Professor Mike Liu Retires

Mike Liu received his PhD degree in May 1964 from the University of Pennsylvania, where he was an Assistant Professor of Electrical Engineering from 1965 to 1969. He joined The Ohio State University in August 1969 as an Associate Professor of Computer and Information Science and was promoted to a full professor in 1978. He has produced 56 doctoral graduates (one at UPenn) and has published over 200 technical papers in the areas of computer architecture, computer networking and distributed computing systems. He became an IEEE Fellow in 1983 for his contributions to computer networking, distributed computing and education in computer science. He received a Distinguished Scholar Award from Ohio State in 1991.

He has been very active in professional activities, serving as EIC of IEEE Transactions on Computers (1986-1990), as a member of the Board of Governors of the IEEE Computer Society (1984-1990, 1998-2001), as Vice President for Membership and Information (1988), as Chair of the Awards Committee (2000-2001) and as Chair of the History Committee (2002-2006). He was the recipient of the 1997 Richard Merwin Distinguished Service Award, the highest service award given annually to one person by the IEEE Computer Society.

He has been active in international conferences, serving as steering committee chair, general chair, program chair and awards chair for various conferences, including ICDCS, ICPP, IPCC, ICDE and SRDS. He also launched several international conferences, such as ISCOM (1991), ICPADS (1992), ICNP (1993), SAINT (2001) and ICCNMC (2001). He also served on the program committee of numerous conferences over 90 times.

He was active in accreditation of the BS in computer science and engineering programs, serving as a Program Evaluator and Team Chair for ABET and CSAB (1986-2001). He was on the CSAC Executive Committee (1993-1997), a CSAB Representative Director (1997-2003) and Vice President (1999-2000). He received a Distinguished Contributions Award from CSAB (2003) and became a CSAB Fellow (2006).

A United Airlines Million Mile Flyer, he has visited about 40 countries and travelled (mostly by driving) to all 50 states. After retirement, he plans to digitize and archive thousands of film pictures and hundreds of video tapes, and to spend more time with his family, among other things.

“Mike was a founding member of the department when it was established in 1969. He has mentored many students and faculty along the way. We will miss him deeply and we thank him for his significant contributions and service to not only the department, but the computer science community as well.” Xiaodong Zhang, Department Chair.
Message from the Department Chairperson

Dear CSE Alumni, Parents, Friends and Colleagues,

This year marks the 40 year anniversary of the CSE department at Ohio State. It is with deep adulation and a heavy heart that the Department announces the retirement of Professor Ming-Tsan Mike Liu who has witnessed the entire history of the department. To celebrate his 40 years of service to CSE, and his contributions to Ohio State and to the fields of distributed computing and networking, the department has established a “Professor Mike Liu Graduate Scholarship Fund.” We have received enthusiastic response for contributions from his students, friends and colleagues since last November.

We have extended the advisory committee by adding three new members: Matt Desch, BS ’80 (Iridium Satellite LLC), Jai Menon, PhD ’80 (IBM), and Conleth “Con” O’Connell, PhD ’91 (Vignette). In this issue, you will read the stories of Con and Matt. Jai’s introduction will be published in the next newsletter.

The department has been delighted to observe an increase in individual contributions from our alums, and your help is very important to us! There are naming opportunities for sizable contributions to support lab renovations, endowed lecture series and endowed professorships. Please contact me if you are interested in connecting your names and contributions to these specific activities or other projects you are passionate about.

While you read this newsletter, I hope you forget about the current economic recession because the stories from the CSE family are warm and inspiring. Please continue to keep us informed about your accomplishments in your professional and personal life. Wherever you go, your CSE home at Ohio State wishes you all the best.

Xiaodong Zhang
Chair and Robert M. Critchfield Professor

Professor Mike Liu Scholarship Fund

The CSE Department and the alumni of Professor Liu have established, in his honor, the Professor Mike Liu Graduate Scholarship Fund to celebrate his 40 years of service to this department, his contributions to Ohio State and the fields of distributed computing and networking. Each year, this scholarship will support an outstanding graduate student for excellence in academic and research activities.

The inaugural scholarship will be given at this year’s CSE Annual Awards Banquet on May 13, 2009.

Thanks to the university’s Corporate Matching Gifts program, you can ensure that your contribution will go as far as possible. To see if your employer participates, please visit www.matchinggifts.com/osu/.

For more information, or to make a donation to the scholarship fund, please see www.cse.ohio-state.edu/giving or contact Xiaodong Zhang at zhang@cse.ohio-state.edu or 614-292-5841. For more information on giving to CSE, please visit the department’s development website at www.cse.ohio-state.edu/giving.
CSE Homecoming Lecture Series

The CSE Department would like to thank those OSU alumni who participated in our department’s 2008-2009 Homecoming Seminars.

• Guohong Cao
  - PhD ’99 CSE
  - Professor of Computer Science and Engineering, Pennsylvania State University

• Rebecca Fiebrink
  - BS, BA ‘04 CSE and Music
  - PhD Student, Princeton University

• Tamer Ozsu
  - PhD ’83 CSE
  - Professor, Director and University Research Chair, University of Waterloo

• Lawrence Rosenblum
  - PhD ‘71 Math
  - Program Director, Graphics and Visualization, National Science Foundation

• Jian Sun
  - PhD ‘07 CSE
  - Post-doctoral Scholar, Stanford University

OSU Computer Engineering Program Moves Up in Ranking

According to the US News and World Report 2010 Edition of America’s Best Graduate School released in April, the Ohio State Computer Engineering program has made a strong leap to number twenty among all PhD granting Computer Engineering Programs in the United States. This reflects the continuous improvement of quality and reputation of experimental oriented research and education activities on building computer hardware and software in the department. The program was ranked 29th in 2009. This succeeds the rise in the Computer Science Graduate Program ranking last year from 34th to 31st.

2009 Buckeye Reunion Weekend

Buckeye Reunion BBQ is September 11, 2009 at 5:30 pm on the patio of Hitchcock Hall. The BBQ is free and open to all alumni of the college and their guests.

Continuing Education Seminar will be held on September 11, 2009 in E100 Scott Lab from 9am to 3pm. A list of presentations will be available after June 1st.

A College of Engineering Tailgate party will be hosted for the Buckeye vs. USC game on September 12th, beginning at 5:30 pm.

For more information regarding any of these activities, please contact Kerry Gastineau at kerry_gastineau@engadmin.ohio-state.edu or 614-292-8311.

According to the US News and World Report 2010 Edition of America’s Best Graduate School released in April, the Ohio State Computer Engineering program has made a strong leap to number twenty among all PhD granting Computer Engineering Programs in the United States. This reflects the continuous improvement of quality and reputation of experimental oriented research and education activities on building computer hardware and software in the department. The program was ranked 29th in 2009. This succeeds the rise in the Computer Science Graduate Program ranking last year from 34th to 31st.

We are currently developing our seminar series for 2009 - 2010. If you would be interested in giving a seminar to CSE students and faculty, please contact Xiaodong Zhang at zhang@cse.ohio-state.edu.
Conleth O’Connell: A Buckeye Technology Leader in Texas

Conleth “Con” O’Connell has been the Chief Technology Officer for Vignette Corporation since 2002. Vignette Corporation provides Web software that many companies use to run their Web sites, such as Motorola, Marriott, Martha Stewart, NASA, IRS and Bank of America. The company was founded in 1995, and Con joined as a software engineer in April 1996. Vignette is recognized as the pioneer of Web content management; the automation of managing Web sites.

Con received his masters in 1986 and his doctorate in 1990, both from the Computer and Information Science Department. He stayed on working with Dr. Sandra Mamrak under a post-doctorate grant, funded by Mead Data Central and the World Bank through 1991, as Director of the Consortium for the Integrated Chameleon Architecture.

“What I remember most was the family atmosphere of the department. As a new graduate student, I felt like the faculty, staff and other graduate students helped orient me for success. There are two people of that “family” who remain an integral part of my family today. Chris ‘Curbie’ Morgan, the department receptionist, who I met in 1984, is my wife, friend and mother to our three children. The other was Dr. Dave Ogle who not only was my best man, but continues to be a sounding board, camping buddy and overall great friend.”

The research Con did with Dr. Mamrak led to his job at HaL Computer Systems in 1991. The Chameleon Research Project was about leveraging SGML to support transforming documents between formatting programs. Application-independent representation of content becomes very valuable over the lifetime of the content because it isn’t associated to technology that is sure to become obsolete. “I had the great fortune to apply the research we did on Chameleon while at HaL. Not only did I productize the technology we had developed during the research, but I co-authored the DocBook SGML DTD which established a representation of all the Unix documentation used today. While at HaL, we used the products from the chameleon research project to allow our authors to work in FrameMaker, store the documentation in SGML, and publish the documents in a proprietary CDROM format, troffman format, HTML and FrameMaker books. I loved my time as a graduate student, but seeing the research become a practical reality was very rewarding.”

While at Vignette, Con joined the XML committee of the W3C consortium. Many of his colleagues from the Davenport Group, where the DocBook DTD was developed, decided to simplify SGML. “Our research under Dr. Mamrak proved that needed to happen, so it was a natural extension that I join the XML committee.” When the XML Recommendation was announced, Vignette was one of the first software vendors to provide XML support in their content management product. Now, XML is one of the foundational elements of the Web. “I remember my doctoral defense and being asked by Dr. Neelam Soundarajan if I was concerned about the proliferation of languages because of the research I was doing.” It’s true, the number of XML-based languages continues to grow; representing everything from document formats to mathematical formulas, music, chemical compositions, nutritional information, etc. “If I were to answer that question today, I’d have to say that we must do this in order to preserve all the content we produce.”

Con had the opportunity during his tenure at Vignette to ride the dot com boom. During that time, Con and Curbie established a few endowments with the College of Engineering to benefit the CSE department. “Two of the areas that we wanted to focus on were staff and undergraduate education by establishing an endowment for each. Chris and I felt compelled to give back to the department which served us so well and helped prepare me for my career.”

“I’m proud to say I’m a Buckeye, and that my career success was a direct result from my time spent as a graduate student. I was honored in 2006 with the Distinguished Alumni award. The other honorees before and since have performed tremendous accomplishments, and I’m humbled to be a part of that group.” As of 2009, Con has joined the CSE Advisory Board as well as the University of Texas Information School advisory board and is a technical advisor to several Austin, Texas-based startup companies.
Matt Desch: A Networking and Telecommunications Entrepreneur

Matt Desch became Chairman & CEO of Iridium Satellite LLC, in 2006. He received his BS in computer science from OSU in 1980. He also earned his MBA from the University of Chicago in 1986. Matt was a very active student on campus in his day — in addition to academic awards and success, he was involved in student leadership activities all around campus. For example, he was heavily involved in Ohio Unions Activity Association, helped found the Student Alumni Council, was President of the Sphinx Senior Honorary, involved in off-campus service with Circle K and the Kidney Foundation, among others. He received numerous awards for his campus leadership, including 1980 Outstanding Senior, was the National Scholar of the Year in his Evans Scholarship fraternity, and was even selected as Homecoming King his Junior year!

After graduation, Matt was hired by AT&T Western Electric in Reynoldsburg (what is now Alcatel Lucent), and started his career writing and testing software for telephone switches with Bell Laboratories. He moved with AT&T Lucent to Chicago where he completed his MBA at night as a young first level supervisor for software system testing on large scale software systems. Looking for opportunity, he moved to Northern Telecom (now known as Nortel Networks) in Raleigh, NC, where he started a 13 year career that started as a product manager for one of Nortel’s product lines, and ended as President of their fast growing wireless division, responsible for over $4.5 billion in sales worldwide. He ended his career with Nortel at the peak of the “dot-com” boom in 1990, when he was living in London and was responsible for all of Nortel’s international business.

After Nortel, Matt got involved with a number of VC firms and their venture capital backed companies, advising young management teams, and helping make business decisions as a board member. In 2003, he became CEO of Telcordia Technologies in New Jersey, a $1B software and consulting services business for telephone companies. After selling that business to private equity in 2005, Matt was recruited into his current position at Iridium Satellite.

Iridium is a very unique company; Motorola founded the company in the 1990s and spent almost $5B developing the largest constellation of commercial, low earth orbiting communications satellites ever launched, then went bankrupt shortly after launch in 1999 in a highly publicized business failure. The current Iridium Satellite LLC emerged from the bankruptcy in 2001 with a more focused business plan — instead of trying to compete with cellular telephones, it would use its ability to reach every part of the planet from space to provide voice and data services to ships, corporate aircraft, the US military and for machine-to-machine applications like asset tracking. Since relaunch, Iridium has grown almost 30% per year, is quite profitable, and is planning to launch a replacement, next generation constellation of satellites in 2014. With the company’s continued growth, even in the global recession, Iridium is planning to go public this year on the NYSE through a merger with Greenhill Acquisition Corporation sometime later this Spring. You might have also seen them in the news recently as one of their 66 operational satellites had an unexpected collision with a Russian satellite in February, in the first such collision between two spacecraft in the history of space flight.

Matt has reconnected with Ohio State in the last few years, and provided a substantial donation to the Ohio Unions to create a student leadership program for promising students. He’s involved with the President’s Council Advisory Board, and seeks ways to connect business leaders with OSU. An avid pilot since getting his license as a high school student in Kettering, Ohio, Matt uses his small airplane to get his wife Ann and their Jack Russell terrier to and from Ohio State activities from their homes in Washington, Dallas, and Pinehurst, NC.

Matt remembered his days as a student fondly. “I loved computer science, and enjoyed the logic and rules that a good software program required. It took discipline to complete a demanding academic schedule, while being so involved in student activities – but I wouldn’t have had it any other way. Student leadership taught me about people, which helped as I moved into the world of technology management after Ohio State.” Matt also worked at an internship during his junior and senior years at what was then known as Accu-Ray Corporation (now ABB, Inc on Ackerman Road near campus). Accu-Ray created process control systems for paper companies, and used some of the only Multics systems, which were early timesharing operating systems and precursors to UNIX. It’s a long way from typing out punch cards late at night at Baker Systems, to the exciting world of satellite communications. I appreciate the education I received from Ohio State, both in computer science, as well as the many student leadership experiences I took advantage of while on campus. I’m continually impressed by the progress OSU has made over the years — I think the school is stronger in every way today than when I walked the Oval in the late 70s, but it’s still an institution built on great tradition, great people, and full of opportunities for its students.”
Alumni Notes

Do you have any suggestions or news about yourself or other alumni for the newsletter? Email us! Send your suggestions to alumni@cse.ohio-state.edu.

Jeffrey Ramsey, BS ’80, is a senior engineer for L-3 Communications in Camden, N.J.

Alexander Moore, BS ’07, is a software developer for TDCI in Columbus, Ohio.

Rajit Goyal, PhD ’99, is co-founder and vice president of engineering of newSaej Corporation in Burlington, Massachusetts.

Upon graduation, Eric Shaffer, BS ’00, worked as a software developer before receiving his JD from the University of Dayton. He is currently a patent lawyer in Cleveland, Ohio.

Herbert Ehler, MS ’83, is a senior academic director at the Institute for Informatics at the Technical University of Munich in Germany.

Harold (Harry) Keller, MS ’72, has worked and lived in the Richmond, VA area since graduation. He has been an IT consultant for several firms and government agencies, taught IT classes as an adjunct faculty member at J. Sargeant Reynolds Community College. He has worked as a data administrator or database administrator for several area companies, most recently at First Health Services Division of Coventry Health Care. He retired in 2005 and is an active member in the OSU Alumni Club of Greater Richmond.

Above: CSE Distinguished Alum Tamer Oszu is presented with his award. From left, CSE Professor and Associate Chair Bruce Weide; Interim Dean of the College of Engineering Greg Washington; Tamer Oszu, Professor and Director University Research Chair, University of Waterloo; Xiaodong Zhang, CSE Professor and Chair.

Brian Wilson, BS ’00, of London, Ohio, is director of Technology for Ohio State’s Fisher College of Business.

Mike Williams, BS ’81, MS ’83, works at Raytheon Company in Tuscon, Arizona.

Jerry Canterbury, BS ’87, is a senior managing consultant and project manager for IBM. He earned an MBA from the University of Georgia in 2005 and achieved certification as a Project Management Professional (PMP) in 2009. In 2008 he was elected to a five-year term on the board of directors for the Ohio State University Alumni Association. He is the webmaster for the Ohio State Alumni Club of the Triangle (Raleigh/Durham area). He is also a member of the TBDBITL Marching Band Alumni Society and returns to Columbus nearly every fall to march down the field ‘one more time.’

Jerry and his wife Nancy (OSU ’80) currently reside in Holly Springs, NC. In their free time they enjoy international travel, with recent trips to Italy, Egypt, Antarctica, Machu Picchu, and the Galápagos Islands.

After Robert S. Rose ’79 and his wife graduated from OSU, they immediately moved to North Carolina for his job as a programmer with IBM. He has now been at IBM for nearly 30 years, and feels the IT business has changed a lot in that time. He has been a programmer, project manager and business analyst. Almost half of his 30 year career he has been involved in process improvement and software metrics activities. When he first got into software metrics in the early nineties, it was a hit or miss. It was considered overhead and the role of a metrics specialist came and went depending on the whim of the organizational chiefs. He was told by one manager that he should consider concentrating on technical work. However, with the advent of outsourcing, software metrics has become an increasingly important field and the effort required for it is now written into all contracts. Robert is currently a consultant/metrics specialist in IBM Global Business Services, responsible for designing and deploying the metrics system required to measure service level agreements of commercial outsourcing contracts. At IBM, he had the opportunity to travel the world and had a one year assignment in Germany.
The CSE Department congratulates alumnus and Professor David Ebert for his recognition as an IEEE Fellow for his contributions to data visualization and its applications. David received his PhD in computer science from OSU in 1991, preceded by his MS in 1987 and BS in 1986. David is a professor of computer science at Purdue University and is the director of PURPL: Purdue University Rendering and Perceptualization Lab.

He also directs PURVAC: Purdue University Regional Visualization and Analytics Center, one of several regional centers coordinated by the national center at Pacific Northwest National Laboratory and established by the Department of Homeland Security whose mission is to bring academic expertise to the nation’s efforts to discover information that may lead to a terrorist attack.

Rebecca Fiebrink BS, BA ’04 came to CSE this fall as part of the BACK Seminar Series (Buckeye Alumni Creating Knowledge). She is a PhD candidate at Princeton University, where she studies applications of computer science to music performance and analysis. She received a BS in computer science and engineering and a BA in music in 2004, and she was granted an MA in music technology from McGill University in 2006. Her interests include music information retrieval, computer music performance technologies and practices, creating new hardware and software musical interfaces, and leveraging connections between arts and technology in computer science education and outreach. Rebecca is a flutist and an active developer of the ChucK music programming language. She is also an assistant director, performer and composer with the Princeton Laptop Orchestra, which performed at Carnegie Hall in April 2008 and has recently been featured in The New York Times, The Philadelphia Inquirer, and NPR’s All Things Considered. She is pictured here with her CSE advisor, Tim Long.

Rebecca’s research addresses the questions that arise from the dynamic intersection of music and computer science, where computers provide powerful new ways of understanding and creating music, and music provides computer science with a unique and exciting array of data and application domains. In her talk, Rebecca discussed her PhD research that explores these questions, drawing on disciplines including machine learning, music performance, human-computer interaction and information retrieval.

Right: A graphics group reunion. Some CSE alums gather for dinner during the IEEE VisWeek 2008 conference held in Columbus, Ohio in October.

From left, David Reed, PhD ’97, Associate Professor, Capital University, Bexley, Ohio; Torsten Moeller, PhD ’99, Associate Professor, Simon Fraser University, Vancouver, British Columbia; Edward Swan, PhD ’97, Associate Professor, Mississippi State University; Raghuram Machiraju, PhD ’96, Associate Professor, Ohio State University; Klaus Mueller, PhD ’98, Associate Professor, Stony Brook University, Stony Brook, New York.
OSU CSE Students, Alumni and Faculty featured at Ohio Celebration of Women in Computing

The Computer Science and Engineering Department was proud to be a Silver Sponsor of the Third Ohio Celebration of Women in Computing (OCWIC 09) held in February at the Mohican Resort and Conference Center, in Loudonville, Ohio. Such sponsorships provided scholarships so that all young women could attend free of charge.

This year, the CSE department sent ten women, including four graduate students and five undergraduate students. Among them, they presented two technical papers and two research posters. A former student, Carol McKee BS ’08, participated as a panelist. Bettina Bair, a CSE senior lecturer, was a member of the planning committee for the event, and also served as a panelist and a moderator. She was General Chair of the two previous conferences in 2005 and 2007.

OCWIC is a regional conference, held biannually, and modeled after the international Grace Hopper Celebration of Women in Computing. OCWIC is an opportunity for young women to explore opportunities in IT, to network with other young women and to meet possible mentors. OCWIC hopes to encourage women to complete their studies in computing by exploring careers and meeting women leaders from business, industry and academia. The conference program included parallel and plenary sessions, technical papers, posters and panels designed to inspire, educate and encourage technical women and to enable networking among women participating in the IT field in Ohio.

The conference has grown since its inception. This year’s conference had more than 115 attendees, ranging from freshman to grad students, faculty to women working in IT in industry. This conference represented thirteen colleges and universities throughout Ohio and several industries.

OSU/OSC Graphics and Visualization Open House

In conjunction with VizWeek 2008 held in Columbus, the department hosted a Visualization Open House with ACCAD and the Ohio Supercomputing Center. The event showcased the group’s recent research on computer graphics, visualization and computer animation. Students presented posters, on-site demos and videos. The open house gave those from outside of OSU to see the work our students have been doing and gave our students a great networking opportunity.
Congratulations to CSE Autumn and Winter quarter graduates!

The Department wishes you the best of luck in your future endeavors.

Bachelor's CIS
Stephen Arthur
Nicholas Brown
Charles Goins
David Hague
Nathan Howes
Joshua James
Brian Jones
Yoon-Ho Kim
Aleksandra Obrazcova
Hyunseuk Park
Young Sok Shin
Arvind Suguness
Edward Van Loon
Kurt Weimer
Michael S. White
Michael J. White

Bachelor's CSE
John Atkinson
Joseph Barkawi
Ryan Bauman
Pete Bohman
Daniel Brooks
Kevin Casey
Ga Young Choi
Casey Dekkar
Dominic Gardy
Ross Hardy
Dennis Horvath
Matthew Jakob
Benjamin Kedo
Joseph Laing
James Lauzau
William Lorenz
Joseph Mazzon
Ryan McNeely
Anthony Morris
Andrew Muraski
David Neal
Matthew Nedrich
Jin Seuk Park
Robert Quick
Jennifer Rajadhyaksha
Karl Salva
Janean Simon
Christopher Snodgrass
Karl Staas, Jr.
Daniel Thomas
Theresa Zajkowsk
William Zeitler

Master’s
Bruce Adcock
Xiaole Bai
Karthik Beeraka
Xiaoning Ding
Lei Ding
Sudhaa Gnanadesikan
Shilpa Gopal
Zhaozhang Jin
Nirmal Kagolani
Jason Kirschenbaum

PhD’s
Tan Apaydin
Lei Chai
Qingda Lu
Sivaramakrishnan Narayanan
Shansi Ren
Daqing Xue

LISA ‘09 Best Student Paper

PhD candidate Xiaoning Ding was awarded the Best Student Paper at the 22nd USENIX Annual Large Installation System Administration Conference (LISA 2009) in November in San Diego, California. The paper entitled *Automatic Software Fault Diagnosis by Exploiting Application Signatures* is in collaboration with IBM T.J. Watson Research Center and his advisor, CSE Professor and Chair Xiaodong Zhang. The paper proposes an automatic approach to diagnose application faults. It represents a promising step toward automating application problem solving, and could lead to significant time and cost savings in enterprise IT environments.

Xiaoning’s research includes operating, storage and distributed systems. He received his undergraduate degree in Computer Science from Northwestern Polytechnic Institute. He received the departmental graduate research award in 2008.

Grad Student Research Exhibition Best Poster Award

Ben Schroeder received the Best Poster Award at the 3rd Annual Grad Student Research Exhibition. A crowd favorite, Ben’s poster featured an interactive demo which depicted using animation and sound simulations in complementary ways, studying the sounds produced by multiple objects interacting with one another – for example, how the sound produced by a flat table changes when other things are resting on it. He also uses the information from the sound simulation to inform the animation, feeding vibrations back into resting objects to produce secondary shaking and jumping. You can view the demo at http://www.cse.ohio-state.edu/~schroebe/CSE-poster-2009/.

Ben received his undergraduate degree and master’s degree from Case Western Reserve University. His work focuses on computer animation with CSE Professor Rick Parent and sound synthesis with Professor Marc Ainger in the OSU School of Music. He is especially interested in how computer media is used in the arts and in creative forms of learning in general.
Anish Arora and Xiaodong Zhang Named IEEE Fellows

The CSE Department is proud to announce two new IEEE Fellows inducted into the class of 2009. The Institute of Electrical and Electronics Engineers fellow program honors those who have made an unusual distinction in the profession.

Professor Anish Arora was recognized for contributions to scalability and stabilization of networks of sensors and computers. He leads the Dependable Distributed and Networked Systems group. The group works on the foundations of fault-tolerance, security, and timeliness properties, develops design, verification, and implementation methods, and builds prototypes of dependable systems for new application areas.

Professor and Chair Xiaodong Zhang has been named an IEEE Fellow for contributions to computer memory systems. Professor Zhang is the Robert M. Critchfield Professor in Engineering and directs the High Performance Computing and Software Laboratory. His research interests cover a wide spectrum in the areas of high-performance and distributed systems.

Professors Arora and Zhang are the department’s seventh and eighth IEEE Fellows, respectively.

Nasko Rountev Receives IBM Faculty Award

Professor Atanas (Nasko) Rountev has been awarded an IBM Software Quality Innovation Faculty Award. According to IBM, proposals for this program are invited from a few, carefully selected leaders in the field. These proposals are judged on technical merit and potential collaboration opportunities between faculty members and researchers at IBM and elsewhere.

Nasko’s project, titled “BIGFOOT: Searching for the Elusive Small Memory Footprint for Java Applications,” was chosen under the research focus on static and dynamic program analysis for identifying software quality problems. His work considers the excessive memory usage which is common in real-world Java applications. Such memory bloat can create serious scalability and performance problems for large-scale Java software systems. The goal of the project is to allow programmers to explore multiple semantically-equivalent implementation choices for a particular software design, leading to smaller and healthier memory footprints.

CSE Faculty Granted Faculty Innovator Award

Professors Bruce Weide and Tim Long were awarded a Faculty Innovator Award from the Ohio Learning Network, a technology initiative of the Ohio Board of Regents. The award was created to stimulate the creation of innovative, affordable materials for students in the university system of Ohio institutions. The award recognizes outstanding faculty who have been creative in their use of digital content in courses, which ultimately lowers the out-of-pocket costs of course materials for students.
Faculty Grants, Awards & Publications

**Leon Wang** was elected to the Speech and Language Processing Technical Committee of the IEEE Signal Processing Society. He also serves on the editorial membership boards for the Neural Networks journal. Leon also received a grant from the Air Force Research Lab entitled *Robust Speaker Recognition Using Auditory Based Features and Computational Auditory Scene Analysis.*

**David Lee** received a grant from the Air Force Office of Scientific Research to study internet attack traceback - cross-validation and pebble-trace. He also received funding from AT&T for security in XTreeNet content research.

In collaboration with OSU psychology Professor Simon Dennis, **Mikhail Belkin** has received an Air Force grant entitled *Networks of Memories.*

**DK Panda** received a gift from QLogic to support the development of his MVAPICH software.

**Srinivasan Parthasarathy** gave the invited keynote at the International Workshop on High Performance Data Mining 2008 in Pisa, Italy entitled *Mining and Management Tree Structured Data Efficiently.* Srinini currently serves as the co-chair for SIAM Data Mining 2009.

**Ness Shroff** served as general co-chair of the Fourth International Wireless Internet Conference held in Maui, Hawaii. He was also an invited member of the chairied Professor Group on Wireless Communications at Tsinghua University, Beijing China. Tsinghua University is the flagship university for engineering in all of China, and only seven faculty members from the United States were invited to be part of this group. The goal is to facilitate research collaborations with Tsinghua University faculty and students.

**Xiaodong Zhang** gave keynote speeches at two conferences this fall. The first, entitled *Research Issues and Challenges to Advance System Software for Data-intensive Applications* was presented at The 7th International Conference on Grid and Cooperative Computing in Shenzhen, China. The second, presented at The 5th International Conference on Embedded and Ubiquitous Computing in Shanghai, China is entitled *Design and Implementation of Multicore-aware System Software.*

**Rajiv Ramanathan** and **Jay Ramanathan** received an NSF grant entitled *Curriculum for Accelerated Services Engineering.*

**Anish Arora** gave a keynote speech at the 10th International Symposium on Stabilization, Safety and Security in Distributed Systems in Detroit, Michigan entitled *Primitives for Physical Trust.* He serves as the Associate Editor of ACM Transactions on Sensor Networks. Anish, in collaboration with **Jim Davis,** received funding from Los Alamos National Lab to further research in wireless networks.

**Jim Davis**’s surveillance research has recently hit the media circuit. He has been featured in MSNBC, The Economist, SPIE Newsroom and The Columbus Dispatch. Interest in Jim’s research has spiked as continuous surveillance of suspicious human behavior has become a more desired technology. The camera-based security system, based on smart sensor technology, would enable security personnel to identify a person who is up to no good.

To find out more about Jim’s research or read the press, visit www.cse.ohio-state.edu/~jwdavis/.

**In collaboration with the University of Akron,** **Paul Sivilotti** received an award from The Ohio Department of Transportation for the development and integration of ODOT’s geological hazard management system.

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Focus on Research

Prasun Sinha: Enabling Assured Data Services with Idle WiFi Resources for Vehicular Internet Users

These days you may find Prasun Sinha and his students Zhixue Lu and Zizhan Zheng driving around in circles – literally – in the residential areas around campus. With antennas stuck on their cars to boost WiFi signal strength, they tap into the unused backhaul capacity of roadside access-points that are insecure or “open.” They are working on perfecting a solution that can take advantage of open access-points to enable data service assurance to mobile users using intermittent connections. In order to take advantage of intermittent connectivity, the application needs to be “aware” of disconnections. Another way to run applications over intermittent connections is by using a Delay Tolerant Networking (DTN) middleware. These services can also be used to augment wide-area cellular data services if the mobile device has multiple radios, a feature which is increasingly becoming a norm.

The wide popularity of media enabled devices such as iPhones, vPods and iPods, and wireless data services such as vCast from Verizon, suggest that there will be an increasing demand for streaming multimedia content and ubiquitous data services for mobile users. These services will need an assured data-rate from the underlying system. This objective is challenging due to user-mobility, time-varying wireless channel quality and varying road-traffic conditions.

Wide-area cellular data services and local-area WiFi are two complementary wireless technologies that have rapidly evolved to meet the growing needs of wireless users. However, their primary target has been the static users or the quasi-static users, a term that refers to occasionally moving users.

New wide-area wireless technologies such as Long Term Evolution (LTE) and mobile Worldwide Inter-operability for Microwave Access (WiMAX) are expected to provide either long range coverage or high data rates. But one of the first deployments of WiMAX in the U.S. is reported to provide a downlink bandwidth of 3 Mbps, which is only within a factor of two better than the current cellular networks. At first look, this might appear sufficient for sustaining a high quality video stream, but a large number of active users in range of the base station will need to share this data-rate.

New cellular data services are expensive to deploy because of high deployment and management costs associated with cell-towers and the cost of purchasing licensed bands that are auctioned by the Federal Communications Commission (FCC). Thus, current and upcoming cellular data services are incapable of meeting the demands of a large number of mobile users.

Today, WiFi hotspots are rapidly being deployed to provide high data-rate coverage, but they mostly target static users. High-speed wireless data is becoming more available at malls, airports, businesses and coffee shops. The same technology is also commonly used in homes for wireless data access. But it falls short of meeting the needs of mobile users because of the short range and scattered locations of hotspots. In addition, the time to establish a network connection through such devices could be close to a second, thus leading to very low useful data connection time from a fast moving vehicle. Multiple projects that were planning to provide city-wide coverage with large-scale deployment of WiFi access-points have been recently stalled due to the high cost of deploying a large number of WiFi access-points and the associated complexity of network management.

Testing data access points.
Observe that both wide-area cellular and local-area WiFi technologies fail to meet the demands of mobile users. In fact, currently there is no system or service that can provide any level of service assurance to a mobile user. Potential technologies for supporting mobile users based on the deployment of new infrastructures have run into roadblocks due to economic and technical infeasibility.

These shortcomings demonstrate that a large-scale system built on the existing technologies will fail to provide any service assurance to the mobile user. Prasun’s research group aims to develop the foundations for a system that will provide assured data services over a wide area to data-intensive applications for mobile users using an economically scalable infrastructure consisting of heterogeneous technologies, and to demonstrate it with a prototype implementation. Roadside APs at businesses may have idle bandwidth during non-working days/hours, whereas residential APs may have idle bandwidth during working days/hours. Leveraging this idle bandwidth through systematic acquisition can enable assured data services to a large number of users without need for the deployment of any new infrastructure, thus making it economically feasible.

“Demand for streaming multimedia content and ubiquitous data services for mobile users will continue to rise. However, there is currently no system or service in place that can provide any level of service assurance to such users.”

However, many challenges remain in designing a practical solution. Fast association and IP address assignment are both critical to make the most of the short contact durations. As data is being transmitted through insecure access-points, proper security mechanisms need to be developed. Roadside users are expected to contribute more of their resources if they are provided appropriate incentives for participation. A truthful determination of the exact service provided by an access-point to a mobile user is critical to compute the proper incentive.

In addition to enabling infotainment services for mobile users, an intermittent infrastructure can enable a number of other applications. Remote cargo tracking and communication between a mobile workforce can all benefit from media-rich communication services that leverage the collective high-speed capability of scattered hotspots.

Prasun’s research is currently funded by the National Science Foundation. His group focuses on architectures and protocols for wireless networks and sensor networks. More information about his research can be found at http://www.cse.ohio-state.edu/~prasun.
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