment For Motion Analysis
NSF-CISE 9/15/04-8/31/09 $1,272,822

Center for Evolutionary Functional Genomics

Panchanathan (CSE 25%)
Computational Analysis of Gene Expression Patter Images
HHS-NIH-NHGRI 7/11/03-6/30/07 $1,806,148

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 $126,000

Department of Electrical Engineering

Panchanathan (CSE 50%)
Video Traces: Create, Disseminate, Analyze
NSF-CISE 9/15/02-12/31/06 $733,308

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 $399,968

Chatha, Vrudhula (CSE 75%)
CSR-EHS: Analytical Techniques for Global Energy Minimization of a System of Interacting Components
NSF-CISE 8/1/05-7/31/09 $400,000

Chatha, Vrudhula (CSE 75%)
Power Optimization Techniques for a System of Interacting Heterogenous Components
CES 1/3/05-12/31/06 $90,932

Department of Industrial Engineering

Dasgupta (CSE 35%)
A Complex Adaptive System Approach To Qos Assurance And Stateful Resource Management For Dependable Information Infrastructure
DOD-AFOSR 4/9/01-12/31/06 $2,133,095

Department of Mathematics and Statistics

Farin (CSE 5%)
Improved Algorithms for PET/MR Physiological Estimates
HHS-NIH-NIBIB 9/20/03-8/31/07 $510,875

Department of Mechanical and Aerospace Engineering

Panchanathan (CSE 25%)
MEASURES: A Proof of Concept Demonstration
NSF 8/15/04-7/31/05 $86,000

Division of Computing Studies

Wonka (CSE 50%)
Geometry Based Feature Extraction And Analysis Of Geo Data
National Geospatial Intelligence Agency 7/29/05-7/28/08 $449,094

Farin (CSE 25%)
3D Face Authentication For Biometric Access Control
NSF-CISE 8/15/03-7/31/07 $323,000

Global Institute for Sustainability

Janssen (CSE 9%)
AOC: Integrated Analysis Of Robustness In Dynamic Social Ecological Systems
NSF-SBE 9/1/05-2/28/09 $749,278

Janssen (CSE 5%)
Long-Term Coupled Socioecological Change In Northern Mexico And The American Southwest
NSF-SBE 9/15/04-8/31/08 $540,955

Baral, Candan, Davulcu, Kambhampati, Liu (CSE 30%)
Enabling the Study of Long-Term Human and Social Dynamics: A Cyberinfrastructure for Archaeology
NSF-SBE 9/15/04-8/31/06 $100,000

Partnership for Research in Spatial Modeling

Nielson (CSE 17%)
Observations and Modeling of Orographic Cumulus Development Using Digital Imaging and Data Cataloguing
NSF-GEO 6/1/04-5/31/07 $431,012

Farin (CSE 10%)
George Washington Project
George Washington's Mount Vernon Estate & Gardens 5/25/04-2/28/06 $138,913

School of Human Evolution and Social Change

Sarjoughian (CSE 15%)
Land-Use and Landscape Socioecology in the Mediterranean Basin
NSF-ENG-BCS 8/15/04-7/31/09 $1,523,996

Translational Genomics Research Institute

Seungchang (CSE 20%)
Chemoprevention of Skin Cancer - Project III
NIH 7/01/04-6/30/09 $122,042

Seungchang (CSE 10%)
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry - Core C
NIH 8/31/05-7/31/10 $80,326

Seungchang (CSE 15%)
A New Therapeutic Paradigm for Breast Cancer Exploiting Low-Dose Estrogen-Induced Apaptosis
DOD 9/1/06-8/31/11 $74,156

Seungchang (CSE 2%)
Targets to Therapeutics in Pancreatic Cancer
NIH 7/1/05-6/30/10 $4,342

Research Centers & Partners

Arts, Media and Engineering Program
http://ame.asu.edu

At Arizona State University, engineering, arts and science disciplines involved in media research and training have come together to create the Arts, Media and Engineering Program (AME). The program's mission is research and education in the integrated development of media systems. AME's specialized focus is the study and development of experiential media systems. We define these as systems that integrate computation and digital media with the physical-human experience to produce enhanced physical-digital experiences.

Experiential Media have the following five key characteristics: Natural multimodal interfaces including gesture, speech and sound, drawing and activity; embedded in everyday life; communication of meaning and experience that goes beyond information; participational; system sensitizes and promotes contemplation resulting in cultivation.

AME's program structure is an interdisciplinary network of faculty and graduate students with a trans-disciplinary core working under a common, use-inspired research and education agenda. In the fall of 2005, the Arts, Media and Engineering program received a prestigious National Science Foundation (NSF) grant for an Integrative Graduate Education and Research Traineeship (IGERT) Program for integrated research and education in experiential media.

Photo: Seven-year-old Elyse Olson explores interactive visuals and sounds in the AME program's SMALLab - a media-rich, student-centered learning enviroment for K-12 education.

Center for Cognitive Ubiquitous Computing
http://cubic.asu.edu

CUbiC has made rapid strides in developing human-inspired computing and research paradigms. CUbiC received two new grants totaling $1.9 million, in addition to $2 million of existing grants and participation in $2.5 million in collaborative grants. The new grants include the DES/RSA grant for the project "Ubiquitous Environment to Facilitate Access to Textbooks and Related Materials for Adults and School Age children who are Blind or Visually Impaired" for 2006-2010. The National Science Foundation supported fundamental research on haptic user interfaces through SGER grant titled: "Incorporation of Psychological Basis of Haptics in the Design of Assistive Haptic User Interfaces" for 2006-2007. In joint projects with Banner Good Samaritan Hospital, Phoenix and Mayo Clinic Scottsdale, CUbiC continues research on fundamental issues on development of neuro-cognitively inspired human computer interfaces.

CUbiC has been especially active in dissemination of research. Dr. Sethuraman Panchanathan and Dr. Kanav Kahol guest edited a special July-Aug 2006 issue of *IEEE Multimedia* on haptic user interfaces in multimedia system. CUbiC has also received widespread recognition in the research community. A poster outlining CUbiC's work on haptic systems for surgical simulation titled "Gesture Based Hand Movement Analysis and Haptic Feedback for Surgical Training" was selected as one of the best posters in the conference, "Medicine Meets Virtual Reality 14."

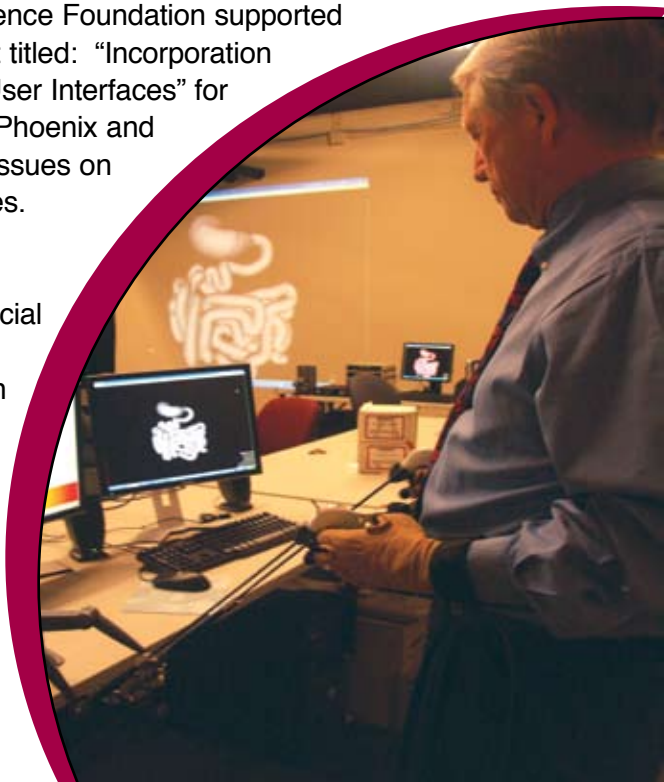
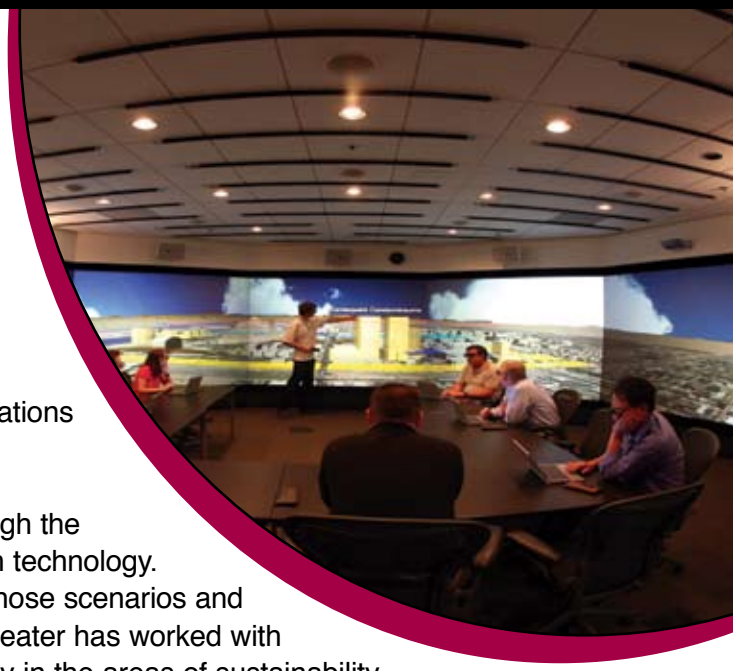


Photo: Dr. Marshall Smith from Banner demostrating the virtual surgery simulation developed by CUbiC.

Decision Theater
http://www.decisiontheater.org



Visualization as a communication medium is an important factor when considering how individuals may be influenced in a decision about complex policy issues. Researchers have made substantial advances in geospatial, 3D and interactive visualizations over the past decade, but many challenges remain in how to combine these tools to facilitate decision-making for policy. The Decision Theater has re-conceptualized the applied decision-making process by combining the latest technology systems in information visualization, scenario simulations and collaboration.

The Decision Theater facilitates tangible decision-making through the coordination of visualizations and simulations with collaboration technology. This method is used to identify alternative scenarios, analyze those scenarios and ultimately build policy decisions. For the past year, Decision Theater has worked with community stakeholder groups to address urban planning policy in the areas of sustainability, water management, transportation and economic infrastructure. Decision Theater has also initiated several projects at the federal level to examine issues around national security, health and workforce development.

The data fusion, collaboration, simulation and visualization resources at the Decision Theater, coupled with vast knowledge network of ASU researchers, provides new and emerging entrepreneurs as well as established organizations with an unparalleled resource. The Decision Theater plays a significant part in the university's initiative to bring together applied research with regional and national communities to form an innovative set of tools for effective policy
decision-making.

Photo: The Decision Theater facility contains a room called the "drum"; a 260-degree collaborative decision environment with seven connected projection screens and state-of-the-art audio and video technology. These systems create a unique and effective decision-making environment.

Enterprise Computing

The Enterprise Computing program is a trans-disciplinary effort, integrating research issues from computer science, industrial engineering and information systems in the study of the dynamic, self-adjusting behavior required for the support of organizational collaboration in a service-oriented computing environment. Our objective is to develop an innovative research and educational environment for creating a new breed of information technology professional – one who not only understands the need for intelligent, adaptable and secure computing solutions, but who also understands the business context that drives the volatility of enterprise applications and the engineering context that drives the need for the scalable design of such systems.

Our research methodology is focused on the development of the enterprise physics (i.e., properties, models, metrics, scale, semantics and knowledge dimensions) that is needed to lend a sound approach to service computing, thus catalyzing the supporting research areas of ontological service/process description, dynamic orchestration of services, modeling and simulation of enterprise collaboration, component business modeling, decision support systems, agent-based collaboration and resource virtualization and performance. We are establishing industry/university partnerships for the purpose of conducting enterprise computing research in the context of applications, such as supply network integration, banking and credit card processing and medical informatics.

Research Centers & Partners

InCISE

The Institute for Computing Information Sciences and Engineering (InCISE) is a collaboration between the Fulton School of Engineering and Vice President for Research that fosters interdisciplinary research units that share expertise in computer and information science, informatics and their application to research problems in academic disciplines and in our communities. The mission of InCISE is to foster computer science and informatics application of data storage, security, modeling, visualization, analysis and interpretation in interdisciplinary research, education and entrepreneurship.

Enabling Technologies for Intelligent Information Integration
http://rakaposhi.eas.asu.edu/et-i3/

The researchers in the ET-I3 cluster have had a very productive year. We had a strong presence in the top academic forums for information integration, including ICDE 2006, WWW 2006, AAAI 2006 and VLDB 2006. The members of the cluster played an active role in conference/workshop organization, including SIGMOD 2006, IIWEB 2006, AAAI 2006 and ICML 2006. One of the researchers was an invited participant at the 2006 Google Faculty Summit.

KADIS, a collaborative project between ET-I3 and researchers from Anthropology department, has garnered funding worth $750,000 over three years from the National Science Foundation's Human and Social Dynamics program. When completed, the KADIS system is expected to revolutionize the way archeological information is stored and integrated. Several additional proposals submitted to NSF and AFOSR are pending. We are also pursuing collaborations involving medical and environmental information integration. USuggest.Com, an ASU spinoff, licensed collaborative tagging technology created by one of the ET-I3 members and raised $250,000 in investment funds. The system is scheduled for a pre-Christmas launch date. Our graduating students went on to take up positions at top Internet and information technology companies, including Amazon, MSN Search and Yahoo! One of our Ph.D. students, Lei Yu, accepted a tenure track appointment at SUNY Binghamton.

High Performance Computing Initiative
http://hpc.asu.edu

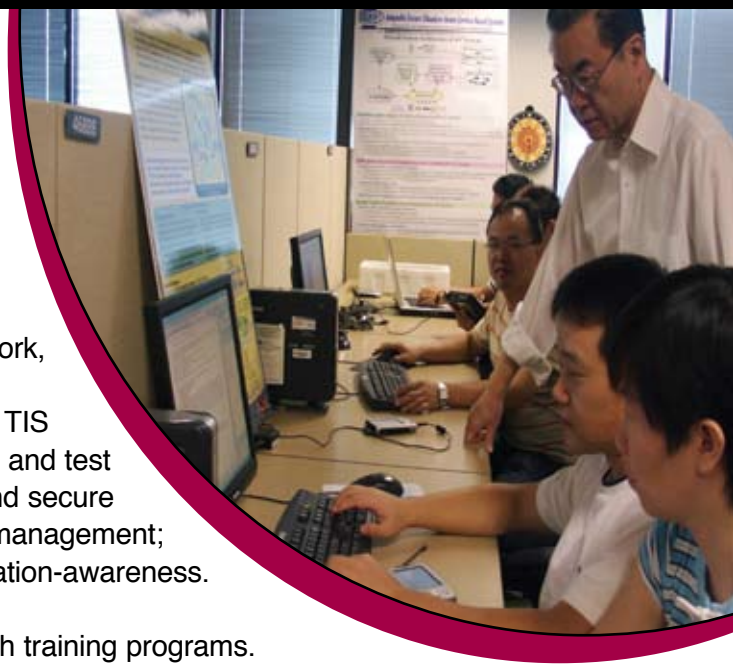
The Fulton High Performance Computing Initiative (HPCI) serves as the hub for parallel and grid scientific computing on the ASU Tempe campus, maintaining centrally managed high-performance computing systems for over 1,000 processors across campus. The Fulton HPCI provides state-of-the-art machine room facilities, system administration, expertise in parallelization of scientific and engineering codes and training to ASU researchers.

The mission of the HPCI is to maximize the utility of high-end computing resources deployed by ASU researchers. The HPCI currently collaborates with more than 70 faculty across the engineering disciplines, with industry partners as well as with other ASU Initiatives, including the Decision Theater and the Biodesign Institute.

In addition to its mission in collaborative research, the HPCI also performs computer science research in the areas of system software and programming models for high-end computing systems. Current research projects include: parallelization of discrete event simulators for advanced chip design, optimization of golf ball design, protein structure modification for more effective methods of drug delivery and design of high temperature materials for more efficient power plants.

Photo: The Fulton HPCI facility in the Goldwater Center.

Information Assurance



The Information Assurance (IA) program addresses the broad issues of developing trustworthy information systems (TIS) on which people can rely on storing, processing and transmitting information over networks. The IA program has attracted more than 20 faculty members from several departments. An IA cluster was established to prepare for the establishment of a center to promote IA research and related educational activities. Current research activities involve foundational, network, system and application aspects of developing TIS, including logic, languages and tools for development of secure systems; TIS composition methods; ways to measure, model, analyze, verify and test TIS; steganography; survivable network design; anonymous and secure network routing; dynamic and deterministic Quality of Service management; data mining for security, privacy in data management; and situation-awareness.

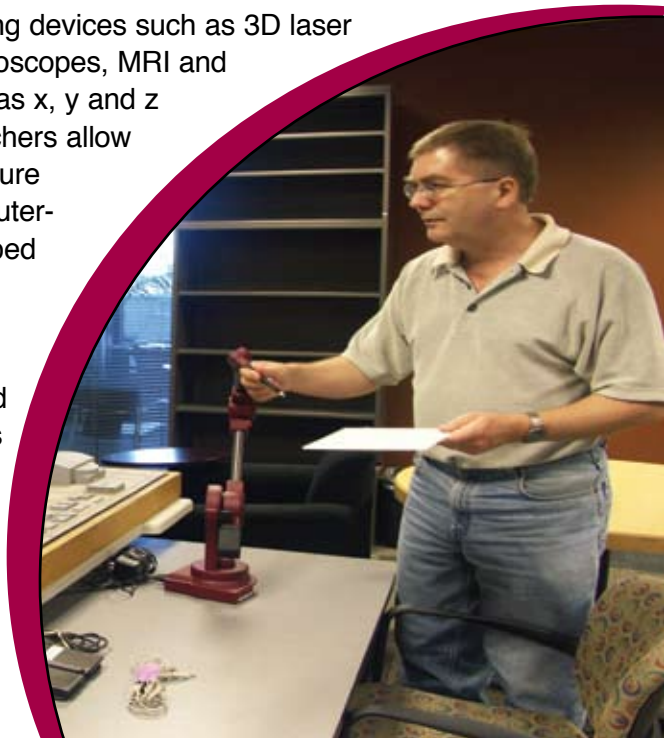
IA faculty members are also engaged in academic and outreach training programs. The IA program courseware has been certified by the Information Assurance Courseware Evaluation Program through National Security Agency to satisfy both NSTISSI-4011 and CNSSI-4012 standards. An NSA/DHS certified national Center of Academic Excellence in Information Assurance Education (CAEIAE) is currently under development. A number of IA new courses have been added or are under development for the IA program.

Photo: Dr. Stephen Yau working with graduate students in the Information Assurance lab.

Partnership for Research in Spatial Modeling
http://prism.asu.edu

The Partnership for Research in Spatial Modeling (PRISM) has a history of collaborative partnerships centered around how to develop, capture, model, analyze and interact with three-dimensional data. PRISM leads the modeling and visualization research within InCISE and brings together researchers from computer science, the arts and design, life sciences, social sciences and engineering in a unique, interdisciplinary laboratory. For example, PRISM developed the concepts and first prototype of ASU's Decision Theater.

PRISM researchers work with large, complex data sets from scanning devices such as 3D laser scanners, optical facial scanners, confocal and scanning probe microscopes, MRI and CAT scanners or other sources of surface and volumetric geometry as x, y and z coordinates. 3D algorithms and software created by PRISM researchers allow users to accurately model and automatically segment, extract, measure and analyze features of interest to discipline researchers. The computer-aided geometric design (CAGD) modeling and analytic tools developed at PRISM apply to surfaces and volumes within complex data sets regardless of scale.



Research has emphasized creating digital libraries of 3D objects and developing new algorithms and tools that permit 3D spatial searches of man-made and natural objects in databases ranging from Native American ceramics and forensic analysis of bones to DNA and cellular structures.

Photo: Dr. Gerald Farin demostrating a new interactive mapping system.

Chitta Baral

Professor
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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
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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 main areas of research are Fault tolerance and security in distributed systems. He is interested in teaching a variety of courses. Some courses he taught recently are Computer Networks, Theory of Computation, Compiler Construction, and Fault tolerance in distributed systems.

Honors and Distinctions:
- NSF CAREER Award, 1999

Selected Publications:
R. A. Bazzi and G. Konjevod : On the establishment of distinct identities in overlay networks. ACM Symposium on Principles of Distributed Computing (PODC) 2005 : 312-320.

R.A. Bazzi and Y. Ding: Non-skipping Timestamps for Byzantine Data Storage Systems. International Symposium on Distributed Computing (DISC) 2004: 405-419.

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.

Tom Boyd

Lecturer
E-mail: Thomas.A.Boyd@asu.edu
Phone: 480-965-3689
Office: BY 416
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.

Hasan Çam
Assistant Professor
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Office: BY 596
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
Lecturer
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Ph.D. Arizona State University, 1991

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:
- 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.

Karamvir S. Chatha
Assistant Professor
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Phone: 480-727-7850
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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 System-on-Chip devices. In particular, he has focused on Network-on-Chip design, multi-core System-on-Chip design, hardware-software co-design, and adaptive and reconfigurable computing. He is currently engaged in the development of novel architectures, performance evaluation tools and design optimization techniques for Network-on-Chip based multi-core devices.

Honors and Distinctions:
- NSF CAREER Award for "CAREER: System-level Design of Network-on-Chip Architectures", 2006.
- Best Paper Award for "Hardware Software Co-design for Dynamically Re-configurable Architectures" at the Field Programmable Logic and Applications Workshop, 1999.

Selected Publications:
Krishnan Srinivasan, Karam S. Chatha, and Goran Konjevod, "Linear Programming based Techniques for Synthesis of Network-on-Chip Architectures", IEEE Transactions on VLSI Systems (TVLSI), Vol. 14, No. 4, pp 407-420, April, 2006.

Krishnan Srinivasan, and Karam S. Chatha, "A Low Complexity Heuristic for Design of Custom Network-on-Chip Architectures", Proceedings of IEEE/ACM Design, Automation and Test in Europe (DATE), March 6-10, Munich, Germany, 2006.

Krishnan Srinivasan, Karam S. Chatha, and Goran Konjevod, "An Automated Technique for Topology and Route Generation of Application Specific On-Chip Interconnection Networks", Proceedings of IEEE/ACM International Conference on Computer-aided Design (ICCAD), November 6-10, San Jose, CA, 2005.

Nilanjan Banerjee, Praveen Vellanki, and Karam S. Chatha, "A Power and Performance Model for Network-on-Chip Architectures", Proceedings of IEEE/ACM Design, Automation and Test in Europe Conference (DATE), February 16-20, Paris, France, 2004.

Yi Chen
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Ph.D. University of Pennsylvania, 2005

Yi Chen joined ASU in 2005.

Principal Areas of Teaching and Research:
Chen's research interests lie primarily in database and data stream management for web data and scientific data. Her research includes XML data storage, indexing, query processing and optimization techniques for databases and streams, data model and query language design, and data integration.

Honors and Distinctions:
- Journal Reviewer: ACM TODS, IEEE TKDE, DKE
- Program Committee: DEXA 07, XSym 06, 05
- Dean's fellowship, University of Pennsylvania, 1999

Selected Publications:
Y. Chen, S. Davidson, and Y. Zheng. "An Efficient XPath Query Processor for XML Streams", in proceedings of 22nd International Conference on Data Engineering (ICDE), 2006.

S. Bird, Y. Chen, S. Davidson, H. Lee, and Y. Zheng. "Designing and Evaluating an XPath Dialect for Linguistic Queries." In Proceedings of 22nd International Conference on Data Engineering (ICDE), 2006.

Y. Chen, S. Davidson, and Y. Zheng. "BLAS: An Efficient XPath Processing System", in proceedings of 23rd ACM SIGMOD International Conference on Management of Data, 2004.

Y. Chen, G. Mihaila, S. Davidson, and S. Padmanabhan. "EXPedite: A System for Encoded XML Processing", in proceedings of 13rd ACM Conference on Information and Knowledge Management (CIKM), 2004.

Y. Chen, S. Davidson, C. Hara, and Y. Zheng. "RRXS: Redundancy Reducing XML Storage in Relations", in proceedings of 29th International Conference on Very Large Data Bases(VLDB), 2003.

Yinong Chen
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Ph.D. University of Karlsruhe, Germany, 1993

Yinong Chen joined ASU in 2001. From 1994 to 2000, he was a lecturer and senior lecturer in the School of Computer Science at the University of the Witwatersrand, Johannesburg, and was the founder and leader of the Research Program for Highly Dependable Systems there. He performed postdoctoral research at the University of Karlsruhe and at LAAS-CNRS in France. Chen has (co-) authored three textbooks, one research book, and more than 70 research papers.

Principal Areas of Teaching and Research:
Chen's primary research interests are service-oriented computing, embedded systems, fault-tolerant computing, distributed systems, communication protocols and networks.

Honors and Distinctions:
- 2006 Lead ASU team to win Ultimate Architect SumoBot Competition champion in MEDC 2006 in Las Vegas
- 2005 Lead ASU team to win Ultimate Architect SumoBot Competition champion in MEDC 2005 in Las Vegas
- 2005 Microsoft Research Innovation Excellence Awards for Phoenix Project
- 2003 Microsoft Research Innovation Excellence Awards for Embedded Systems
- 1994 European Commission's Human Capital and Mobility (HCM) research fellowship award

Selected Publications:
Y. Chen, W.T. Tsai, Introduction to programming languages: Programming in C, C++, Scheme, Prolog, C#, and SOA, second edition, Kendall/Hunt Publishing Company, 2006, ISBN 0-7575-2974-7.

Y. Chen, H. Huang, W.T. Tsai, "Scheduling Simulation in a Distributed Wireless Embedded System", Simulation: Transactions of the Society for Modeling and Simulation International, Vol. 81, Issue 6, June 2005, pp. 425-436.

Y. Chen, Z. He, Bounds on the reliability of distributed systems with unreliable nodes and links, IEEE Transaction on Reliability, Volume 53, No. 2, June 2004, pp. 205-215.

Y. Chen, "A service scheduler in a trustworthy system," in the proceedings of the 37th Annual Simulation Symposium, Arlington VA, April 2004, pp. 89-96.

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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:
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, Journal of Combinatorial Designs 14 (2006), 124-138.

W. Chu, C.J. Colbourn, and V.R. Syrotiuk, Slot Synchronized Topology-Transparent Scheduling for Sensor Networks, Computer Communications 29 (2006), 421-428.

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, SIAM Journal on Discrete Mathematics 19 (2005), 523-542.

W. Chu and C.J. Colbourn, Optimal Frequency Hopping Sequences via Cyclotomy, IEEE Transactions on Information Theory 51 (2005), 1139-1141.

V.R. Syrotiuk, M. Cui, S. Ramkumar, and C.J. Colbourn, Dynamic spectrum utilization in ad hoc networks, Computer Networks 46 (2004), 665-678.

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.

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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

Lecturer, Sr.
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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), DeLibero 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:
- Honored ad a Mentor by the Dorrance Scholars Program, 2005, 2006
- 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, 2005.

J. DeLibero, Introduction to Windows 2000, Freedom TLC, 2005.

J. DeLibero, Introduction to FileMaker Pro, v. 5, Freedom TLC, 2005.

J. DeLibero, Introduction to Word 2000, Freedom TLC, 2005.

J. DeLibero, Introduction to Excel 2000, Freedom TLC, 2005.

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

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.

Sandeep K. S. Gupta

Associate Professor
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Office: BY 522
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.

Dijiang Huang

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Ph.D. University of Missouri-Kansas City, 2004

Dijiang Huang has been at ASU since 2005.

Principal Areas of Teaching and Research:
Huang's main research interests are twofold: (i) Security: key management, authentication protocol, secure key agreement protocol, attacks analysis and attack resilient network design; and (ii) Computer networking, Ad Hoc/sensor networks, secure protocols, cryptography and key management.

Honors and Distinctions:
- Interdisciplinary Ph.D. Merit award, UMKC 2002
- Distinguished Dissertation award, UMKC 2003
- Technical program committee, ICCCN 2005
- Technical program committee, ACM SASN 2005
- Technical program committee, IPCCC 2006
- Technical program committee, WIA 2006
- Technical program committee, CISSE 2006

Selected Publications:
D. Huang, Qing Cao, Amit Sinha, Marc Schniederjans, Cory Beard, Lein Harn and Deep Medhi "Addressing Intra-Domain Network Security Issues through Secure Link-state Routing Protocol: A New Architectural Framework" to appear in Communications of the ACM.

D. Huang and Hao Li "Admissibility and Anonymity Based Cryptography and Its Implementation in Embedded Devices" to appear at the Work-in-Progress Session IEEE Real-Time and Embedded Technology and Applications Symposium, 2006.

Sean Williams and D. Huang, "A group force mobility model." Accepted and to appear at the 9th Communications and Networking Simulation Symposium, April 2-6, 2006.

D. Huang, Amit Sinha and Deep Medhi, "On Providing Confidentiality in Link State Routing Protocol" in Proceedings of the IEEE Consumer Communications and Networking Conference, Jan. 2006.

D. Huang and D. Medhi, "A Key-chain Based Keying Scheme For Many-to-Many Secure Group Communication," ACM Transaction on Information and System Security (TISSEC), Vol 7, NO. 4, 2004, pp 523-552.

Ben M. Huey

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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. As Special Assistant to the Chair, he is actively involved in the development of the new School of Computing and Informatics and the Biomedical Informatics Program. He is chair of the Criteria Committee for CSAB, and a member of the ABET Computing Accreditation Commission and a program evaluator for the ABET International Activities Council. Huey is a senior member of IEEE and 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:
- Consortium for Embedded Systems, ASU Board Member 2001-2006, Chair 2005-2006
- Institute of Electrical and Electronics Engineers, 1966-, Senior Member, 1977-
- IEEE EAB Accreditation Policies Committee, 2003-2005
- 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:
J. Collofello, C. Behl, D. Calliss, B. Huey, "Development of an Information Sciences Certificate," Proceedings of Frontiers in Education Conference, October 2006.

B Huey and J. Valdenegro, "Improving Assessment of Space Utilization in a Transdisciplinary Research Environment", Planning for Higher Education, June 2006.

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Ph.D.: Maastricht University (the Netherlands), 1996

Marco Janssen joined ASU in 2005. He is also an assistant professor in the School of Human Evolution and Social Change at ASU. Prior to then he has had positions at Indiana University, Vrije Universiteit Amsterdam and the Dutch National Institute for Public Health and the Environment.

Principal Areas of Teaching and Research:
Janssen's research interest focuses on computational models to study emergent phenomena in social and social-ecological systems, agent-based modeling, robustness, symbols and cooperation, and diffusion processes. Janssen teaches on the use of computer simulation within the social sciences.

Honors and Distinctions:
- NSF Grant, Dynamics of rules in commons dilemmas, 2004-2008

Selected Publications:
M.A. Janssen, ed., Complexity and Ecosystem Management: The Theory and Practice of Multi-agent Systems, Edward Elgar Publishers, 2002.

D.C. Parker, S.M. Manson, M.A. Janssen, M. Hoffmann, and P. Deadman, "Multi-agent systems for the simulation of land-use and land-cover change: a review", Annals of the Association of American Geographers, vol. 93, no. 2, 2003, pp. 314-337.

M.A. Janssen, T.A. Kohler, and M. Scheffer, "Sunk-cost effects and vulnerability to collapse in ancient societies", Current Anthropology, vol. 44, no. 5, 2003, pp. 722-728

M.A. Janssen, and W. Jager, "Simulating Market Dynamics: The Interactions of Consumer Psychology and Structure of Social Networks", Artificial Life, vol. 9, 2003, pp. 343-356.

M.A. Janssen, J.M. Anderies and B.H. Walker, "Robust strategies for managing rangelands with multiple stable attractors", Journal of Environmental Economics and Management, vol. 47, 2004, pp. 140-162

R.L. Goldstone and M.A. Janssen, "Computational models of collective behaviour", Trends in Cognitive Science, vol. 9, no. 9, 2005, pp. 424-430

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.

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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.

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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.

Joohyung Lee
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University of Texas at Austin, 2005

Joohyung Lee joined ASU in 2005.

Principal Areas of Teaching and Research:
Joohyung's research and teaching interests are in Artificial Intelligence, in particular, knowledge representation and reasoning (how to represent knowledge explicitly in a symbolic way, and how to get relevant conclusions from the encoded knowledge), logic programming (how to use logic directly as a programming language), commonsense reasoning (how to endow commonsense to machines), declarative programming methods (programming focusing on what is to be computed, rather than how it is computed).

Honors and Distinctions:
- Outstanding Paper Honorable Mention Award, AAAI 2004.
- Scholarship, the Korea Foundation for Advanced Studies (KFAS).

Selected Publications:
E. Giunchiglia, J. Lee, V. Lifschitz, N. McCain and H. Turner, Nonmonotonic Causal Theories," Artificial Intelligence, 153(1-2):49-104, 2004.

J. Lee, "Nondefinite vs. Definite Causal Theories," In Proc. 7th Int'l Conf. on Logic Programming and Nonmonotonic Reasoning (LPNMR 2004), LNAI 2923, pp. 141-153.

J. Lee, "A Model-Theoretic Counterpart of Loop Formulas," In Proc. 19th Int'l Joint Conf. on Artificial Intelligence (IJCAI 2005), pp. 503-508.

J. Lee and F. Lin, "Loop Formulas for Circumscription," Artificial Intelligence, 170(2):160-185, 2006.

J. Lee and V. Lifschitz, "A Knowledge Module: Buying and Selling," In Working Notes of the AAAI Spring Symposium, 2006.

P. Ferraris, J. Lee and V. Lifschitz, "A Generalization of the Lin-Zhao Theorem," Annals of Mathematics and Artificial Intelligence, to appear.

M. Gebser, J. Lee and Y. Lierler, "Elementary Sets for Logic Programs," In Proc. 21st Nat'l Conf. on Artificial Intelligence (AAAI 2006), pp. 244-249 .

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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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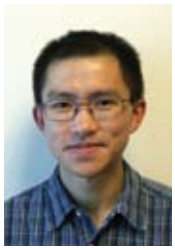
Ph.D. Northwestern University, 1966

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.

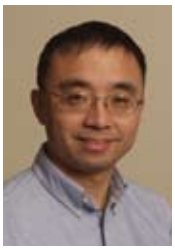
Honors and Distinctions:
- SHARP Laboratories President's Award, 2001, 2004
- SHARP Laboratories Inventor of the Year Award, 2002

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.

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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 and Visual Basic programming language.

Honors and Distinctions:
- ASU Student Affairs Honors, 2002
- Ira A. Fulton CEAS Teaching Excellence Award Nominee, 2004
- ASU CSW (Commission on the Status of Women) Outstanding Achievement and Contribution Award, 2006
- Ira A. Fulton Teaching Excellence Award Nominee, 2006

Selected Publications:
Mutsumi Nakamura, Chitta Baral, Hasan Davulcu, Prabhdeep Singh, Luis Tari, Lian Yu: Collaborative Curation of Data from Bio-medical Texts and Abstracts and Its integration. DILS 2005: pp. 309-312

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 CEAS Teaching Excellence Award Nominee, 2004
- Teacher of the Year, Department of Computer Science and Engineering, 2006

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

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Gregory M. Nielson

Professor
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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.

Sethuraman Panchanathan

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Ph.D. University of Ottawa, Canada, 1989

Sethuraman Panchanathan has been at ASU since 1997. He is currently professor and director of the School for Computing and Informatics as well as the chair of the Department of Computer Science and Engineering, the director of the Institute for Computing and Information Sciences and Engineering (InCISE) and 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
- Editor-in-chief, IEEE Multimedia, 2006-present
- Innovator of the Year for Academia, Govenor's Celebration of Innovation Awards, iCARE Research, Center for Cognitive Ubiquitous Computing, 2004
- Academic Collaboration Award, Disability Resources for Students, ASU, 2004
- Ford Fellow, College of Engineering and Applied Sciences, ASU 2000-2001

Selected Publications:
O. Lotfallah, M. Reisslein, and S. Panchanathan, "Adaptive video transmission schemes using mpeg-7 motion intensity descriptor", in press IEEE Trans. On Circuit and Systems for video Technology, March 2006.

K Kahol, P Tripathi, S Panchanathan, "Documenting Motion Sequences: Development of a Personalized Annotation System", IEEE Multimedia Magazine, Vol. 13, #1, pp37-45, Jan-March 2006.

S. Kumar, L. Xu, M.K. Mandal, and S. Panchanathan, "Error resiliency schemes in H.264/AVC standard," Journal of Visual Communication Image Representation, 17 (2006) 425-450.

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 260 academic journals and conferences in the past six 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.

L. Ritchie, H.-S. Yang, A.W. Richa and M. Reisslein. Cluster Overlay Broadcast (COB): MANET Routing with Complexity Polynomial in Source-Destination Distance. To appear in IEEE Transactions on Mobile Computing.

Kishore Kothapalli, Christian Scheideler, Melih Onus and Andrea W. Richa. Constant density spanners for wireless ad-hoc networks. In Proceedings of the 17th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), pages 116-125, 2005.

Kyung Dong Ryu

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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.

Hessam S. Sarjoughian

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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 research at ASU has been funded by NSF, Lockheed Martin, Intel, and Boeing. Sarjoughian's professional experience has been with IBM and Honeywell.

Principal Areas of Teaching and Research:
Sarjoughian's research focuses on modeling frameworks that support specification of composable and scaleable simulation and software models. The main areas are composable simulation/software modeling, hybrid SW/HW system modeling, collaborative model development, distributed simulation, and software design. His educational aim is to help M&S become a discipline.

Honors and Distinctions:
- Jointly established the Arizona Center for Integrative Modeling & Simulation (ACIMS) in 2001
- Lead the creation of Online MEng program in M&S.
- Area Editor [Methodology], SIMULATION Transactions.
- Best paper award, Summer Computer Simulation Conf., 2003.

Selected Publications:
T. Wutzler, H. Sarjoughian, "Simulation Interoperability across Parallel DEVS Models Expressed in Multiple Programming Languages," DEVS Integrative M&S Symposium, 2006, pp. 16-22.

G. Mayer, H. Sarjoughian, E. Allen, S. Falconer, M. Barton, "Simulation Modeling for Human Community and Agricultural Landuse," Agent Directed Simulation Symposium, Spring Simulation Multi-conference, 2006, pp. 65-72.

H. Sarjoughian, D. Huang, "A Multi-Formalism Modeling Composability Framework: Agent and Discrete-Event Models," Proc. of the 9th IEEE DS-RT, 2005, pp. 249-256.

H. Sarjoughian, D. Huang, W. Wang, D. Rivera, K. Kempf, G. Godding, H. Mittelmann, "Hybrid Discrete Event Simulation with Model Predictive Control for Semiconductor Supply-chain Manufacturing," Proc. of Winter Simulation Conference, 2005, pp. 255-266.

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.

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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:
K. K. Vadde, V. R. Syrotiuk, and D. C. Montgomery, "Optimizing Protocol Interaction using Response Surface Methodology" to appear in IEEE Transactions on Mobile Computing (accepted August 2005).

W. Chu, C. J. Colbourn, and V. R. Syrotiuk, "The Effects of Synchronization on Topology-Transparent Scheduling" to appear in ACM/Baltzer Journal on Wireless Networks (WINET) (accepted May 2005).

W. Chu, C. J. Colbourn, and V. R. Syrotiuk, "Slot Synchronized Topology-Transparent Scheduling for Sensor Networks," Computer Communications 29 (4) : 421-428, February 2006.

K. K. Vadde and V. R. Syrotiuk, "Quantifying Factors Impacting Quality-of-Service in Mobile Ad Hoc Networks," Simulation 81 (8) : 547-560, August 2005.

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.

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.

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Ph.D. Arizona State University, 2006
M.S. Rensselaer Polytechnic Institute, 2000

Turban has been a lecturer at ASU since 2002. She teaches undergraduate courses and also serves as a faculty advisor for the Women in Computer Science group at ASU.

Honors and Distinctions:
- ASU Commission on the Status of Women Award (2005) for "achievement and contribution towards advancing the status of women"
- ASU College of Engineering and Applied Sciences - Teaching Excellence Nomination (2005)
- CSE Instructor of the Year Award, 2002 and 2004
- 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 and C.J. Colbourn. "Prioritized Interaction Testing for Pairwise Coverage with Seeding and Avoids," Information and Software Technology Journal (IST, Elsevier), (to appear, accepted February 2006).

R. Turban and C.J. Colbourn. "Biased Covering Arrays for Progressive Ranking and Composition of Web Services," International Journal Simulation and Process Modeling, (accepted June 2005, scheduled to appear in January 2007).

R. Turban, C.J. Colbourn and M.B. Cohen. "A Framework of Greedy Methods for Constructing Interaction Tests." The 27th International Conference on Software Engineering (ICSE), St. Louis, Missouri. (May 2005), pp. 146-155.

R. Turban. Automatic Generation of High Coverage Usability Tests, ACM CHI 2005, Extended Abstract – Doctoral Symposium. Portland, Oregon, pp.1108-1109. (April 2005).

R. Turban. Constructing Interaction Test Suites with Greedy Algorithms, 20th IEEE/ ACM International Conference on Automated Software Engineering (ASE05), Extended Abstract – Doctoral Symposium. Long Beach, California (November 2005), to appear.

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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

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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:
Ying Jin, Susan D. Urban and Suzanne W. Dietrich, "A Concurrent Rule Scheduling Algorithm for Active Rules" to appear in Data and Knowledge Engineering, 2006.

Ying Jin, Susan D. Urban and Suzanne W. Dietrich, "Extending the OBJECTIVE Benchmark for Evaluation of Active Rules in a Distributed Component Integration Environment" to appear in Journal of Database Management, 2006.

Ying Jin, Susan D. Urban, Suzanne W. Dietrich, Amy Sundermier, "An Integration Rule Processing Algorithm and Execution Environment for Distributed Component Integration" to appear in Informatica, 2006.

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.

CSE 2006

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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

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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, visualization, and applications of visualization and graphics.

Honors and Distinctions:
- Erwin Schroedinger Fellowship for postdoctoral work at Georgia Tech

Selected Publications:
Guided Visibility Sampling. Peter Wonka, Michael Wimmer, Kaichi Zhou, Stefan Maierhofer, Gerd Hesina, Alexander Reshetov. Siggraph 2006.

Procedural Modeling of Buildings, Pascal Mueller, Peter Wonka, Simon Haegler, Andreas Ulmer, Luc Van Gool. Siggraph 2006

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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 publishedover 140 refereed papers, including 70 journal 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 Network Magazine
- Associate Editor, Computer Networks Journal

Selected Publications:
Errol L. Lloyd and Guoliang Xue; Relay node placement in wireless sensor networks; IEEE Transactions on Computers; accepted for publication.

Guoliang Xue, Weiyi Zhang, Jian Tang and Krishnaiyan Thulasiraman; An improved algorithm for optimal lightpath establishment on a tree topology; IEEE JSAC Optical Communications and Networking series; accepted for publication.

Guoliang Xue, Arunabha Sen, Weiyi Zhang, Jian Tang and Krishnaiyan Thulasiraman; Finding a path subject to many additive QoS constraints; IEEE/ACM Transactions on Networking; accepted for publication.

Ying Xiao, Krishnaiyan Thulasiraman and Guoliang Xue; QoS routing in communication networks: approximation algorithms based on the primal simplex method of linear programming; IEEE Transactions on Computers; accepted for publication.

Jian Tang, Guoliang Xue, Christopher Chandler and Weiyi Zhang; Link scheduling with power control for throughput enhancement in multihop wireless networks; IEEE Transactions on Vehicular Technology; Vol. 55(2006), pp. 733--742.

Jieping Ye

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University of Minnesota- Twin Cities, 2005

Jieping Ye joined ASU in Fall 2005.

Principal Areas of Teaching and Research:
His research interests include bioinformatics, machine learning, data mining, and pattern recognition.

Honors and Distinctions:
- Outstanding Student Paper Award at the 21st International Conference on Machine Learning, 2004.
- Guidant Fellowship for the best Ph.D. student at the Computer Science & Engineering Department at the University of Minnesota, 2004-2005.

Selected Publications:
J. Ye, R. Janardan, and S. Liu. Pairwise protein structure alignment based on an orientation independent representation of the backbone geometry. Journal of Bioinformatics and Computational Biology. Vol. 2, No. 4, 2004, pp. 699-717.

J. Ye and R. Janardan. Approximate multiple protein structure alignment using the Sum-of-Pairs distance. Journal of Computational Biology. Vol. 11, No. 5, 2004, pp. 986-1000.

J. Ye, T. Li, T. Xiong, and R. Janardan. Using Uncorrelated Discriminant Analysis for Tissue Classification with Gene Expression Data. IEEE/ACM Transactions on Computational Biology and Bioinformatics. Vol. 1, No. 4, 2004, pp. 181-190.

J. Ye.Characterization of a Family of Algorithms for Generalized Discriminant Analysis on Undersampled Problems. Journal of Machine Learning Research. Vol. 6, 2005, pp. 483-502.

J. Ye. Generalized low rank approximations of matrices. Machine Learning, Vol. 61, pp. 167-191, 2005.

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 World Computer Conference 89, 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.

AFFILIATED AND ADJUNCT FACULTY

Suzanne Dietrich
Ph.D. State University of New York at Stony Brook, 1987
Research Interests: query languages, enterprise application integration and database education.

Gerald Gannod
Ph.D. Michigan State University, 1998
Research Interests: software product lines, software reverse engineering, formal methods for software development, software architecture and software for embedded systems.

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.

Timothy Lindquist

Cathy Radziemski

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

Rosemary Renaut
Ph.D. University of Cambridge, England, 1986
Research interests: image reconstruction, restoration, analysis of medical image data, classification, ill-posed problems and algorithms for total least squares with regularization.

Charles Riden
MS, Fresno State College

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.

Alan Skousen
Ph.D. Arizona State University, 2002
Research Interests: distributed computing, operating systems, computer architecture, compilers and single address space operating systems.

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.

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Vernon Blackledge

Vernon Blackledge was a member of Electrical and Computer Engineering (ECE) for many years before the Department of Computer Science and Engineering (CSE) was formed and moved to CSE in 1984.

Leonard Faltz

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. Faltz's research examines the formal aspects of natural language morphology, syntax, semantics and lexicon.

Nicholas Findler

Ph.D. Budapest University of Technical Sciences, 1956
Nicholas Findler joined the Department of Computer Science and Engineering at 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.

David Pheanis

Ph.D. Arizona State University
David Pheanis joined the ASU faculty in 1975 and the Department of Computer Science and Engineering in 1980. Since 2004, he has been Professor Emeritus of Computer Science and Engineering and continues to work with the Consortium for Embedded Systems providing internships and scholarships for students.

Earl Robbins

Ph.D. Arizona State University, 1968
Earl Robbins joined the ASU faculty in Engineering in 1968 and the Department of Computer Science and Engineering in 1984. Robbins was awarded the title of emeritus in 1989. He is currently working with another ASU emeritus faculty on research involving methane hydrates found in the ocean.

Marvin Woodfill

Ph.D. Iowa State, 1964
Marvin Woodfill joined the ASU faculty in 1966 in Electrical Engineering and helped to found the Department of Computer Science and Engineering in 1980. He retired from ASU in 1999, earning the title of Professor Emeritus.

Industry Advisory Council

The role of the CSE Industry Advisory Council is to advise the department in its strategic planning and to assist the department in accomplishing its teaching, research and service mission objectives. The council membership is dynamic and provides valuable feedback to improve the quality of research and academic programs in the department. Members consist of computer science leaders at both the local and national levels.

Members:

Rick Anderson, Senior Software Engineering Manager, Tektronix, Inc.

George Colliat, Group Vice President Core Engineering, Siebel Systems, Inc.

David Hesser, President and CEO, Technovation

Rod Lenniger, President of Stoner-Roland, LLC

Pranav Mehta, Principal Engineer and Architecture Manager
Embedded IA Division, Intel Communications Group

Douglas Merrill, Senior Director, Information Technology, Google, Inc.

Bruce Mortensen, President, MediServe Information Systems, Inc.

Zach Mortensen, MediServe Information Systems, Inc.

Michael Orn, Program Director, IBM

Kent Petzold, President, Arris Ventures, LLC

Shlomo Pri-Tal, Motorola Embedded Communications Computing Group, Director, Group Technology Office

Stephen H. Watson, Supervisor, Ground Software Systems Engineering Group at NASA's Jet Propulsion Laboratory (JPL)

"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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