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A Newsletter of the Department of Computer Science and Engineering at the University of Notre Dame



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Commencement 2008

The Department of Computer Science and Engineering (CSE) graduated 43 students on Sunday, May 18, 2008. A departmental ceremony was held in the morning and attended by the graduates, their families, and CSE professors. This year's faculty speaker, selected by the students, was Professor **Amitabh Chaudhary**. Schubmehl-Prein Professor **Kevin W. Bowyer**, the department's chair, served as the master of ceremonies. The ceremony was organized and coordinated by seniors **Matt Hudson** and **Ben Roesch**, with help from administrative assistants **Dian Wordinger** and **Ginny Watterson**.

This year's Outstanding CPEG Senior Award recipients were **Nick Hopf** and **Jeff Simmer**, and the Outstanding CS Award recipients were **Pat Finnigan** and **Ben Roesch**. Earlier in the week, **Shannon Morrison** received the Steiner Award from the College of Engineering. Simmer also received the International Engineering Consortium's Everitt Award. The award for the top project in the Advanced Database Projects class, funded by ND alumnus **Tom Meurer**, went to **Ryan Gross** and **Pat McGowan**. Finally, the Outstanding CSE Faculty Teaching Award was granted to Professor **Nitesh Chawla**.

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WHITE NAMED FINALIST IN SCHOLARSHIP PROGRAM

Lisa White, a senior computer science major from Scituate, Mass., received a \$1,000 scholarship as a finalist in the 2008 Anita Borg Memorial Scholarship Program. White was one of 32 finalists honored during this, the fifth year of the program in the United States.

The Anita Borg Memorial Scholarship Program was established in 2003 in honor of the work of Borg, a computer scientist who dedicated her professional career to increasing the

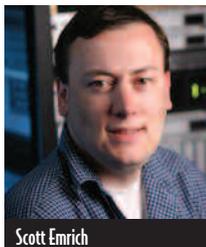
participation of women and other under-represented minorities in the field of technology.



Lisa White

Emrich Receives Zaffarano Prize

Assistant Professor **Scott Emrich** was chosen to receive the 2008 Iowa State University (ISU) Zaffarano Award. Presented annually, the award recognizes superior performance in publishable research by an ISU graduate student. Emrich is the first student from the electrical and computer engineering department to receive it; his work concentrated on interdisciplinary maize genomics. Emrich joined the Notre Dame faculty in August 2007, and is focusing on mosquito and malaria genome analysis with applications to global health.



Scott Emrich



Christian Poellabauer



X. Sharon Hu

Poellabauer and Hu Receive NSF Grant

Assistant Professor **Christian Poellabauer** and Professor **X. Sharon Hu** have received a \$222,000 research award through the National Science Foundation in support of their research into energy-efficient scheduling and management of wireless real-time systems. Mobile, wireless, and embedded computing and control systems are increasingly being found in many real-world applications with stringent time constraints, including embedded control, robotics, surveillance, and sensor networks. The energy constraints of these systems affect their performance and lifetime and require careful management of their limited computing and communication resources. This grant will support research on novel operating systems techniques that ensure that computing and communication tasks complete within application-specific time constraints, while minimizing the system-wide energy consumption.



Green Computing at ND

Paul R. Brenner was featured in the May 8 issue of the *Chronicle of Higher Education*. Brenner, a high-performance computing engineer in the Center for Research Computing, is also a graduate of the University, receiving his bachelor's degree in civil engineering from Notre Dame in 1998 and his doctorate in computer science and engineering in 2007. The article describes a Notre Dame

plan that will save the University and the City of South Bend money, approximately \$100,000 in utility costs for the University and a substantial amount the city currently spends to heat the city greenhouse that houses desert plants. Brenner is currently on leave from the University, while serving in Afghanistan as part of an Air Force Reserve deployment.

ALUM NAMED LOCKHEED MARTIN SENIOR FELLOW

In March 2008, **Robert Szczerba** was named a senior fellow by Lockheed Martin in recognition of his expertise as a senior technologist in the company's autonomous unmanned systems research and development community. The designation of senior fellow is an honor reserved for the top one-tenth of one percent of the technical talent across the corporation. He was

honored along with five other engineers in the Systems Integration-Owego division, who were named fellows.

Szczerba is a Triple Domer, having received his B.S., ECE, in 1990; M.S., ECE, in 1993 (when the electrical engineering and computer science and engineering programs were contained within the same department); and his Ph.D. in 1996 from the Department of Computer Science and Engineering. Professors **Danny Z. Chen** and **John J. Uhran** were co-advisors for his Ph.D. dissertation, titled "New Cell Decomposition Techniques for Planning Optimal Paths."

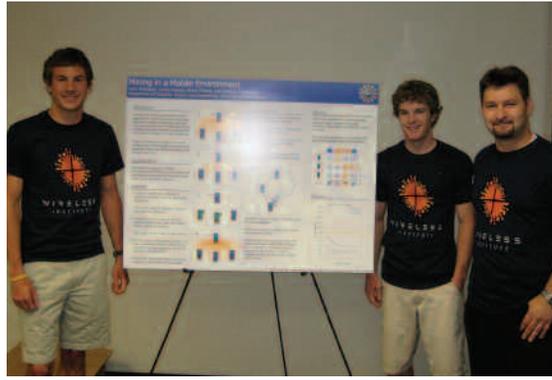
After receiving his Ph.D. from Notre Dame, Szczerba performed post-doctoral research for the Jet Propulsion Laboratory under the direction of **Peter M. Kogge**, the Ted H. McCourtney Professor of Computer Science and Engineering and Associate Dean for Research in the College of Engineering. He has been at Lockheed Martin since 1996.



Robert Szczerba

Wireless Networking REU Participants Strut Their Stuff

Participants in the National Science Foundation funded Research Experience for Undergraduates (REU) in Experimental Research on Wireless Networking presented their summer work in a poster session on Aug. 1. A total of 14



students from nine universities shared with fellow students and faculty about their projects. At the end of the session, a faculty committee selected the three most outstanding posters, and the REU site's co-directors Assistant Professors **Christian Poellabauer** and **Aaron Striegel** presented the awardees with gift certificates. Summer 2008 honorees were:

- First Place — **Jim Notwell** and **Sean McRoskey** for their project "Mining in a Mobile Environment" (shown above with Poellabauer),
- Second Place — **Brendan McNutt** for his work in "Real Time Analysis of Crew Team Performance," and
- Third Place — **Marcin Morys** for the project titled "Dissecting the Universal Software Radio Peripheral."

During the 10-week REU program students worked closely with researchers in the area of wireless networking and mobile computing. The goals of the program, which will also be offered in summer 2009, are to promote interest in experimental research on wireless networks and to develop student research skills. Students interested in applying should visit <http://www.cse.nd.edu/~darts/reu.html>.

Undergraduates Take the Motorola Challenge

Earlier this year under the guidance of Assistant Professors **Aaron Striegel** and **Christian Poellabauer**, 10 undergraduates participated in the 2008 Motorola Labs Challenge, a four-



month project to develop novel content sharing applications on Wi-Fi equipped mobile handheld devices. In conjunction with the capstone design course, *CSE 40422 — Computer System Design*, Motorola Labs generously provided MC-35 smartphones equipped with Wi-Fi. They also provided the initial design requirements.

Three student teams — Team 1: seniors **Ryan Gross**, **Nick Hopf**, **Patrick McGowan**, and **Sean O'Toole**; Team 2: senior **Jeff Simmer** and juniors **Ed Suski** and **A.J. Sporinsky**; and Team 3: seniors **Kyle Marks**, **Sean Murray**, and **Stephen Woods** — were tasked with creating design documents, proof of concept builds, and a fully working demo.

Shivajit Mohapatra, senior staff researcher with the Applications Research Center of Motorola Labs, visited Notre Dame to recognize all of the participants and to present prizes to the most outstanding team — Team 2. The software developed by the winning team will be demonstrated to researchers and managers at Motorola Labs. Both undergraduate and graduate researchers at Notre Dame will continue to develop the winning software and perform field tests, which potentially includes a large-scale test.

Commencement 2008 (cont.)

Senior **Nichola Lubold** graduated as the first engineering honors student in the department.

Most of our graduates are planning to take a position in industry. Three are entering graduate school, and three are joining the armed forces.

Students receiving their degrees at this ceremony were **Michael Albrecht**, **Christopher Babcock**, **Ryan Bravo**, **Jared Bulosan**, **Brittany Canty**, **Zachary Capozzi**, **Gabriel Diaz**, **Daniel Dugovic**, **Ryan Fabre**, **Patrick Finnigan**, **Michael Gilbert**, **John Gorski**, **Ryan Gross**, **Michael Hatke**, **Bruce Hill**, **Virginia Nguye Ho**, **Nick Hopf**, **Matthew Hudson**, **Mykel Kramer**, **Robert Lindley**, **Nichola Lubold**, **Kyle Marks**, **Andrew Matta**, **Patrick McGowan**, **Nicholas McLees**, **Michael Milford**, **Ryan Milligan**, **Shannon Morrison**, **Sean Murray**, **Peter Nistler**, **Daniel O'Connor**, **Sean O'Toole**, **Kathleen Otten**, **Juan Ousset Martinez**, **Nicholas Ransom**, **Nathan Regola**, **Brian Riese**, **Benjamin Roesch**, **Pavan Sadarangani**, **Nicholas Schott**, **Jeffrey Simmer**, **Brian Sullivan**, and **Stephen Woods**.

Bowyer Gives Opening Keynote Talk at Face and Gesture

In September **Kevin W. Bowyer**, the Schubmehl-Prein Chair, gave the opening keynote talk during the *Eighth International Conference on Automatic Face and Gesture Recognition*. His talk, titled "Adventures in 3D Face Recognition"



addressed the motivations for using 3D sensing in face recognition, recent advances in the field, and important challenges for the future.



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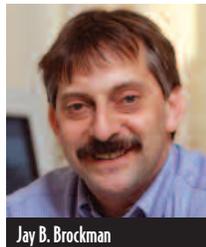
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Brockman Appointed Associate Dean

Associate Professor **Jay B. Brockman** has been appointed associate dean for educational programs within the College of Engineering. In addition to his teaching and research, he will be responsible for all college-wide educational initiatives, including the first-year engineering course sequence, EG10111/10112. He will also solicit federal and industrial funding to support innovative educational opportunities for engineering students.



Jay B. Brockman

During his tenure in the college, Brockman has played pivotal roles in the development of the Bits-to-Chips program (a joint educational initiative between the computer science and engineering and electrical engineering departments) and the first-year course sequence. Most recently, he published *Introduction to Engineering: Modeling and Problem Solving*, which helps students “see the world through the eyes of an engineer.”

A faculty member since 1992, Brockman’s research interests include the design of digital systems and integrated circuits, computer architecture, high-performance computing, multidisciplinary design optimization and engineering education, especially the bridge between high school and college.

CSE/IT Jobs among Fastest Growing

A recent research report published in the *European Journal of Information Systems* identifies multiple Computer Science & Engineering occupations to be among the fastest growing this decade and for the next eight years. Despite negative news about outsourcing and offshoring, the report determines that most outsourced jobs are outsourced locally, and “inshoring” of high skilled jobs may be offsetting the offshoring of lower skilled Information Technology jobs. Computer Science and Engineering occupations such as network & communications, software engineering, computer analysts, and database administrators are in the top 25 out of 821 detailed occupations.

A related article in the July 7 issue of *CIO Insight* discussing U.S. Bureau of Labor Statistics data indicated that IT employment is remaining robust (it grew by 10.2 percent in the second quarter of 2008) as unemployment is rising in other job categories. In fact, the number of employed IT professionals reached a record high in the second quarter of 2008, at 3,956,000 professionals.

To submit your stories for inclusion in *configurations*, contact Ginny Watterson at vjohns@cse.nd.edu.