Nationally and Internationally Recognized Scholars

Shaw wins NSF CAREER Award. Steve Shaw, assistant professor in electrical and computer engineering, continues a tradition of excellence by being the College of Engineering’s fourth faculty member since 2000 to receive a National Science Foundation CAREER award, one of NSF’s most prestigious awards. Shaw will apply his $400,000 award to create a controls lab where electrical engineering students learn to think creatively across many disciplines. The students will have a lab where they can solve problems related to fuel cells, optics and micro-electromechanical devices, all of which require cross-discipline thinking. Shaw’s work has attracted roughly $2 million in research funding since 2000. He has been recognized as one of the world’s top 100 young innovators by the Massachusetts Institute of Technology’s magazine *Technology Review* and as a top young engineer by the National Academy of Engineering. [http://www.montana.edu/cpa/news/nwview.php?article=3651](http://www.montana.edu/cpa/news/nwview.php?article=3651)

Paxton wins Fulbright Fellowship. John Paxton, computer science professor, has won a Senior Lecturing Award from the Fulbright Scholar Program. As part of his 2006-07 sabbatical, he will develop and teach two new computer science courses at the University of Leipzig in Leipzig, Germany. Although Paxton minored in German, he will develop and teach the courses in English because the University of Leipzig wants its students to practice technical English, the predominant language in computer science worldwide. Paxton has been with MSU’s Computer Science Department since 1990. His research interests include expert systems, artificial intelligence, and computer science education. [http://www.montana.edu/cpa/news/nwview.php?article=3769](http://www.montana.edu/cpa/news/nwview.php?article=3769)

MSU’s contingent shines at industrial engineering conference. The MSU contingent at the Institute of Industrial Engineers (IIE) 2006 annual conference had two notable achievements, winning a highly competitive scholarship and a best paper award. Amanda Andrikopoulos, industrial engineering, received the United Parcel Service Scholarship for Female Students, which is open to eligible undergraduates throughout North America. Candidates must be nominated for the scholarship, which is awarded based on scholastic ability, character, leadership, potential service to the industrial engineering profession, and financial need. Manimay Ghosh, doctoral candidate, and Durward Sobek, assistant professor, beat out more than 70 other Engineering Management track submissions with their paper, “A Test of the Design Rules in Healthcare.”

Leading Research

CBE faculty at forefront of bioremediation initiative. Faculty in the Center for Biofilm Engineering (CBE) are adding to MSU’s reputation for research and leading initiatives related to bioremediation. The CBE and Utah State University’s Department of Biological and Irrigation Engineering will organize and administer an Inland Northwest Research Alliance (INRA) initiative to develop a sustainable, collaborative research program in the area of Subsurface Biotechnology and Bioremediation. Al Cunningham at the CBE and Ron Sims at Utah State will lead the project. In addition, CBE faculty members Brent Peyton and Robin Gerlach have secured more than $1.2 million in funding to study the movement of heavy metals in the environment.

WTI’s Tony Clevenger leads effort to determine longterm benefits of wildlife crossings. Anticipated population growth and highway improvements in the Rocky Mountain range, which will lead to increasing pressure on wildlife, continue to generate interest in conservation tools such as wildlife crossings. WTI researcher Tony Clevenger is involved in research to determine how wildlife crossings affect animal populations rather than individuals, with the ultimate goal of developing science-based guidelines for transportation departments, land management agencies, and the conservation community.

MSU’s Department of Computer Science provided support for “Accelerating Research with Grid Computing”, a 2-day seminar about harnessing large networks of computers to work on a single problem. The seminar was sponsored by the National Center for Research Resources and its Lariat Project. Lariat’s purpose is to build a high-speed telecommunication network for biomedical researchers. Several people from Argonne National Laboratory spoke at the seminar, including Ian Foster, a noted expert in the field of grid computing.

Montana State University is now in the top tier of research universities in the United States. A new classification system by the Carnegie Foundation for the Advancement of Teaching recognizes MSU as one of 94 research universities with “very high research activity.” Other such institutions are Yale University, Harvard University, Johns Hopkins University, the University of Washington and Oregon State University. MSU’s expenditures from sponsored research programs reached almost $100 million in Fiscal Year 2005 and are expected to keep going. [http://www.montana.edu/cpa/news/nwview.php?article=3487](http://www.montana.edu/cpa/news/nwview.php?article=3487)
**Student Centered Campus**

**Asbjornson and AAON make HVAC lab a reality.** Norm Asbjornson and the company that he founded, AAON, Inc., recently donated more than $700,000 in cash, equipment and technical advice to create a one-of-a-kind heating, ventilation, and air conditioning laboratory in MSU’s College of Engineering. Asbjornson’s insistence that the lab be used for teaching and research reflects his longstanding commitment to students. He has also created a $1 million endowed scholarship fund for graduates from Montana high schools with 100 or fewer students, an endowed scholarship for Winifred High School graduates who attend MSU, and an endowment for the Burns Technology Center to develop distance learning programs for rural Montana schools.

http://www.montana.edu/cpa/news/nwview.php?article=3693

**Repasky recognized for mentoring.** Kevin Repasky, electrical and computer engineering, was one of two MSU faculty members who won the 2006 Provost’s Award for Undergraduate Research/Creativity Mentoring. Repasky works with undergraduate researchers several hours a week in addition to his full-time research and teaching responsibilities. Five undergraduate students are involved in Repasky’s lab, where they examine applications of optical science and technology to problems in electrical engineering. Three of his former students, now alumni, are employed by Montana companies in the optical and solid-state materials field, based in small part on their research involvement with Repasky as undergraduates.


**Undergraduate presents research findings on Capitol Hill.** Recent graduate David Steppler, whose research adviser is Robin Gerlach at MSU’s Center for Biofilm Engineering (CBE), presented research findings in Washington, DC. Steppler was one of just 75 undergraduates nationwide chosen by the Council on Undergraduate Research to present their research projects. He studied the use of powdered iron to treat groundwater polluted with TNT and other chemicals found at bombing ranges. Steppler took a novel approach by studying the effectiveness of powdered iron when confronted with a mix of chemicals or with naturally occurring organic matter; both situations are often found in sites that the Department of Defense wants to restore.

http://www.montana.edu/cpa/news/nwview.php?article=3730

**Aptitude for math and science pays off for engineering student.** Nathan Greenfield, a senior in electrical engineering, is the 2006 recipient of the William E. Parkins Engineering-Physics Award at MSU. The Parkins award is intended to encourage students to study across disciplines and is awarded to the MSU student with the top grade point average in engineering, math and physics courses. Greenfield has applied his abilities in his work for the Electra satellite in the Space Science and Engineering Laboratory at MSU, where he has worked since his sophomore year. Greenfield’s senior design project involves creating a sensor network to monitor health and power levels throughout Electra. He plans to attend graduate school to possibly study meta-materials or electromagnetics.

http://www.montana.edu/cpa/news/nwview.php?article=3732

**Micron receives an Excellence in Philanthropy Award from the MSU Foundation.** Because of its broad-based support of MSU students, Micron Technology, Inc. received the Montana State University Foundation’s Excellence in Philanthropy Award for a national corporation or foundation at the Foundation’s 2006 Donor Appreciation Dinner. Since 2001, Micron has provided ongoing student support by hiring 40 engineering graduates, sponsoring 31 summer internships, and by annually providing 12 undergraduate engineering scholarships of $5,000 each. Micron has also responded to the college’s needs for equipment, faculty research support during the summer, and a new student microfabrication lab. By hosting faculty visits and allowing its employees to serve on advisory councils and present technical lectures, Micron has helped faculty and administration understand industry needs.

COE Students Excel on FE Exam. In October 2005, College of Engineering seniors once again outperformed all of their peer groups nationwide on the Fundamentals of Engineering (FE) exam. The eight-hour exam is the first step toward acquiring a professional license. COE seniors across all engineering disciplines achieved a pass rate of 77%, while the aggregate national pass rate was 71%. MSU COE is among the 10 percent of engineering programs that require all graduating seniors to take the exam.

Opportunities for Hands-On, Active Learning

Undergraduates in the College of Engineering test their abilities to design and build. Twice each year during a Design Showcase open to the public, students display senior design projects, ranging from wireless robots and satellite sensors to a fishing line swivel or high-performance bowsight. After devoting time in and out of class, several teams headed to regional engineering competitions with creations that they designed and built, including a formula car, a recumbent bicycle, two radio-controlled micro-Baha cars, and a concrete canoe.
Spectacular Educational Setting

WTI helps national parks protect resources and accommodate visitors. WTI is taking a comprehensive approach to help national parks find ways to protect natural resources but still provide memorable experiences to millions of visitors each year. Trying to accommodate too many private vehicles driven by the growing number of visitors can not only ruin visitor experiences with traffic jams, it can also harm wildlife by causing more vehicle-animal collisions and degrading habitat. WTI is collaborating with parks in the U.S. and Canada to apply expertise in road ecology and information systems to solve current problems and to make sound planning decisions. WTI is involved in both gathering and disseminating information with systems to do such varied tasks as monitor traffic or provide advisories about work zones, alternate routes, and road conditions to visitors using the 511 phone system.

Service and Outreach

MSU’s College of Engineering packed its National Engineers Week agenda with ways for students in middle school through college to learn about engineering careers and concepts. More than 300 middle school students participated in an Engineerathon or Girl Scout Badge Day at MSU and high school students spent a day with an engineering student during Shadow an Engineer. Lisa Glatch, the keynote speaker at the Women in Engineering Dinner, described her career as president of Fluor Government Group, which generates $3 billion in annual revenue. More than 100 people, including female high school students and their parents, attended the dinner.

DOC helps tribal and community colleges prepare students. In May 2006, Designing Our Community hosted its first Providing Resources for Engineering Preparedness (PREP) Workshop for 2-year college math, science and pre-engineering faculty. Twenty-one representatives from nine of Montana’s 10 community and tribal colleges attended. The workshop was funded by the U.S. Department of Education’s Minority Science and Engineering Improvement Program and covered the following topics: making connections among faculty at different campuses, MSU’s student support services, and transfer agreements between colleges.

DOC to host summer engineering camp for middle school students. Designing Our Community, a program to attract Native American students to engineering and computer science programs at MSU, will host up to 30 middle school students for a one-week summer engineering camp in 2006. The camp is intended to increase the number of low-income students who are prepared to enter and succeed in post secondary education. It is funded in part by the Montana Gaining Early Awareness and Readiness for Undergraduate Program, or GEAR-UP.

Manufacturer’s sales grow 8-fold with MMEC/TechLink help. The Montana Manufacturing Extension Center (MMEC)/TechLink partnership MiTech helped Doctor Down, a bedding manufacturer, deliver its specialized medical transport system to the U.S. Department of Defense quickly, reliably and cost effectively. By helping Doctor Down find contract sewing companies to handle the influx of large orders and improving manufacturing and business systems, MMEC has helped the company ramp up sales and capacity in 2005 by a whopping 850 percent.

MMEC and UTAP help manufacturer improve snowmobiles. The Montana Manufacturing Extension Center (MMEC) and UTAP have helped snowmobile manufacturer Crazy Mountain Xtreme increase efficiency and improve design. Relocating tools to within reach of a manufacturing cell for rear suspensions has improved productivity by 30 percent. An MMEC field engineer working for University Technical Assistance Program (UTAP) helped the company design a more durable tail light assembly and find a manufacturer to build it. The owners of CMX say that MMEC has always either helped them or connected them to someone who can.