



NSF Grant Seeks to Create Sensor that Strides Like a Water Spider

When an oil pipeline burst near Kalamazoo in the summer of 2010, an estimated one million gallons of crude leaked into Talmadge Creek, a tributary of the Kalamazoo River. Contaminants snaked along in sinuous patterns, eventually winding through 35 miles of waterways during one of the costliest spills in the country's history.

More than 30 households were evacuated and scores of others were warned about the quality of drinking water in the region.

What was needed was a network of cost-efficient environmental sensors that could have been deployed quickly and networked for data collection as the pollution meandered into residential and recreational areas.

That's the project goal for a \$500,000 National Science Foundation grant that began in October in the Department of Computer Science and Engineering. The research is a collaboration of **Matt Mutka**, professor and chair of computer science and engineering; **Li Xiao**, associate professor of computer science and engineering; and **Ning Xi**, University Distinguished Professor of electrical and computer engineering.

"We would like to demonstrate that we can create very inexpensive mobile sensors or small robots that can be quickly deployed, energy efficient, and serve a large number of environmental monitoring

applications," Mutka said. "We need to detect the concentrations and directional flow of the contaminants so we can create a map of how it is distributed in the water."

Mutka said when inexpensive sensors are dispersed in the water, investigators need to determine where they are on the surface. "The question is how do you orient them without expensive GPS units that consume too much battery power?"

The solution may already exist in nature, Mutka explained. "We have a model of a sensor that may work. This newest research will mimic insects, the way a water spider jumps and strides across the water."

The idea is to develop a small, inexpensive sensor that floats upon the water as it collects samples of chemical or bacterial readings. The sensor will

jump, enabling readings above the water to improve communications and localization.

"The sensors will be small and easy to place in the water by being tossed from shore or a boat. Once in the water, they will communicate with each other to form a multihop sensor network, through which the data samples are efficiently routed to the cyber infrastructure.

"We already have versions that work on land so we're looking for a sensor that not only floats but can slap the water to help orient the network. It would show us how sensors place relative to each other without GPS and then how to manage large clusters of sensors.

"It will take a while to develop, but we expect it will be spherical shaped," he added. 🌱



Anil Jain Reaches Citation Milestone



Anil K. Jain, University Distinguished Professor of computer science and engineering and an internationally recognized leader in the area of biometrics and pattern recognition research, has reached a significant milestone in number of research citations. According to Google Scholar, more than 107,900 citations have been made to papers authored or co-authored by Jain.

In addition, Jain has the second highest H-index of all computer science researchers, and is the highest among all active computer science researchers.

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FROM THE CHAIR
Matt Mutka



Welcome to the latest issue of *CSE Pipeline*. We are pleased to report that the Department of Computer Science and Engineering at MSU continues to grow in students, research, and impact. Given the

recognition of the opportunities that the computer science major offers to students and the quality of the education that the students receive at MSU, the number of students in the major is projected to grow over the next several years as it has recently.

The computer science undergraduate majors this year increased nearly 20 percent over last year. This is on top of the increase of 19 percent in the previous year. Over the past five years, the number of computer science undergraduate majors has increased nearly 60 percent.

The amount of research conducted by the department continues its steady rise. Faculty members continue to win highly competitive research grants and publish their results in top venues. Research expenditures increased 16 percent this year in comparison to the previous year.



The increase has been 275 percent over the past five years. The impact of CSE research has been large by many measures. For example, many of our faculty members are highly cited for their research. One exemplary example is University Distinguished Professor Anil Jain. Google Scholar notes that he has more than 100,000 citations.

Many faculty and students have impact through their devoted outreach to the community. One example from many is the community-based student learning project of an after-school enrichment program on mobile computing, as part of the 2013 Ford College Community Challenge. Computer science senior Kaitlin Davis leads the project, through help from CSE Professors Laura Dillon and Charles Owen. Another example is the effort that Professor Bill Punch has provided in recent years to lead the computer programming contest at MSU for high school students in the area. The most recent took place in March in which a team from Kalamazoo Area Math and Science Center took first place. While such events require substantial time on behalf of faculty and students, the excitement exhibited by the participants is of great reward. 🌱

Computer Scientists Build First 3D Model of Human Fingerprint

► FROM PAGE 1

Jain has been assigned six U.S. patents on fingerprint matching (transferred to IBM in 1999) and two Korean patents on surveillance. He has authored several books on biometrics, face recognition, fingerprint recognition, and data clustering. He has also received a number of awards, including a Guggenheim Fellowship, a Humboldt Research Award, and a Fulbright Fellowship.

He has served as a member of the National Academies Panels on Information Technology, Whither Biometrics, and Improvised Explosive Devices (IEDs). He was also a member of the Defense Science Board (2008–2010), a committee of civilian experts appointed to advise the U.S. Department of Defense on scientific and technical matters. 🌱

A team of MSU computer scientists has built the first three-dimensional model of a human fingerprint—an advancement that could eventually lead to improvements in security. **Anil Jain**, his MSU colleagues, and research collaborator Nick Paulter at the National Institute of Standards and Technology, developed a method that takes a two-dimensional image of a fingerprint and maps it to a 3D finger surface. The 3D finger surface, complete with all the ridges and valleys that make up the human fingerprint, is made using a 3D printer. It creates what Jain's team called a fingerprint "phantom." Imaging phantoms are common in the world of medical imaging. For example,

to make sure an MRI machine or a CT scanner is working properly, it needs to first image an object of known dimensions and material properties.

"In health care, a 3D heart or kidney can be created," Jain said. "Because the dimensions are known, they can be put into a scanner and the imaging system can be calibrated."

In this case, the ultimate goal is to have a precise fingerprint model with known properties and features that can be used to calibrate existing technology used to match fingerprints.

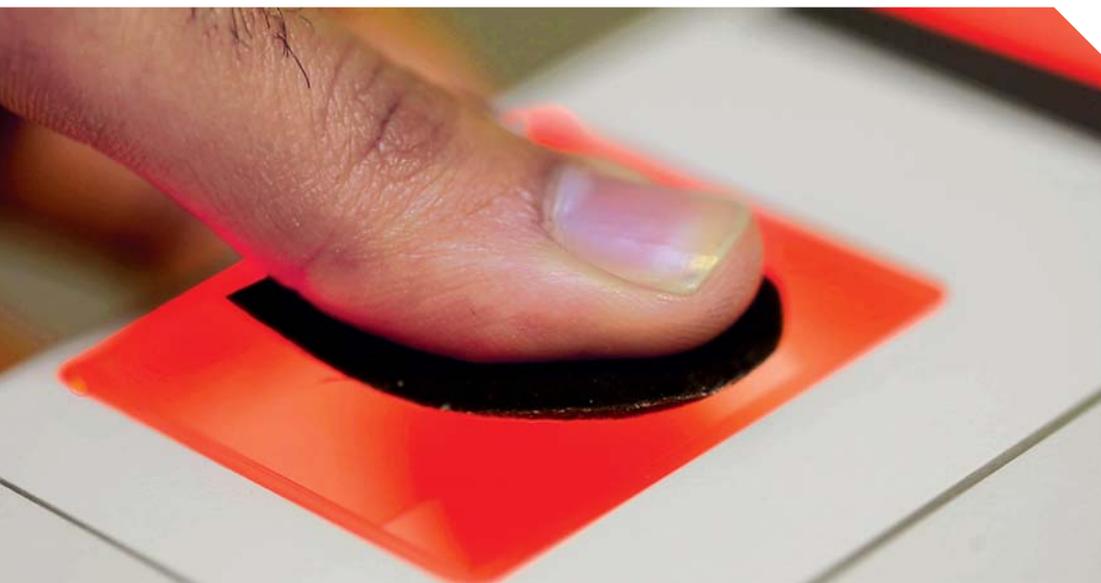
"When I have this 3D fingerprint phantom, I know its precise measurements," said Jain, a University Distinguished Professor of computer science and engineering. "And because I know the true dimensions of the fingerprint features on this phantom, I can better evaluate fingerprint readers."

While the 3D model doesn't yet have the exact texture or feel of a real finger, it could advance fingerprint sensing and matching technology.

"Tools like this would help improve the overall accuracy of fingerprint matching systems, which eventually leads to better security in applications ranging from law enforcement to mobile phone unlock," Jain said.

Members of Jain's team include Sunpreet Arora, a computer science doctoral student, and Kai Cao, a research associate in computer science and engineering.

The work is funded by a grant from the Measurement Science Program at NIST. 🌱



“Technology For Social Good” Receives Ford C3 Grant

A community-based student learning project developed by computer science and engineering students received \$25,000 as part of the 2013 Ford College Community Challenge (Ford C3).

MSU’s project, Technology For Social Good, was one of only nine in the nation selected for a Ford C3 grant for the 2013–14 academic year. Ford Motor Company Fund awarded a total of \$225,000 in support of the growing trend of service learning on college campuses.

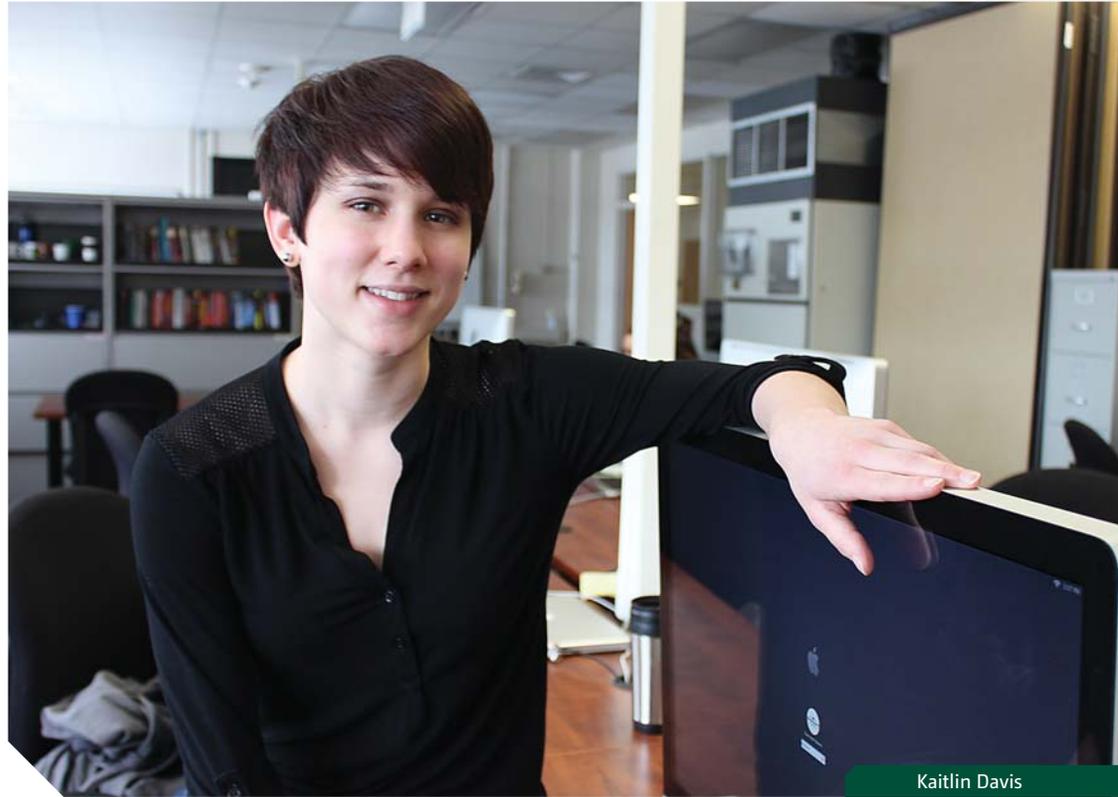
CSE students are currently working with about a dozen high school students to create Java programs that gather information about local energy usage.

Kaitlin Davis, a computer science senior from Port Huron, Mich., leads the Ford C3 project.

“We are piloting an after-school enrichment program on mobile computing at Eastern High School and the Computer Science Academy, both in Lansing, which focuses on building a mobile energy-awareness application,” she said. “We designed and are implementing an application programming interface that interacts with the Android Software Development Kit.

“We also developed and tested teaching modules, software libraries, and cloud support as instructional materials, and created a project website. We also created measures to assess learning outcomes and impact on students’ interest in computing,” Davis explained.

Laura Dillon, CSE professor, and Charles Owen, CSE associate professor, helped Davis secure the Ford C3 award and are



Kaitlin Davis

supervising the community project.

“Programming isn’t something that you can really explain to someone with zero experience and have them fully grasp what it is,” Davis explained. “I think this is a great opportunity to give students a more in-depth experience in programming before college. It’s something that they may not have been able to get otherwise.”

Ford C3 is a national challenge grant

competition that recognizes colleges and universities that utilize a school’s resources to address an urgent community need related to the grant’s theme: Building Sustainable Communities. Unlike many college grant programs, Ford C3 requires colleges to create proposals that have significant student input, involvement, and leadership from beginning to end.

Read more on the project at <http://cse.msu.edu/t4sg/>. 🌱

CSE Research Highlights

Jin Receives NSF Grant for Big Data Initiative

Rong Jin, professor of computer science and engineering, and Alex Hauptmann from Carnegie Mellon, received a three-year \$270,453 research grant from the Big Data Initiative program at NSF in July 2013. The project focuses on healthcare’s driving need for more efficient methods for indexing, searching, categorizing, and organizing unstructured digital media video, audio, and sensor data. Research seeks real-time video analysis to prevent user errors in operating medical devices or provide immediate alerts to caregivers about dangerous situations.

Liu Receives NSF Grant for Secure and Trustworthy Cyberspace

Alex Liu, associate professor of computer science and engineering, received a three-year, \$455,000 NSF grant in September to develop schemes for automatically inferring the protocol specification of unknown applications from their network traces. If successful, the result will be a new expression matching solution that will help make the Internet faster and more secure. Liu is working a semantics-aware approach that takes network traces

as the input and automatically outputs the inferred protocol message format. The project represents the first effort toward developing semantics-aware approaches to protocol inference, a fundamental building block of many network security solutions, and may enable new network security applications and solutions.

Brown Receives NIH Grant Renewal for “Analyzing Next-Generation Sequencing Data”

C. Titus Brown, assistant professor of microbiology and molecular genetics, and computer science and engineering, received a three-year renewal of a workshop grant from the National Institutes of Health, “Analyzing Next-Generation Sequencing Data.” The grant funds a two-week summer workshop at the Kellogg Biological Station that has been running since 2010. It teaches experimental biologists how to analyze data from advanced sequencing technologies. Since 2010, more than 90 graduate students, postdocs, and faculty from around the world have taken the course, which generates 200 applications for 24 slots. The renewal funds the course through 2016. 🌱

Inspiring High-Schoolers to Pursue Computing Careers



"These young ladies represent the future of technical talent in computer science and engineering in Michigan," said Laura Dillon, who advocates for more women to pursue computing careers.



A dozen MSU volunteers helped girls at the Women in Computing technology workshop create websites, games and animations.



Teresa Isela VanderSloot, Maria Stull, Dhara Patel, Katherine Wu, and Bill Punch celebrate that the Lady Warriors of the Kalamazoo Area Math and Science Center's team won the CSE programming event March 1.

Aspirations in Computing Awards

Twenty women students in Michigan were awarded an Aspirations in Computing Award during a March 1 ceremony. The statewide honor was presented by The National Center for Women & Information Technology (NCWIT) to honor the students' computing and IT aptitude, leadership ability, academic history, and their plans for post-secondary education in the field.

Laura Dillon, professor of computer science and engineering, said the award goes to students who are the state's next wave of innovators. "These young ladies represent the future of technical talent in computer science and engineering in Michigan. It is thrilling to meet them and become part of their academic and professional development."

An NCWIT Educator Award was presented to Robert Fox, computer science teacher at Midland High School, for his efforts to promote gender equity in computing. He has been teaching computer science at Midland High School since 2004.

Programming Competitions

The Department of Computer Science and Engineering is encouraging high school students to pursue careers in computing by bringing them to campus and involving them with hands-on activities.

In May 2013 and again in March 2014, **Bill Punch**, associate professor of computer science and engineering, and **Teresa Isela VanderSloot**, academic adviser in the department, hosted MSU's High School Programming Competition. Punch developed the programming environment and problem sets for the contests.

Ten teams, composed of three students each, competed in May and 16 teams competed in March. Teams were from the Kalamazoo Math and Science Center, Midland High School, and Pioneer High School in Ann Arbor. A team from the Kalamazoo Math and Science Center took home the top prize at each competition.

"Providing these types of competitions allows students to practice their programming skills while solving problems," said VanderSloot. "I am excited to offer these opportunities at MSU because it gives us a chance to encourage these students to pursue a career in computing. It also allows students to come to MSU and become familiar with our programs and campus."

Women in Computing Workshop

In November, more than 30 high school girls participated in the Women in Computing technology workshop, which is designed to attract more female students into the employment-rich fields of computing. More than a dozen MSU student volunteers helped the girls create websites, games, and animations.

"Participants have a chance to work closely with MSU computer science students, who can talk to them about why this is a great career option for women," VanderSloot said.

She noted that the current large demand for programmers in the job market will continue to grow in the years to come. "I encourage parents to bring their daughters to MSU and let us teach them the basics while we surround them with women in computing who are very excited about this incredible field." 🌱

SXSW Student Startup Madness

MSU is the only university in the country to send a team to the Entrepreneurial Eight for two consecutive years to SXSW Student Startup Madness, and each team had a student from the Department of Computer Science and Engineering on it.

Carbon Cash

The team of **Jon Bauer** (computer science), **Bernie Eisbrenner** (history), and **Patrick Schmitz** (finance) competed March 10 in this year's finals of Student Startup Madness, a partner program of South By Southwest Interactive. The event pits teams of entrepreneurial college students

against each other in a startup business contest.

Bauer, Eisbrenner, and Schmitz designed Carbon Cash, a mobile app that allows college students to track their electricity use and earn rewards for reducing their energy output. Retailers offer discounts and promotions through the app to students who reduce electricity use, driving in customers and branding their businesses as environmentally friendly. Students get cheaper goods for reducing their carbon footprint.

Carbon Cash made it to the national finals round, but did not win.

TempoRun Is National Winner

Phil Getzen, Adam Proschek, and Ryan Tempas, who were seniors in 2013, took first place in the national Student Startup tournament last year. They won for their iPhone app for runners called TempoRun.

The app, which allows runners to sync their footsteps while running to the tempo

of their songs in iTunes, sells for \$2.99.

TempoRun received support from Spartan Innovations, which provided \$5,000 in funding from two MSU endowments—the Lansing Economic Area Partnership, and The Hatch, a student business incubator in East Lansing.

The app also won first place in the 2013

Greenlight Business Model Competition endowment for undergraduates, and the 2012 Broad Business Pitch Competition, which brings together entrepreneurial-minded students from MSU and the Broad College of Business.

For more information, visit <http://www.temporunapp.com/>. 🌟

Rosenblum Award Provides Valuable Research Opportunity

CCSE sophomore **Jacob Jensen** was selected from a pool of nine applicants as the winner of the first Rosenblum Undergraduate Research Opportunity Award (RUROA).

MSU's Department of Computer Science and Engineering initiated the award to provide research opportunities for its undergraduate students. It is funded by a generous gift from Paul Rosenblum, who has a long-term passion for supporting undergraduate research.

CSE undergraduates were invited to select from a list of available research projects—in the areas of biometrics, computer vision, machine learning, and graphics—and submit a one-page proposal indicating why they would be interested in working on that particular project.

Jensen worked alongside Xiaoming Liu, assistant professor of computer science and engineering, both fall and spring semesters.

"The goal of this project is to enable face recognition on a wearable platform," Liu said.

For example, an individual, wearing a camera on his/her head, is approached by another person, whom they cannot

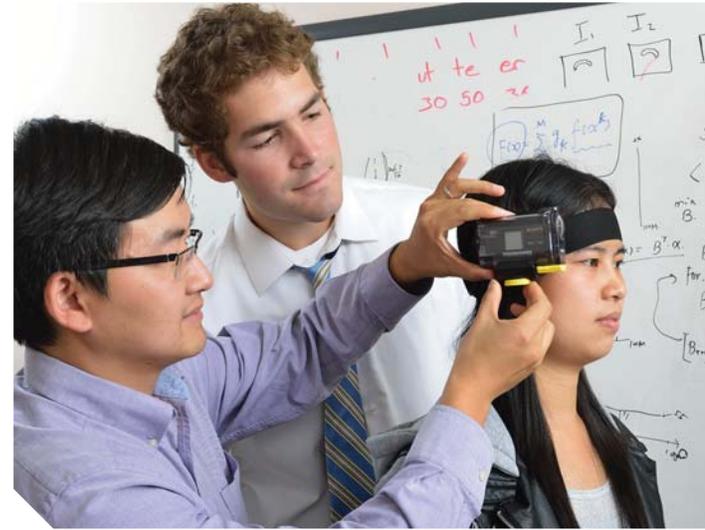
remember. The wearable camera could capture the face image of the approaching person and perform a face matching with a list of subjects that the individual has previously encountered.

"This technology could be used in a wide variety of applications, including human-computer interaction (HCI), human-to-human communication, and senior care," Liu said.

Jensen's role was to research the various topics and cameras available for the project, develop a mobile device-based system to detect and recognize faces, and evaluate the system performance.

"This project provides undergraduates with hands-on experience across the full spectrum of academic research and project development," Liu said. "The research aspect allows them to understand the state of the art for a particular problem and discover new knowledge. The project development enables students to apply classroom knowledge to real-world problems. Furthermore, it is beneficial for undergraduates to work in emerging areas in computer science, such as the wearable computing in this project."

"In today's job market, it is vital for



Xiaoming Liu helps student Jacob Jensen get experience in enabling face recognition on a wearable platform. Assisting them is doctoral student Xi Yin.

a candidate to have experience in the field," Jensen said. "Most companies look for applicants who have participated in team-based projects, or who have had summer internships. This experience will help me develop skills that I will need to succeed in the field."

Marco Botros, a CSE senior, also worked on the project. 🌟

Two in Computer Science Are New NSF Graduate Research Fellows

MSU garnered 18 new National Science Foundation (NSF) Graduate Research Fellows (GRF) in 2014—the largest class of fellows at MSU since the program began in 1952. Two are from the Department of Computer Science and Engineering—**Matt Nizol** and **Emily Dolson**.

Nizol said his research is at the intersection of software engineering and database theory. "Specifically, I'm researching test database generation from conceptual data models. The problem is of theoretical interest because it is NP-hard; however, tools that generate test data have the potential to help software engineers validate data-intensive enterprise systems more effectively."

Nizol is collaborating with Laura Dillon, professor of computer science

and engineering, and Kurt Stirewalt of LogicBlox Inc., on his research. Nizol is enrolled in the computer science doctoral program, with Dillon as his advisor.

Dolson's research interests are in computer science, evolutionary biology, and ecology. "The projects that I'm currently working on have two primary thrusts: extracting information from high-volume time-series data in order to make better decisions, and studying the eco-evolutionary dynamics of resource use. For the former, I am developing an algorithm for detecting errors and rare events in real-time data from an ecological sensor network, as well as working on a project on detecting emerging breast cancer in series of mammograms taken over time.

"For the latter, I am doing a series of digital evolution experiments on the effects of spatial resource heterogeneity on diversity and evolutionary potential, the results of which will have implications for both biology and computer science. With the BEACON Center for Evolution in Action and the interdisciplinary program in Ecology, Evolutionary Biology, and Behavior, MSU proved to be the perfect fit for my interests."

She is now a first-year doctoral student in the Departments of Computer Science and Engineering and of Ecology, Evolutionary Biology and Behavior.

NSF's GRF program provides \$32,000 a year for three years and a \$12,000 allowance for tuition, fees, and other benefits. 🌟



Nizol



Dolson



Kevin Ohl and Abdol-Hossein Esfahanian congratulate Keith Landau for receiving the 2013 Distinguished Alumni Award.

2013 Computer Science and Engineering Distinguished Alumni Award

Keith Landau (BS '82) received the 2013 Computer Science and Engineering Distinguished Alumni Award at the annual College of Engineering Alumni Awards Banquet in May. The award, established in 2004, recognizes an alumnus or alumna who has distinguished himself/herself as a leader in the computer science and engineering profession through professional contributions, public service, and personal accomplishments.

Landau brings wide-ranging industry experience—spanning more than 32 years of telecommunications and data communications—to his current role as president of the IMS Business Unit at GENBAND, which he has held since 2007.

During his tenure at GENBAND, he has managed budgets ranging from \$30 million to \$100 million, with resources in North America, Brazil, England, Germany, Istanbul, India, China, and Vietnam. He is responsible for technology evolution, product roadmaps, development, software delivery, and emergency recovery and maintenance services. He has also played

a critical role in the selection, due diligence, and acquisition of NextPoint, NSN Media Gateways, Nortel CVAS, CedarPoint Communication, and Aztek.

One year after GENBAND acquired Tekelec, Landau was able to take the business—which was losing \$60 million a year—to the break-even point. During this time, the next generation all IP media gateway, the G9, was introduced; it has been the market-leading large media gateway for the past six years. The G9 is deployed in wireless, satellite, and femtocell networks.

Previously, Landau had served as vice president of switching solutions for Tekelec from 2006–2007. Prior to that, he held various positions with Nortel from 1985–2006. In his position as vice president for voice core R&D, he was responsible for Nortel's market-leading DMS portfolio—Voice over IP, and CDMA, GSM, and UMTS wireless core products. These products are deployed around the world, with leading customers such as AT&T, Verizon, BT, Vodafone, and China Mobile.

Landau and his team worked with PICMG (PCI Industrial Computer Manufacturers Group) to define the standards for AdvancedTCA, which has become standard for next generation “carrier grade” communication equipment. He also introduced the first ISO 9000 Quality Management System to Nortel Richardson. In 1994 he worked with Infosys to build training and software development processes in advance of the massive development effort to make all Nortel systems year 2000–ready. He holds two patents for adding service provider programmability to the DMS family of products.

Early in his career, Landau worked for Harris Corporation and Texas Instruments, developing data communication and CAD/CAM applications.

He has served on the board of directors for the Telecommunications Industry Association (TIA), on Motorola's ATCA technical advisory board, and on the advisory board for Wind River (previously a private company, and now a business unit within Intel). In addition, he served on the MSU College of Engineering Alumni Association Board, and on the MSU Department of Computer Science and Engineering Strategic Council. He also holds an MBA from the University of Dallas.

PreCareer Gallery Draws Hundreds to First Outdoor Fair

More than 50 employers greeted hundreds of students at the College of Engineering PreCareer Gallery Co-op/Intern Day Oct. 1 in the Engineering Building courtyard.

Participating companies included Alcoa, Amway, General Mills, Toyota, and Yazaki. Students pre-registered for the event to set up a RecPass, which used the latest QR code technology to securely transmit profile information and a résumé from the candidate's name badge or smart phone to a recruiter's mobile device. This technology saves recruiting teams the time and effort in managing candidate data and compliance issues and saves students from having to re-enter their profile information multiple times.

The event was held prior to the more expansive two-day Career Gallery, MSU's largest career fair, which draws more than 300 employers and 5,000 students to the Breslin Center.

Doug Zongker Endowed Fund Will Have Continuing Impact

Doug Zongker (BS '96) created an endowment in the Department of Computer Science and Engineering because he “wanted to establish something permanent.”

The Doug Zongker Endowed Discre-



ALUMNI NOTES

Deepak Advani (BS '86) was promoted to general manager for IBM's Tivoli Software Division, which had more than 5,000 employees and approximately \$3 billion in revenue in 2013. Advani's experiences include P&L management, product development, and marketing. He has domain expertise in personal computing, enterprise software, servers, virtualization, and distributed computing. His specialties include branding and marketing, P&L management, software product development, server architecture, and distributed computing.

Reid A. Baldwin (PHD '94) joined Brooks Kushman, P.C., in Detroit, a nationally ranked intellectual property and technology law firm, in 2013. He is a registered patent attorney who primarily focuses his practice on preparing and prosecuting patent applications in the electrical and mechanical arts. He has experience working with clients of various

sizes, ranging from Fortune 500 companies to small startups.

He earned a Juris Doctor degree from Michigan State University in 2013 and a PhD in computer science from MSU in 1994. He earned his bachelor's degree in mechanical engineering from Rensselaer Polytechnic Institute.

Matt Morgan (BS '01), a senior software developer at IDV Solutions, was among those honored Nov. 21, 2013, when IDV received the Lansing Regional Chamber of Commerce's 2013 Emerging Economy Award. IDV has emerged in the region as a market leader in data visualization technology. At IDV, Morgan's focus is on Visual Command Center customer deployments. In the past 18 months, the company has added more than 20 employees, expanded its internship program, and opened offices in Orlando, Fla., and Washington, D.C. 🌱

tionary Fund for Computer Science and Engineering, established in February 2011, has funded the purchase of Android devices for the department's new mobile applications development class, which began in spring 2013. Students use the devices for the course's programming projects.

"The CSE department is extremely grateful for the commitment and support Doug has demonstrated by establishing this discretionary fund," said Matt Mutka, CSE chair. "This fund will have a continuing impact on the creative activities that the faculty and students pursue, with the mission to achieve the highest standard of

excellence in education and research."

Zongker has worked for more than 10 years at Google headquarters in Mountain View, Calif. He is currently senior staff software engineer and works on the Android mobile operating system. He previously worked on web search and Gmail projects. 🌱

faculty pipeline

Withrow Award Presented to Guoliang Xing

Research in wireless sensor networks and cyber-physical systems earned **Guoliang Xing** the Withrow Distinguished Scholar–Junior Award during the 24th annual College of Engineering Awards Luncheon March 13. Xing (*center*) received his award from Leo Kempel, acting dean of the College of Engineering, and Matt Mutka, chair of computer science and engineering.

The associate professor of computer science and engineering was honored for his many research accomplishments in wireless sensor networks, mobile computing and their applications, smart sensing systems for wireless and mobile health assessment, volcano monitoring, aquatic ecosystem monitoring, and data center thermal/power management.

The Withrow Distinguished Scholar–Junior Award is presented to a faculty member who has been at the university for not more than seven years. Xing joined the department in 2008. 🌱



Laura Dillon, professor, received an Outstanding Achievement and Advocacy Award (OAA) in the area of Outstanding Achievement in Education from the

Department of Computer Science at the University of Massachusetts Amherst. The OAAs are presented annually to recognize outstanding accomplishments of graduates of the department's degree programs in various categories. The awards were presented at the Distinguished Alumni/ Alumnae/Advocates Banquet on the UMASS Amherst campus in May 2013.



Charles Owen, associate professor, was selected by peer review as best in the "technology enhanced" category at MSU's Libraries and Information Technol-

ogy Services annual awards competition. The award was based on course CSE 476: Selected Topics in Computer Science (Mobile Application Development).

This awards program, funded by a

generous endowment gift from AT&T, recognizes outstanding contributions to the use and development of information technology for teaching and learning in credit-bearing courses at MSU.



Arun Ross, associate professor, was awarded the first edition of the International Association for Pattern Recognition (IAPR) Young Biometric

Investigator Award. The award is presented to an outstanding scientist in the area of biometrics who is under the age of 40. Ross received the award in June 2013 at the International Conference on Biometrics in Madrid, Spain, where he also delivered a plenary talk.

Ross was also a panelist at a special event organized by the United Nations Counter-Terrorism Committee (CTC) at the UN Headquarters in May 2013. The topic was countering terrorism through the use of new communications and information technologies. Ross focused on the use of biometrics for border control and discussed the importance of biometric fusion, vulnerability assessment and mitigation,

and biometric data privacy.

In January 2014, he testified before the Michigan Senate about the potential use of biometrics in Cyber Security. He focused on the need for effective user-authentication mechanisms in CyberSpace, where the goal is to ensure that the financial, health, and social data of constituents are appropriately protected and accessed only by authorized individuals.

Ross is currently serving as the vice president of education for the IEEE Biometrics Council.



Eric Torng, associate professor, was selected as one of 73 innovative young engineering educators from across the country to participate in the National

Academy of Engineering's fifth Frontiers of Engineering Education (FOEE) symposium.

Faculty members from a variety of engineering disciplines came together for the symposium, held Oct. 27–30 in Irvine, Calif., to share ideas, learn from research, and discuss best practices in education. Participants were nominated by fellow engineers or deans. 🌱

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Design Day Executive Director Wayne Dyksen (center) and students from the Department of Computer Science and Engineering celebrated the 20th anniversary of Design Day . . . with a CSE Capstone Penultimate All-Hands Meeting.

Celebrating 20 Years of Design Day Innovations

The 20th anniversary of the MSU College of Engineering Design Day was a big and important day for the college on Friday, April 25. Students from the Department of Computer Science and Engineering were prominently represented during the demonstrations, competitions and poster presentations in the busy halls of the Engineering Building.

CSE capstone professor Wayne Dyksen said Design Day provides a showcase for the capabilities of the college's many outstanding students.

"Design is at the core of all our engineering programs, starting in the first week of class with our freshmen and culminating in the final semester with our seniors in their capstone project courses," Dyksen explained. "The impact of our emphasis on creativity and design is evident throughout the Engineering Building on Design Day."

Project titles from spring Design Day include Mobile Audit Itinerary and Worksheet for Auto-Owners, Flight Simulator Suite for Boeing, Mobile Approver for Ford, The Matrix: Vehicle Simulator System for GM, Change Management Software for Google, Mobile Customer Satisfaction App for Meijer, Mobile Financial Education App for MSU Federal Credit Union, Mobile RFID Inventory Tracking System for Quicken Loans, Medications Shortages Dashboard for Spectrum Health, ClassView for TechSmith, Dealer Improvement Recommender System for Urban Science, and Virtual Appliance Simulator for Whirlpool.