PIPELINE

$25 Million NSF Grant Funds Center to Study Evolution in Action

A project that will unite biologists who study natural evolutionary processes with computer scientists and engineers has been awarded a $25 million grant from the National Science Foundation to establish a center to study evolution in action in both natural and virtual settings.

MSU received one of five highly coveted NSF Science and Technology Centers, officially titled "BEACON, an NSF Science and Technology Center for the Study of Evolution in Action." It will serve as a resource for academics and industry, performing basic research while helping create new technologies to solve real-world problems, ranging from the development of safer, more efficient cars to systems that detect computer intrusions. BEACON is short for the "Bio/computational Evolution in Action CONsortium."

In contrast to evolutionary studies focusing on fossil records or comparison of DNA among species to discover common ancestry, BEACON will focus on evolution as an ongoing process in organisms in the laboratory (like bacteria, yeast, and viruses), in the field, and with digital organisms undergoing evolution on the computer. BEACON will promote the transfer of discoveries from biology into computer science and engineering design, while using novel computational methods and systems to address complex biological questions that are difficult or impossible to study with natural organisms.

"We will use digital organisms, which are self-replicating computer programs that evolve in a very natural, open-ended fashion, allowing experiments that parallel those performed in experimental evolution

MSU Licenses Tattoo Matching Technology to World's Leading Biometrics Company

Michigan State University has licensed its unique tattoo image matching technology to MorphoTrak, the world's top provider of biometric and identity management systems. This technology was developed by 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. He has received multiple awards for his contributions and leads MSU's research in this field.

"This technology is an invaluable tool to assist law enforcement with intelligence gathering for suspect and victim identification. We trust MorphoTrak to bring this technology to bear at all levels of the law enforcement community," says Jain.

Using this innovative technology, the corrections and law enforcement community will now have the capability to accurately and efficiently search tattoo image databases to identify suspects, criminals, and victims. This content-based image retrieval and matching technology uses features such as color, shape, and texture present in tattoo images, instead of labels or keywords, to compute the similarity between images.

In addition to Jain, the tattoo matching team at MSU consists of other

Anil Jain's tattoo matching research team met recently with a research engineer from MorphoTrak Inc. Clockwise from bottom left: Rong Jin, CSE associate professor; Anupama Jagannathan, senior staff research engineer at MorphoTrak Inc.; Jung-Eun Lee, CSE PhD student; and Nicholas Gregg, CSE senior.

CSE faculty members and students including Rong Jin, associate professor; Jung-Eun Lee, PhD student; and Nicholas Gregg, undergraduate student. The team worked closely with the Michigan State Police Forensic Science Division; Inspector Greg Michaud, assistant division commander, and

MICHIGAN STATE
UNIVERSITY

from the Chair

MATT MUTKA

In spite of significant budget reductions to the department and university, CSE@MSU is moving forward. The department has been excelling in its mission for teaching, research, and service. As evidence, see the numerous awards, accomplishments, and activities described in this newsletter. Our graduate and undergraduate students have received much recognition within MSU for their accomplishments. Our alumni are making great positive impacts across the nation. In spite of the economic downturn in the region and nation, the job market is bright for our graduates. Employers recognize the quality

students in our program and the strength of our curriculum.

I am very excited by the contribution that CSE has made to the newly announced National Science Foundation Science and Technology Center, called BEACON. This highly coveted $25 million NSF center will serve as a resource for academics and industry to solve real-world problems. CSE's contribution is a result of the conscientious plan for the department to be "Where Computer Science Meets the World." BEACON is an excellent example of how computer science engages other disciplines, including biological sciences.

Over this past year, our faculty have competed for and been awarded a significant increase in research funding from other research programs involving highly competitive sources such as the National Science Foundation, U.S. Department of Agriculture, NASA, FBI, and the Department

of Justice. We are also very proud of the recent announcement of the prestigious NSF CAREER awards that have been granted to Professors Alex Liu, Yiying Tong, and Guoliang Xing. These awards are a sign of the significant accomplishments of these faculty and their bold research plans for their academic careers.

CSE@MSU continues on an excellent trajectory. Our faculty and students are receiving awards in pedagogy and research, and are engaged in new and continued service to the discipline and outreach to the community. We appreciate the support we have received from our alumni and friends. We hope you stay connected with the department. Become a fan of CSE@MSU at our Facebook page (www.facebook.com/cse.msu.edu) to keep informed, or regularly visit our Web site at www.cse.msu.edu. ❂

$25 Million NSF Grant Funds (continued from page 1)

Charles Ofria

laboratories as well as mirroring more targeted evolutionary computation applications," says Charles Ofria, CSE associate professor and co-principal investigator on the project. Students also appreciate the opportunity to study digital organisms. "Witnessing and even manipulating these actively evolving systems allows students to develop a deep intuition for natural evolutionary dynamics," says Ofria.

BEACON will involve more than 30 faculty researchers in MSU's College of Engineering, College of Natural Science, College of Agriculture and Natural Resources, and Lyman Briggs College. Four other universities will partner with MSU on BEACON: North Carolina A&T State University, University of Idaho, University of Texas at Austin, and University of Washington.

MSU has long prided itself on its lack of barriers between disciplines and on its many successful collaborations across the campus. "MSU being selected to house one of these highly coveted Science and Technology Centers is a testament to the world-class, collaborative research in which our diverse group of faculty is routinely involved," says Satish Udpa, dean of MSU's College of Engineering. "This center will further stimulate multidisciplinary work."

The announcement of funding for the BEACON project is the culmination of a process lasting about two years, from submission of hundreds of pre-proposals in 2008, through selection of 43 for preparation

and submission of full proposals in April 2009, followed by NSF site visits to 11 finalists last October. The five-year funding begins August 1 and is renewable for another five years for an additional $25 million. BEACON will be headquartered in MSU's Biomedical and Physical Sciences Building, which is scheduled to open on June 1. Erik D. Goodman, professor of electrical and computer engineering, will be the director of the new center.

"BEACON is multidisciplinary to its core, and in addition to making discoveries in basic science and applications, it will prepare a new generation of researchers with the insight that comes from first-hand experimentation with evolution in the lab and in the computer," says Goodman. "Recognizing the commonality of evolutionary dynamics in both contexts will enable studies and applications that could not be done in isolation in either biology or engineering."

In addition to Ofria, numerous faculty members from the Department of Computer Science and Engineering are involved in BEACON, including C. Titus Brown, Betty Cheng, Richard Enbody, Philip McKinley, William Punch, and Eric Torng. Robert Pennock, a professor of the philosophy of science as well as an adjunct CSE professor, is a co P-I on the project.

For more information, visit http://beacon.msu.edu. ❂

"Witnessing and even manipulating these evolving systems allows students to develop a deep intuition for natural evolutionary dynamics."

— Charles Ofria

his colleagues provided a database of tattoo images as well as valuable suggestions.

"It's good to see this type of technology being made available to law enforcement agencies," says Peter Higgins of Higgins and Associates, International and former deputy assistant director in charge of the FBI's Integrated Automated Fingerprint Identification Systems program.

"I have seen the initial successes achieved by the National Gang Targeting, Enforcement & Coordination Center, the National Gang Intelligence Center, and the National Capitol Region Automated Fingerprint Identification Systems in linking subjects via tattoos." Higgins believes that with the increased awareness of the value of matching tattoos for suspect and victim identification as well as associating tattoos to particular gang affiliation, automatic image retrieval and indexing capabilities are likely to be integrated into the FBI's Next Generation Identification (NGI) system later in this decade to serve as another valuable tool for the criminal justice community.

"MorphoTrak understands the importance of joining forces with our nation's top academic institutions to help extend crime fighting capabilities with groundbreaking technologies," says Daniel Vassy, president and CEO of MorphoTrak. "We are uniquely positioned in the industry to bring this technology to market to assist law enforcement and corrections agencies in making our streets safer."

According to a 2006 Pew Research Center survey, more than 36 percent of individuals between the ages of 18-40 have at least one tattoo. This proportion is much higher among criminals and members of criminal gangs. Consequently, federal, state, and local law enforcement agencies have been collecting images of tattoos for many years. Although a tattoo alone cannot identify a person, this alternative trait provides valuable information that can help narrow the field and identify gang members.

MorphoTrak, a subsidiary of Safran USA, provides biometric and identity management solutions to the U.S. and Canadian markets. MorphoTrak and its global parent Sagem Sécurité are leading innovators in large fingerprint identification systems, facial and iris recognition, and identification licenses. ✲

Professor and His Team Explore Wide-Ranging Projects

Anil K. Jain, University Distinguished Professor of computer science and engineering, is an internationally recognized leader in the area of biometrics and pattern recognition research. He has received grants from organizations ranging from the National Institute of Justice to the FBI Biometric Center of Excellence—and he has mentored countless students since joining the faculty at MSU in 1974.

In addition to developing tattoo matching technology (see article above), Jain is involved in a number of other research projects.

▪ Pattern recognition and image processing in digital pathology—Jain recently received funding from Sunnyvale, Calif.-based BioImagene Inc. to support research to develop the next generation of algorithms and pattern recognition techniques used in digital pathology.

▪ Latent fingerprint matching—When matching a full fingerprint image to another full fingerprint image, the matching performance is extremely good. But it's difficult to match only a partial or latent fingerprint—in spite of what you see on TV on the crime shows, according to Jain. Funded by a grant from the National Institute of Justice, Jain and his team are working on improving the performance of latent fingerprint matching.

▪ Altered fingerprints—Some individuals alter their fingerprints to avoid identification. They either cut the finger to produce a large scar or they take skin from the palm of the hand or sole of the foot, where similar patterns appear, and stitch it on the finger. With their altered fingerprint, even if their original fingerprint is already in the database, they would not be matched. Jain's team is developing technology that could automatically determine if a fingerprint has been altered; funding is provided by the FBI.

▪ Face recognition at a distance—"If a person is approaching a facility, we'd like to be able to recognize that person at a distance of 50 meters, or 100 meters, rather than waiting until the person gets to the gate of the facility," says Jain. He and his team are working on technology that could match a distant image to a close-up shot in the database of suspects. Funding is provided by the NSF Center for Identification Technology Research (CITeR), West Virginia University.

▪ Matching a facial sketch to a mug shot— When a crime victim or a witness provides a description of a suspect to a law enforcement agency, a sketch artist makes a composite sketch. "It would be nice if you could take that sketch and match it automatically to the large facial image database that law enforcement agencies maintain," says Jain. "But matching the sketch to a facial image in the database is very difficult; the state-of-the-art commercial face recognition systems do not do very well." Jain's team is working on technology that would convert that sketch into an image; the converted image would then be matched to a mug shot database. This work is funded by Sagem Sécurité.

▪ "Soft" biometrics—Soft biometrics are body characteristics that are not unique to an individual, but they can assist in identifying a suspect. These include tattoos and face marks (such as scars, moles, or discolorations on the skin). A grant from the National Institute of Justice, as well as a grant from the NSF Industry University Center for Identification Technology Research (CITeR), is funding this research. ✲

Anil Jain

Faculty and Staff Pipeline

Distinguished Faculty Award

Matt W. Mutka, professor and chair of the Department of Computer Science and Engineering, was recognized with a **Distinguished Faculty Award** at the 2010 Awards Convocation held February 9 at the Wharton Center's Pasant Theatre.

"Today we salute those among us who exemplify excellence in teaching, in research, in engagement and outreach," MSU President Lou Anna K. Simon said. "These are people who make a difference on campus and off. Not only are they top-notch scholars, scientists, and teachers," she said, "but many are also rainmakers – leveraging support from government or foundation programs, or from corporate partnerships."

Mutka is recognized internationally for his contributions in the areas of computer systems and networking. He conducts research for wireless and mobile systems, network-centric robotics, Internet-based teleoperations/ telemedicine and pervasive computing systems, which have been supported by federal agencies such as the National Science Foundation and the National Institutes of Health, as well as several industrial sponsors.
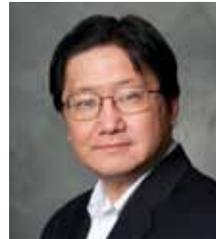
Withrow Awards

CSE Associate Professors **Charles Ofria** and **Pang-Ning Tan** were honored with Withrow Awards at the college's annual awards luncheon in March.

Ofria received a **Withrow Teaching Excellence Award**. He is an enthusiastic, cheerful, and passionate instructor who cares about student learning. He teaches a variety of computer science courses, such as those in algorithms, compilers, and digital evolution. One student says, "It helps how excited Dr. Ofria is about the topic, and how much he knows about it." Although his classes often require an incredible amount of work and the course material may be intense, his methods of teaching keep students engaged and interested. Students often comment that his classes are very enjoyable, and they say they would like to take even more courses from him. One student sums it up: "I think Dr. Ofria's approach to the topic, and the method of teaching it (very VERY hands on) combine to make an enjoyable, challenging, and useful course."

Tan received the **Withrow Distinguished Scholar—Junior Award**, given to *nominees with no more than seven years of service to the university.* He is an internationally recognized researcher in data mining. His recent work includes pattern discovery in large-scale databases, spatio-temporal data mining, and mining graphs and network data. He has received external research grants from NSF, ONR, ARO, and NASA.

Tan has published more than 70 scientific papers in leading computer science conferences and journals, and his work was featured in two NASA press releases. He is the first author of a textbook on data mining, which has been adopted by more than 100 universities in the United States and has been translated into Chinese and Korean. His papers are also well cited in the literature.

A dedicated teacher, Tan is committed to excellence in all aspects of teaching. Since he joined the CSE department in 2003, he has developed a new graduate-level course in data mining (CSE 881). His course is popular, attracting students not only from CSE, but also from other disciplines, including electrical engineering, mechanical engineering, applied math, statistics, and geography, among others.

Tan recently was awarded a research grant from NASA for a project entitled "Algorithms for Forest Cover Change Detection Using MODIS Data." This project is a joint collaboration with Vipin Kumar and Michael Steinbach from the University of Minnesota.

New Textbook on Python

Associate Professors **Bill Punch** and **Richard Enbody** have released a new textbook entitled *The Practice of Computing Using Python*, published by Addison Wesley, 2010.

The book is intended to teach problem solving within the context of CS1 to both majors and non-majors using Python as a vehicle. As such, the authors cover general concepts like hardware, complexity, and software engineering as well as general concepts of programming using the Python language.

Grants Expand Research

C. Titus Brown, assistant professor, is one of three MSU researchers to receive grants totaling nearly $1.5 million to improve animal health and growth. The grants, awarded by the United States Department of Agriculture's National Institute of Food and Agriculture (NIFA), are part of a $24 million funding project. MSU animal science professors George Smith and Juan Steibel also received funding.

"Recent advances in sequencing technology are yielding immense amounts of sequence data that can be used to address questions of animal disease and variation," says Brown, who is also the director of the Laboratory of Genomics, Evolution and Development at MSU. "However, agricultural researchers do not yet possess the computational tools to make use of this data. Our proposed software will quickly open up many new avenues for agricultural genomics."

Joyce Chai, associate professor, has been awarded an NSF grant for "Towards an Infrastructure for Research on Multimodal Language Processing in Situated Human Robot Dialogue." A new generation of robots is emerging that aims to interact with humans on a daily basis to provide service, care, and companionship. This project will develop a new infrastructure that will promote understanding of human multimodal language behavior.

Professor **Wayne Dyksen** and Dean Rehberger, associate professor of Writing,

Rhetoric and American Culture, were awarded a grant titled, "Digging into Image Data to Answer Authorship Related Questions," which proposes to take three specific resources (manuscripts, maps, and quilts) and develop tools to analyze and identify authorship of visual images.

Sandeep Kulkarni, associate professor, has been awarded a research grant from the National Science Foundation for a project titled "Tool Support for Producing High Assurance and Reliable Software for Wireless Sensor Actor Networks." This is a three-year joint proposal with Murat Demirbas, assistant professor of computer science and engineering at the State University of New York (SUNY) at Buffalo.

Professor **Philip K. McKinley** received funding from NSF for "TEAMS: Transplanting Artificial Life Behaviors to Mobile Robots." This project applies evolutionary computation to the design of robust communication services for cooperating groups of robots. Example applications include teams of robots for disaster relief operations and assisting humans in dangerous occupations.

Associate Professors **Jon Sticklen** and **Abdol Esfahanian** and colleagues have been awarded a three-year grant from the National Science Foundation for the project "CPATH-2: CPACE II: Implementing Constituency-driven Curricular Change that Integrates Computational Thinking Across Engineering Disciplines." ✿

NSF CAREER Awards

Assistant professors **Alex Liu, Yiying Tong**, and **Guoliang Xing** have recently received CAREER awards from the National Science Foundation (NSF). These awards are given to junior-level university faculty to encourage scientists and engineers to integrate their research and education efforts earlier in their careers. It is very prestigious to have three faculty members from the same department of the College of Engineering receiving CAREER awards at about the same time.

Alex Liu received his NSF CAREER award for a project entitled "Towards High Performance Policy Evaluation." The objective of this project is to increase the effectiveness and adoption of policy-based computing by designing high performance policy evaluation algorithms and engines that can be adapted to support various policy languages. The primary focus of this project is the fast evaluation of security policies. Liu hopes the results of the project will greatly benefit society by increasing the adoption of policy-based computing.

Liu also has received another grant from NSF to study a promising solution for the limitations in many networking devices, such as routers and firewalls that use Ternary Content Addressable Memories (TCAM)-based packet classification systems. The project is entitled, "NeTS: Small: Algorithmic Approaches to Optimizing Hardware-Based Packet Classification Systems via Equivalent Transformation."

Yiying Tong received his NSF CAREER award for a project entitled "Theory and Practice of Space-Time Variational Integrators for Simulation and Animation." The primary goal of this research project is to develop novel numerical simulation methods offering a wide range of applications.

Current numerical techniques for simulation rarely capture the geometric principles that have been shown in mathematics and physics to be fundamental to proper dynamical behavior. To develop simulation algorithms that numerically respect both temporal and spatial structures of complex systems, a major part of this research requires the development of a novel framework to combine Lagrangian and Eulerian methods, two common (but rarely combined) representations of motion.

In addition, Tong and his MSU colleagues Guo-Wei Wei, professor of mathematics and electrical and computer engineering, and Yang Wang, professor and chair of the MSU Department of Mathematics, have been awarded an NSF grant for the project titled "Differential Geometry Approach for Virus Surface Formation, Evolution and Visualization."

**Guoliang Xing's** NSF CAREER award is for a project entitled "Design and Analysis of Performance-Critical Wireless Sensor Networks: A Fusion-Centric Approach." This project develops a principled approach to performance assurance of critical sensing network applications such as infrastructure (power grid and bridges) monitoring and natural hazard (volcanoes and earthquakes) detection. In contrast to existing heuristics-based solutions, this approach adopts data fusion, an advanced information processing scheme, to enable resource-limited sensors to efficiently collaborate in delivering predictable network performance.

Xing also has received other funding from the National Science Foundation for collaborative research on "NeTS: Small: Holistic Transparent Performance Assurance within the Crowded Spectrum." This project, in collaboration with researchers at the College of William and Mary, proposes to develop a Holistic Transparent Performance Assurance (HTPA) framework to support performance-sensitive wireless applications. ✿

More information about faculty and staff accomplishments and research funding is available on the CSE Web site – www.cse.msu.edu.

Alumni Pipeline

Alum at Yahoo! Labs
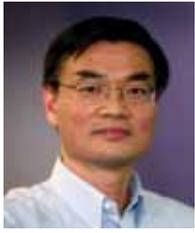
CSE alumnus **Jianchang (JC) Mao** (PhD '94) was recently appointed as vice president and head of Advertising Sciences in Yahoo! Labs in the Silicon Valley, a position that has significant influence on the majority of Yahoo's revenue. Advertising Sciences is an interdisciplinary field that studies the dynamics of an ecosystem of users, publishers, advertisers, and ad networks to find the best matching ads to a user in a given context. Mao oversees the R&D of advertising technologies and products in sponsored search, contextual advertising, display advertising, targeting, and categorization.

After receiving his PhD, Mao joined the research staff at the IBM Almaden Research Center in San Jose, Calif. Then, prior to joining Yahoo!, he was director of emerging technologies and principal architect at Verity Inc., a leader in enterprise search (acquired by Autonomy).

Mao's research interest includes machine learning, data mining, information retrieval, online advertising, social networks, pattern recognition, and image processing. He received an Honorable Mention Award in ACM KDD Cup 2002, *IEEE Transactions on Neural Networks* Outstanding Paper Award in 1996, and Honorable Mention Award from the International Pattern Recognition Society in 1993. Mao served as an associate editor of the *IEEE Transactions on Neural Networks,* 1999-2000.

"My PhD experience at MSU is the most memorable time period in my life and had a profound influence on my career path," says Mao. "The training that I received in CSE was outstanding, and I can still feel its benefit on my day-to-day job 16 years later. I was extremely fortunate to have the access to many distinguished faculty members and interact with many bright students. My adviser, Dr. Jain, who taught me not only how to do outstanding research but also how to be a better person, has become my long-time mentor. I deeply cherish my PhD experience at MSU."

Mao and his wife, Yao Chen, also a CSE graduate, have two children: son David, who was born while the couple was at MSU, and daughter Julie. Mao likes reading, jogging, and skiing.

CSE Alum at SPSS

Deepak M. Advani (BS '86) has been appointed to head SPSS Inc., a predictive analytics and statistics company acquired in October 2009 by IBM for $1.2 billion. Headquartered in Chicago, the company has 1200 employees.

From 2005 to 2009, Advani was the chief marketing officer and senior vice president of e-commerce for Lenovo. As CMO, he was responsible for building the global brand and generating demand. He was also responsible for activating global sponsorships including the Olympics, Formula 1, and the NBA. To maximize marketing effectiveness and efficiency, he relied heavily on Web marketing, and also centralized marketing functions in a global hub based in India. As the head of Lenovo's global e-commerce business, he grew revenue by 45 percent to $400 million, and grew profits by 300 percent.

Before joining Lenovo, Advani worked at IBM for 13 years, where he held several global executive positions. Under his leadership as general manager of high-end Intel servers, IBM's market share went from No. 3 to No. 1. As vice president of Linux strategy, he helped craft the early strategies around Linux and open source. As director of high-performance computing, he was part of the team that built a $1 billion business in four years.

In addition to his BS in computer science from Michigan State University, Advani holds an MBA from the Wharton School of Business and an MS in computer engineering from Wright State University. He currently serves on MSU's College of Engineering Alumni Association Board and is a member of the department's Strategic Partners Council. ❉

CSE Helps ITEC Succeed

The Information Technology Empowerment Center (ITEC) is expanding and CSE students, faculty, and staff are an essential part of that growth. ITEC is an educational organization that focuses on science, technology, engineering, and math (STEM) subjects. "The need for improved math and science skills has been recognized for a long time," says Kirk Riley, executive director of ITEC. To meet this need, ITEC was developed "to equip today's middle school and high school students for college and career opportunities in technology fields—particularly in computer science and information technology."

While ITEC includes a diverse team from other colleges at MSU and other local organizations and businesses, CSE faculty, students, and alumni have been a valuable assets in founding and developing ITEC. Some of those playing key roles include:

- CSE professor **George Stockman** has served as the lead instructor for the Computing Concepts program. He teaches Computing Concepts and the CHESS home school group. He is the current president of the ITEC Board of Directors.
- **Jim Salehi** (MSU, Computer Science '87) is co-instructor for the Computing Concepts course.
- CSE Systems Analyst **Adam Pitcher** was lead instructor for a LEGO Robotics program at Pattengill Middle School in Lansing. He led the technical portion of ITEC's LEGO Robotics Challenge event at Impression 5 Science Center on February 27.
- CSE Academic Adviser **Teresa VanderSloot** is co-instructor and program coordinator for the CHESS home school program. She is vice president of the board.
- CSE student volunteers have served at many events and have done one-on-one mentoring. Their technical knowledge and familiarity with computational thinking enable them to jump right in and help students work their way through challenging problems. Engineering students who have been involved in ITEC projects include **Lok Cheung, Shaun Gautz, Ryan Oswald, David Price, Mark Schwerzl,** and **Paul Zoratti.**

"Our basic rules: It must be fun; it can't be 'school after school,'" Riley says. "There is no answer key to ITEC projects and classes. Instead, students explore these subjects through innovative, self-paced, exploratory means."

For more information about ITEC, visit www.iteclansing.org. ❉

Student Pipeline

2010 Outstanding Graduate Student

Heather Goldsby, a doctoral student progressing toward a dual degree in computer science and ecology, evolutionary biology, and behavior, under the guidance of Charles Ofria, was named the 2010 CSE Outstanding Graduate Research Award winner by the MSU Engineering Graduate Studies Committee. Goldsby also received first place in the Fitch Beach Award competition. Both awards were presented to her at a reception on March 31.

Goldsby is using computational techniques to address open questions in biology about how efficient division of labor evolves in groups of natural organisms such as ants, wolves, or even humans. She is then harnessing these evolutionary pressures to solve problems in computer science, developing new methods of "automatic problem decomposition."

Since joining the PhD program in 2006, Goldsby has published 18 peer-reviewed papers (including two best-paper awards) and given 10 external presentations. Through this time she was only a part-time graduate student, holding down an unrelated full-time job as an information technologist. Heather is also committed to teaching; this summer she plans to take on the role of lead instructor in CSE 410: Operating Systems.

NSF Fellowship

Rosangela Canino-Koning, a master's student in computer science, has received an NSF Graduate Research Fellowship, which provides tuition and living expenses for three of the next five years. She plans to continue her work on a PhD at MSU. Canino-Koning has been working in Professor Charles Ofria's Digital Evolution Lab on evolving software and with Professor C. Titus Brown on open source software for bioinformatics applications. Rose and two other College of Engineering students were among the 10 award recipients listing MSU as their current school.

Originally from Guaynabo, Puerto Rico, Rose received her bachelor's degree in computer science from Grand Valley State University in 2002. She is the daughter of Juan Canino Pieve and Elba Vazqes Morales.

Outstanding SWE/WIE Member Award

MSU Women in Computing member **Devan Sayles**, a CSE sophomore, received an Outstanding Member Award at the awards banquet, hosted by the Society of Women Engineers on February 17, 2010. Sayles' award was sponsored by TechSmith Corporation.

Sayles is from Livonia, Mich., and is the daughter of Patrick and Michelle Sayles, both of whom are MSU alum. "I like to stay busy," says Sayles. "I'm in the Spartan Marching Band, secretary of Mary Mayo Hall government, and of course a member of Women In Computing." She also participates as an "MSU Insider" through the Student Alumni Foundation's Inside MSU program, is in the Honors College, and is part of their recruiting group, HSTAR (Honors STudents Actively Recruiting).

Extra Mile Leadership Award

Dianna Kay, a CSE junior, was the recipient of the Women in Computing Extra Mile Leadership Award. This award, presented at an awards banquet hosted by the Society of Women Engineers, acknowledges a person who has given above and beyond the call of duty in various activities. It is the first year the award has been given.

Kay, from Dayton, Ohio, is involved in numerous activities including the E-board of MSU Women in Computing and webmaster for the Michigan Celebration of Women in Computing. She was a presenter at Girl Scout workshops and at the 2009 Midwest Women in Computing Conference. She also was selected to attend Google's Science Summer Institute in 2008.

She is the daughter of Dave and Stella Kay. This summer she will work at MSU with CSE associate professor Joyce Chai doing human-computer interaction research.

Outstanding Diversity Programs Award

Jazmine Gaymon, a CSE freshman, received an Outstanding Diversity Program Award at an awards banquet hosted by the Society of Women Engineers on February 17, 2010. Gaymon's award was sponsored by the U.S. Postal Service.

She is from Detroit and is the daughter of Marsha and James Gaymon. She has participated in the Engineering and Science Summer Academy (ESSA) and is enjoying engineering. "I would like to thank Theo Caldwell (director of the college's diversity programs) for being my mentor and directing me on the right path," says Gaymon.

High-Achieving Student Recognition

At the SWE awards banquet in February, students from various engineering departments were recognized for their academic efforts. For the CSE department this included:

Steven Garske, computer science
Caitlin Russ, computer science
Nicholas Overhouse, computer science
Zachary Pepin, computer science
Devan Sayles, computer science
Mark Schwerzler, computer science

Engineering Excellence Service Award

Meghan McNeil, CSE senior, received an Engineering Excellence Service Award for 2009-2010 for distinguished service to the CSE department, the college, and MSU. She received the award during an April 27 reception. She was nominated by Laura Dillon, CSE professor, and Teresa VanderSloot, academic adviser. As president of MSU Women in Computing, McNeil has led the largest executive board (eight women) and membership since the organization was founded in 2005. ❂

KEEPING IN TOUCH

NAME

STREET ADDRESS

CITY / STATE / ZIP   IS THIS A NEW ADDRESS? ☐ YES ☐ NO

OFFICE TELEPHONE   HOME TELEPHONE

E-MAIL

GRADUATION YEAR   DEGREE

CURRENT OCCUPATION

EMPLOYER   LOCATION

News of recent accomplishments, awards, or promotions (Use separate sheet if needed):

We want to know what's happening with you! Update us by mail at Attn: Publications, MSU, 3412 Engineering Bldg., East Lansing, MI 48824-1226; by e-mail at editor@*egr. msu.edu*; or by fax at 517.355.2288.

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designated for: _____

My/our total gift will be paid as indicated:
☐ Check payable to "Michigan State University"
☐ Credit card charge to: ☐ MasterCard ☐ Visa ☐ Discover ☐ AmEx

CARD NUMBER   EXP. DATE

NAME AS IT APPEARS ON CARD

SIGNATURE

☐ A pledge of the following duration (maximum 5 years): _____
Enclosed is my first payment of $ _____
Please send pledge reminders: ☐ Annually ☐ Quarterly ☐ Semiannually
beginning: _____
          MONTH   YEAR

☐ This pledge replaces all other outstanding pledges.
☐ This is a joint gift with my spouse: _____
                              SPOUSE'S NAME

☐ I or ☐ my spouse (*check one*) works for a matching gift company:

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Heather Goldsby (center) is congratulated as the CSE Outstanding Graduate Student by her adviser Charles Ofria, CSE associate professor (left), and Manoochehr Koochesfahani, associate dean for graduate studies and faculty development. See story on page 7.

Photo courtesy of ITEC

Middle school students work with a computer as part of an ITEC program. See story on page 6.