

Winter 2006

## CNS Connections, Winter 2006-07

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### Description

Inside this issue:

- Message from the Dean
- Mini-robots duel in sumo competition
- Earth Science offers B.S. in air quality
- College News
- Biology prof helps test method to reduce erosion
- Title II grants fund CNS science education projects
- Update from the Centers
- Change of address for Computer Science
- Carver grants strengthen CNS programs
- Partnership for Goods starts at UNI
- Faculty and Student Research Highlights
- Ensuring a bright future for UNI
- Alumni News
- CNS Advisory Board

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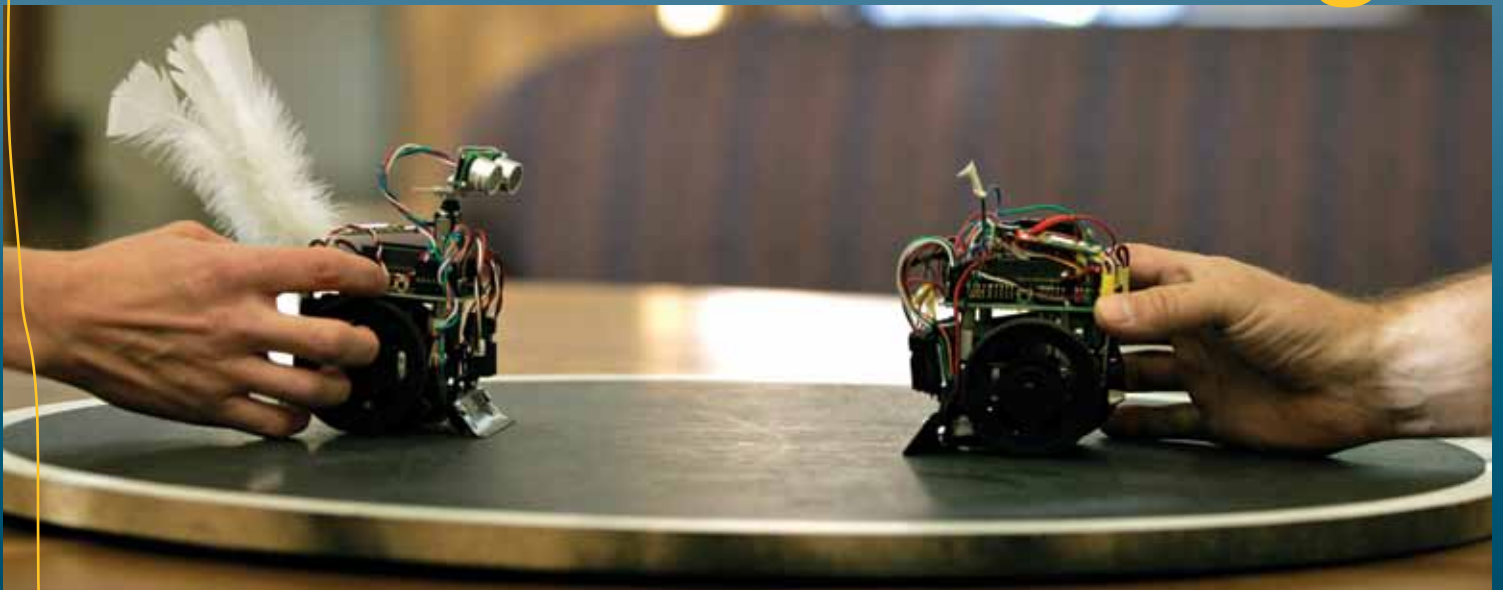
College of Humanities, Arts & Sciences; University of Northern Iowa

# CNS Connections

## University of Northern Iowa



## Sumo Robot Challenge



"Gentlemen, start your robots!" —The first Mini-sumo Robotics Competition in the College of Natural Sciences. *Photos courtesy of the Waterloo Cedar Falls Courier.*

Newsletter of the UNI College of Natural Sciences

Winter 2006-07

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*Cover photos courtesy of the Waterloo Cedar Falls Courier.*

Top: Physics majors Craig Pawlak (left) and Jon Lamb prepare to start their personally designed and programmed entries for a round of the Mini-sumo Robotics Competition last April.

Bottom: Some mini-sumo robots showed their personality. At left, "the Bird" was distinguished by tail feathers and two robotic "eyes" that scanned the ring in a bird-like manner.

# Message from the Dean

This is a year of new beginnings at UNI. We have a new president, Ben Allen, who comes to us from Iowa State University, having been highly successful as the chief academic officer there. He has assumed leadership at a time critical to UNI's future. Today, I want to first tell you some of the hard facts we're facing, but then I'll explain why I see a bright future for the sciences, technology and mathematics at UNI.

In each of the past five years, we received less money from the state of Iowa than was required to meet our annually rising costs. This has had several consequences. First, due to rising tuition costs, our students are bearing a larger share of the cost of their education, though our financial aid office assures us that every student can receive enough support to attend UNI. The challenge for our students, and for us, is that they are working more hours at off-campus jobs during the academic year, they are graduating with more debt, and many are choosing to look for the cheapest rather than the best route to a degree. Second, those of us in administration at UNI have reallocated funds from other activities to make up for the shortfall. Within CNS, this has meant the loss of general funds for equipment, student wages, infrastructure, and faculty and student travel.

During this period, we at UNI have been able to continue to offer all of our programs by making decisions on a year-by-year basis, taking advantage of faculty retirements and other open faculty lines. We are grateful for the support for equipment that we have received from the Carver Foundation, local industries and our alumni. It is clear now, however, that the budget shortfall is not a short-term problem; instead, the state has made a decision to reduce the support it offers higher education. UNI must cut back on the programs it presently offers in order to preserve the core of the University so that our students will continue to receive a superb education.

President Allen has begun to lead us in a process to make the necessary changes. I am heartened by his strong advocacy for the academic programs at UNI, and especially for those in the sciences, technology and mathematics. Only the types of programs CNS offers can provide the education for the technical workforce of the future—the United States and Iowa will require capable graduates in these disciplines, able teachers for the public and private schools in these disciplines, and graduate training for those presently working in industry and in education.

As you read this newsletter, you will find that our students, faculty and staff have been highly successful at what they do—they learn, teach, carry out research and scholarship, and provide valuable service to the state. I am pleased to report that President Allen, in his first address to the faculty this fall, highlighted the accomplishments of physics graduate Cary Pint and mathematics education professor Catherine Miller, the interdisciplinary program in nanotechnology, and the Regents Awards for Excellence received by biology professor Jim Jurgenson and chemistry professor Russ Wiley. In addition, all three of the university-wide awards given out each year went to faculty members from CNS, namely physics professor Paul Shand for excellence in teaching, biology professor Daryl Smith for excellence in service and mathematics professor Syed Kirmani for excellence in research and scholarship. It was a proud moment for everyone associated with CNS!

Here at UNI, there is nothing more important to us than educating students for their future careers within a liberal arts context. Our students readily find employment, engage in lifelong learning and succeed in life. What a rewarding enterprise we engage in here!

Finally, I would be remiss if I didn't remind you of the three ways in which we need your help. First, let everyone know that you're proud to be UNI alumni—spread the word about the great education a student can receive at UNI. Second, let those making decisions about state funding for higher education know of your thoughts—the legislators regularly tell us that they hear a lot about public schools, but not nearly as much about higher education in Iowa. Third, if you are able, remember to help us support the next generation of students with your contributions to the UNI Foundation, especially to the Dean's Fund for Excellence or for programs within the departments of CNS. We deeply appreciate your support.

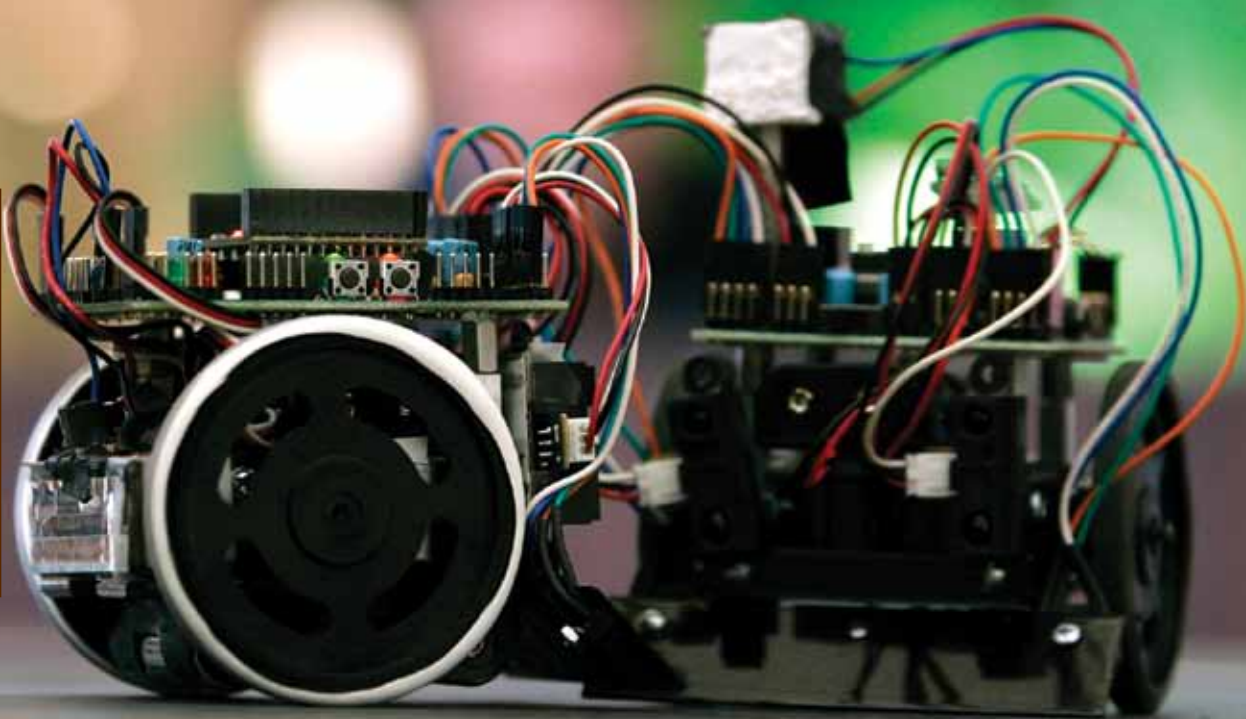


Joel Haack

*Joel K Haack*  
Joel K. Haack

A mini-sumo robot, up close and personal. The mini-robots were about 4 inches square and weighed approximately ½ kg.

*Photo courtesy of the Waterloo Cedar Falls Courier.*



## Mini-robots duel in sumo competition

**A** somewhat smaller version of sumo wrestlers—4-inch-square, ½ kg mini-robots—battled it out during the Mini-sumo Robotics Competition held in the Seerley Hall Great Reading Room in April. The competition, sponsored by the Physics Department and New Micros, Inc., of Dallas, Texas, was the culmination of the course Introduction to Robotics.

Nine students participated, seven physics majors and two electrical and information engineering technology majors, as well as an individual from Indiana who responded to a notice of the competition on a robotics bulletin board. During each match, which could last up to three minutes, the robots competed one on one, with each robot trying to push the other out of a circular ring, similar to sumo wrestling.

The students spent 15 weeks designing, building and programming their robots in the class, taught by Dale Olson, professor of physics, and Randy Dumse, president of New Micros. The challenge for the students was to create a mini-sumo robot that could see and respond to its competitor with quick maneuvers.

The mini-sumo robots are independent once they enter the ring, relying on electronic eyes and other sensors controlled by an on-board microprocessor to compete. A battery-powered electric motor drives each robot forward

or backward and allows it to pivot right and left by varying the rotation rates of the two tires. Each student custom-programmed his robot's microprocessor in the Forth language.

Many students painted the front scoop of their robot white because mini-sumo robots normally have an "avoid white lines" command in their code; an opponent,

"seeing" the white scoop, would back away. One way to win is to get your robot's scoop under the other robot, lift it up a bit and push it out of the ring.

"The course is a blend of electronics, programming and physics," Olson said. "Links to industry experts and the challenge of competition provide a great learning environment and a lot of hands-on experience for the students."

Physics grad student Dave Hilgemann changes the batteries of his mini-sumo robot in preparation for the start of the robotics competition.

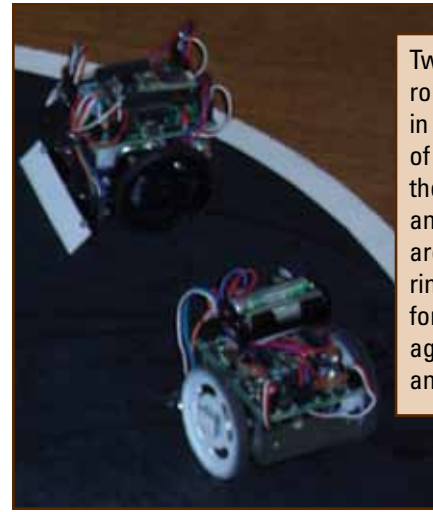


Dumse, a 1975 UNI physics graduate and expert on robotics, has been closely involved in the course and the competition. He assisted students in the course via a two-way video hook-up between the lab at UNI and his firm in Texas. His firm provided microprocessors for the robots, as well as other equipment, and Dumse visited UNI to take an active role in the competition.

The event was broadcast live over the Internet, and



Students Mike Boomer (left) and Shawn Breuklander prepare to start their robots in a head-to-head competition. Breuklander's robot won the match with the Bird and went on to win the open competition that day.



Two mini-sumo robots, caught in an instant of time, as they wheel and swing around the ring, looking for leverage against one another.

interest was high, according to Cliff Chancey, head of the Department of Physics. "The course and the competition have been a great success," said Chancey. "The department

will continue to develop its robotics effort, and we look forward to hosting the Second Annual UNI Mini-sumo Robotics Competition in April 2007."

## Earth Science offers B.S. in air quality

Beginning in the fall of 2006, the Department of Earth Science began to offer a major in air quality, one of the only such programs in the nation, according to Alan Czarnetzki, professor of meteorology and one of the main designers of the program.

"Much of the need for such a program of study arises from the requirements of the federal Clean Air Act, which in turn reflects the public's concern with clean air," Czarnetzki explained. Each state is required to design a State Implementation Plan that will ensure compliance with the federal law.

State agencies (in Iowa, the Air Quality Bureau) issue permits for the emission of pollutants from large stationary sources and then monitor compliance. They also determine, through computer modeling, the impact of new or expanded sources of pollutants on air quality. In addition, private consulting companies work with business and industry to minimize the emission of pollutants, and some corporations have their own staff who deal with these issues.

A B.S. in air quality will produce a pool of graduates who are ready for employment at mid-level management positions in state and federal agencies as well as in industry and consulting firms. "Clearly, there is a need



Graduate student Keshab Simkhada demonstrates how to use a field olfactometer in an exercise on odor measurement, as Alan Czarnetzki looks on.

for individuals with this expertise," Czarnetzki said. Many of those currently occupying such positions have had to educate themselves on the job in order to have the expertise to discharge their responsibilities, he noted.

Earth Science's new major focuses on the measurement and analysis of air quality. Thus, the degree is interdisciplinary in nature, drawing from applied chemistry, meteorology and computer science. "Computer simulations help us understand how pollutants disperse," Czarnetzki added.

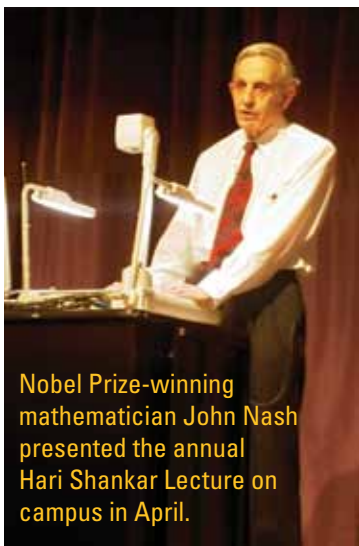
Another strength of the program is its close association with UNI's

Science center for Teaching, Outreach and Research on Meteorology (STORM), which is actively involved in air quality education, research and outreach. In 2002, STORM staff developed a training module on atmospheric dispersion models for National Weather Service forecasters, and STORM has supported graduate student research in odor dispersion from Iowa hog confinements, atmospheric aerosol measurements over Iowa and modeling aerosol transport over Iowa.

"The interaction between STORM and the new B.S. program is mutually beneficial to students and faculty," Czarnetzki said.

# College News

■ John Nash, renowned mathematician and 1994 winner of the Nobel Prize for Economics, delivered the annual Hari Shankar Lecture to 1200 people at UNI on April 10. His presentation, titled "The Agencies Method for Modeling Coalitions and Cooperation in Games," dealt with a particular aspect of game theory. His life is the subject of Sylvia Nasar's best-selling biography, *A Beautiful Mind*, and is the inspiration for the highly fictionalized film of the same name.



Nobel Prize-winning mathematician John Nash presented the annual Hari Shankar Lecture on campus in April.

■ UNI became a member of the Open Science Grid (OSG), a U.S. grid computing infrastructure that allows science researchers, software developers and computer providers to collaborate. The OSG enables UNI researchers to access resources contributed by places such as Fermilab and the National Energy Research Scientific Computing Center. Only one or two other primarily undergraduate universities in the U.S. are members of the OSG. Paul Gray, associate professor of computer science, is the system administrator for the UNI OSG systems.

■ Some 50 students presented the results of their summer research projects in biology, chemistry and biochemistry, earth science and physics at the fifth annual poster session for Undergraduate Summer Research Programs in the College of Natural Sciences



UNI President Ben Allen visits with a student at the fifth annual poster session for Undergraduate Summer Research Programs in the College of Natural Sciences last July.

at the end of July. The students displayed posters describing their work and were available to discuss their research.

■ National Science Foundation funding for the Advanced Technology Environmental Education Center (ATEEC) was renewed for the third year of a four-year \$1.45 million grant. In June, 20 high school and community college science, math and environmental technology teachers attending the 2006 ATEEC Fellows Institute at UNI examined case studies and lessons learned from past ecosystem management strategies, including attempts to manage ecosystems by introducing alien species. Ed Brown and Maureen Clayton, professors in biology and environmental science, are co-principal investigators for the project.

■ The Department of Defense Education Activity grant to provide inservice instruction to teachers on U.S. military bases throughout the world has been renewed for \$750,000. Co-directors of the project are Edward Rathmell, professor of mathematics, and Vicki Oleson, instructor at Price Laboratory School.

■ The Department of Chemistry became the Department of Chemistry and Biochemistry in June 2006, reflecting national trends toward interdisciplinary study between the fields of biology and chemistry. One quarter of students with Chemistry Department majors graduating in spring 2006 were biochemistry majors.

■ Tim Cooney, professor of earth science, is the co-author of the K-6 textbook series *SCIENCE—See Learning in a Whole New Light*, which consists of seven books and 14 teacher's guides. The series was published by Scott Foresman and Company in 2006.

■ Then UNI President Robert Koob presented a talk titled "Rethinking Science Education" to the UNI chapter of Sigma Xi in March. Koob addressed the problem of the declining percentage of U.S. graduates in science, technology, engineering and mathematics and the implications of this trend for teacher education.

■ Ken Nuss, who taught in the Biology Department for 15 years, graduated from Palmer College of Chiropractic in February 2006 as a Presidential Scholar (top 10% of his class of 196 students) and received the Award for Clinical Excellence. He is working for his son, Travis, who opened a chiropractic practice in Waverly.



## Professional awards and recognition

**Virginia Berg [Biology]** received an \$800 award from the American Society of Plant Biologists for teaching booth presenters.

**Shoshanna Coon [Chemistry and Biochemistry]** was nominated for a Henry Dreyfus Teacher-Scholar Award. Five to ten of the awards are given nationally each year to chemistry faculty from primarily undergraduate institutions for excellence in teaching and research.

**Alan Czarnetzki [Earth Science]** received the Veridian Credit Union Community Engagement Award. Since 2002, he has been preparing and broadcasting weather forecasts weekday mornings for public radio station KUNI and in 2005 he began an extended program that airs Saturday mornings.

**Kavita Dhanwada [Biology]** was elected chair of the Iowa Academy of Science Environmental Science and Health section.

**Jean Gerrath [Biology]** was elected vice chair of the Botany section of the Iowa Academy of Science.

**Scott Giese [Industrial Technology]** was elected treasurer of the northeast Iowa chapter of the American Society for Metals; appointed educational chairman of the American Foundry Society (AFS) Hawkeye chapter; and elected vice chairman of the AFS 4-F Mold-Metal Interface Committee.

**Paul Gray [Computer Science]** received the CNS Dean's Award for Excellence in Teaching. He also received three Panther First Awards for Outstanding Attitude, Teamwork and Initiative. Gray was an adviser on the development of Little Fe, a portable computational cluster for educational use, which received an honorable mention from the Krell Institute's Undergraduate Computational Engineering and Sciences Award Program. He was named education chair of the Technical Committee on Parallel Processing of the Institute of Electrical and Electronics Engineers.

**John Groves [Earth Science]** is past president and director of the Cushman Foundation for Foraminiferal Research in Washington, D.C., and director of the Geological Society of Iowa.

**Tom Hockey [Earth Science]** is editor-in-chief of the *Biographical Encyclopedia of Astronomy*, scheduled for September 2006 publication by Kluwer.

**Doug Hotek [Industrial Technology]** was appointed conference chair of the Iowa Industrial Technology Education Association.

**Laura Jackson [Biology]** presented the 2005 Shivers Memorial Lecture at Iowa State University in October of 2005, in which she explored the idea of farms coexisting with natural habitat.

**James Jurgenson [Biology]** received the 2006 Regents Award for Faculty Excellence.

### New faculty

Eight new faculty members joined the College of Natural Sciences in the fall of 2006.

**Biology:** Mark C. Myers, assistant professor (Ph.D., University of Minnesota); Axel Schwekendiek, assistant professor (Ph.D., Philipps-University Marburg, Germany)

**Chemistry and Biochemistry:** William S. Harwood, professor and head (Ph.D., Purdue University)

**Industrial Technology:** Carl N. Blue, assistant professor (Ed.D., North Carolina State University); Liping Guo, assistant professor (Ph.D., Auburn University); Hong Nie, assistant professor (Ph.D., University of British Columbia)

**Mathematics:** Genevra Neumann, assistant professor (Ph.D., University of California, Berkeley)

**Physics:** Jeffrey T. Morgan, assistant professor (Ph.D., University of Maine)

**Ali Kashef [Industrial Technology]** was elected regional director of the National Association of Industrial Technology (NAIT). At NAIT's annual convention, he received the University President Service Award.

**Syed Kirmani [Mathematics]** won UNI's 2006 Donald N. McKay Faculty Research Award "for excellence in research and scholarship."

**Catherine Miller [Mathematics]** was elected vice president for higher education of the Iowa Council of Teachers of Mathematics board; received the Award for Distinguished College or University Teaching from the Iowa section of the Mathematical Association of America (MAA); and was nominated for the Haimo Award sponsored by MAA.

**Ronald O'Meara [Industrial Technology]** received the Outstanding Teaching Award for Nontenured Faculty from University Book & Supply. He was also nominated for the National Society of Collegiate Scholars Faculty of the Year Award 2006.

**Wendy Olson [Biology]** is program officer-elect of the Division of Evolutionary Developmental Biology of the Society for Integrative and Comparative Biology.

**John Ophus [Biology]** received the University of Idaho Alumni Award for Excellence.

**Aleksandar Poleksic [Computer Science]** became a member in April of Upsilon Pi Epsilon, the first and only international honor society in the computing and information disciplines.

**Michael Roth [Physics]** received the CNS Dean's Award for Excellence in Teaching Liberal Arts Courses.

**Paul Shand [Physics]** won the Class of 1943 Excellence in Teaching Award. He is also president-elect of the UNI chapter of Sigma Xi.

**Ira Simet [Chemistry and Biochemistry]** received the 2006 CNS Dean's Award for Teaching Excellence in Departmental Programs.

**Daryl Smith [Biology]** received the 2006 Ross A. Nielsen Professional Service Award. He was also appointed a registered agent of the Association for Integrated Roadside Managers.

**Aaron Spurr [Earth Science]** received the 2006 National Association of Geoscience Teachers – Central Section Outstanding Earth Science Teacher Award.

**Eugene Wallingford [Computer Science]** was named to the Iowa Department of Economic Development's Information Technology Council, which advises the Governor on economic development related to information technology.

**Jim Walters [Earth Science]** is president of the Geological Society of Iowa for 2006.

**Jeff Weld [Biology]** was one of two UNI faculty members appointed by the Provost's Office as Administrative Fellows for the 2006-07 academic year.

**Russell Wiley [Chemistry and Biochemistry]** received the 2006 Regents Award for Faculty Excellence.

# Biology prof helps test method to reduce erosion

In coming years, more than 16 million acres are scheduled to be released from the Federal Government's Conservation Reserve Program (CRP), which pays farmers to convert highly erodible cropland to vegetative cover, such as native grasses. When that happens, farmers are likely to return the land to cultivation so that profits from crops can replace payments from CRP.



Pasture cropping in Salina, Kansas— Ripening wheat with prairie grasses growing below it. The wheat is planted in the fall and is ready to be harvested in late June. The warm-season grasses will grow vigorously through mid- and late summer and could be hayed or grazed.

Biology professor Laura Jackson is participating in a project that is testing a novel approach to balancing the ecological gains of letting the land lie fallow and farmers'

need for land that produces income. Called pasture-wheat intercropping, the method has been adopted in Australia by about 1000 growers as a way of conserving resources while generating greater profits through grain production.

Pasture-wheat intercropping (PWI) is accomplished by drilling winter wheat directly into warm-season grasses shortly after haying or grazing. PWI takes advantage of the different growing seasons and rooting zones of wheat and warm-season grasses, according to Jackson. Although wheat depletes moisture near the soil surface, the deep-rooted perennial pasture



Laura Jackson (right) with Colin Seis and his son in a field of ripened oats in Australia. Seis is one of the innovative farmers in Australia who developed the intercropping system. The green grass under the oats is warm-season perennial pasture grasses.

plants have access to deeper reserves of water allowing for productive hay harvests later in the summer.

The project, which will compare three options for post-CRP land, is funded by a three-year, \$150,000 grant from the U.S. Department of Agriculture's North Central Region Sustainable Agriculture Research (SARE) Program. Jerry Glover of the Land Institute in Salina, Kansas, is the project coordinator, and Jackson is a major participant who will oversee plant diversity studies and project evaluation and interview processes.

The two research sites for the project have been in native vegetation in Kansas, primarily warm-season grasses, for more than 20 years. Three production treatments are being tested at each site, and each treatment will have three plots at each site. The three treatments are warm-season meadow for hay production, no-till annual rotation (soybeans-wheat-sorghum), and pasture-wheat intercropping.

"We expect the PWI system to be more profitable than the hay system but more environmentally sound than the no-till system," said Jackson. "We also expect the PWI system to require

fewer chemical inputs than the no-till system and perhaps become more profitable over the long term."

SARE programs emphasize farmer involvement, and this one is no exception. Several growers in north central Kansas expressed interest in the project. One independently developed a similar system and is interested in the findings of additional research. Another farmer may experiment on his land, depending on the outcome



Pasture cropping in New South Wales, Australia: A field of ripened oats waiting to be harvested. After the harvest, when the grass has grown a little, sheep will be brought in to graze. The crop of oats or wheat over the pasture might be repeated every three to five years.

of the research.

A third is a major participant in the project and took part in an earlier PWI study on his land.

Although the project is studying soil and yield characteristics, economic inputs and plant diversity to determine the effectiveness of the PWI method, this is only one part of the equation. "Just as important," Jackson noted, "is demonstrating the benefits of the method to farmers, and this will be done through field days for farmers and by working with state extension personnel."

# Title II grants fund CNS science education projects

Two College of Natural Sciences professors received two of four Title II grants awarded in Iowa this year.

Lawrence Escalada, associate professor of physics and science education, received funding for a two-year professional development program for high school physics teachers whose primary training is in a different science field. Jeffrey Weld, associate professor of biology and science education, is pairing participating secondary science teachers with faculty scientists at UNI.



PRISST participants conduct an experiment at Hudson Community High School on a ball rolling down an inclined rail. Experiments like this one, which serves as an introduction to constant acceleration motion, provide the context to introduce basic physics principles to students.

Escalada's project, Physics Resources and Instruction for Secondary Science Teachers (PRISST)—A Professional Development Program for Out-of-Field High School Physics Teachers, addresses the shortage of highly qualified physics teachers in Iowa by helping teachers complete course requirements for Iowa's grades 7-12 physics teaching endorsement.

"Many of these teachers are already teaching physics or physical sciences," Escalada explained. "They may have endorsements in other science disciplines and have taken some coursework in physics, but not enough for an endorsement."

Through two intensive four-week summer sessions and contacts during the two following academic years, 18 Iowa teachers will complete the 15 hours of coursework required for the endorsement. The focus is on physics content and pedagogy with the emphasis on interactive engagement methods, including Physics Resources and Instructional Strategies for Motivating Students (PRISMS) PLUS and Modeling Instruction. "The hands-on, activity-based instruction is based on the learning cycle, in which learners are introduced to physics concepts within the context of investigations that engage them in science inquiry and apply their understanding of these concepts to real-life applications," Escalada explained.

During each academic year following a summer session, the teachers will visit the UNI campus four times to support what they learned during the summer as they implement these instructional methods in their classrooms. They will also attend two in-state professional conferences, and their

students will compete in the Iowa Physics Olympics. "We will also be making site visits to the participating teachers' schools to meet with the teachers and their principals and AEA science consultants," said Escalada. "Our goal is to create a community of support for these teachers with the intended outcome of increasing student achievement in physics."

Research Avenues for Iowa Science Educators (RAISE), Weld's project, also addresses the issue of strengthening content knowledge among secondary science teachers but has an added twist: to expose these teachers firsthand to how science works. The project's goal is to enhance teachers' science knowledge, their understanding of the nature of science and how to teach scientific inquiry.

The research interests of the 13 participating Iowa secondary science teachers were matched with the research projects of UNI Natural Sciences faculty. During six weeks this past summer, each of the Iowa teachers worked full time on campus with a UNI faculty member, some on an aspect of a professor's ongoing research and others on a related project of their own. At the end of July, the teachers presented posters of their research at the summer research poster session in the College of Natural Sciences.

Before the teachers left campus, they drafted a plan for how they would change how they teach an activity to their students. UNI science educators will visit the teachers three times during the academic year and stay in contact electronically. The project has also encouraged high school science classes to visit UNI labs and UNI scientists to visit high school classrooms. "We are seeing a real connection between high school teachers and University faculty that we haven't seen before," Weld said.

The Title II funds, awarded competitively as part of the No Child Left Behind Act of 2001, are distributed to colleges and universities to provide professional development to K-12 teachers and enhance student achievement in mathematics and science. The grant programs are jointly administered by the Iowa Board of Regents and the Iowa Department of Education.



Julie Bullinga, a Marshalltown High School science teacher, prepares green tea extract for testing on human lymphocytes in the lab of Dr. Lisa Beltz. Bullinga was one of 13 Iowa science teachers who conducted research under the guidance of UNI science faculty in summer 2006 as part of the RAISE project.

# Update from the Centers

This past year has been a busy one for the five centers in the College of Natural Sciences: the Center for Energy and Environmental Education (CEEE), the Metal Casting Center (MCC), the Recycling and Reuse Technology Transfer Center (RR TTC), the Science center for Teaching, Outreach and Research on Meteorology (STORM) and the Tallgrass Prairie Center (TPC), formerly the Native Roadside Vegetation Center.

## CEEE

In addition to its annual involvement in the Iowa Electrathon, in which students in grades 9-12 build and race electric cars, the Iowa Junior Solar Sprint, a miniature solar car race for seventh and eighth grade students, and the Iowa Energy Poster Contest for elementary school students, the CEEE hosted a 10-part lecture series on sustainability. Topics ranged from global energy issues to electricity production from bio-fuels, to the proposed coal power plant in Waterloo, to building a wind turbine from scratch.



The first turn on the UNI track at this year's Electrathon, in which high school and college students design, build and race one-person electric cars.

In January, before the primary election, the CEEE also hosted

an energy forum where Iowa gubernatorial candidates discussed their proposals to promote ethanol and other renewable energy sources.

The Buy Fresh/Buy Local program, a comprehensive marketing and consumer outreach program that connects institutional food buyers and consumers with nearby farms and food processors, has generated over \$2 million in payments to farmers since its inception in 1998.

## MCC

A Center for Advanced Bio-based Binders (CABB) has been established in the Department of Industrial Technology's Metal Casting Center, thanks to a two-year federal grant of \$800,000, which was matched by more than \$200,000 in state and private industry funding.

Sand binders are usually used as molds for metal casting, but many sand binders produce harmful emissions, explained Gerard Thiel, interim director of the Metal Casting Center. The CABB will research and develop innovations in bio-based binders made from renewable agricultural feedstocks. "With bio-based binders, we can reduce the amount of pollution generated," he said.

The goal for the center for the next five years is to build a national center of excellence for bio-based foundry binders. The long-range plan is for the center to conduct basic and applied research to develop new bio-based polymers, serve as a testing resource for bio-based foundry materials for industry, develop training programs for industry, and serve as a national information repository for foundries.

The MCC was also awarded \$50,000 from the Steel Founders Society of America to assist the University of Iowa and Iowa State University in developing advanced steel casting design methods. The work will be completed in conjunction with Benet Labs and the U.S. Department of Defense.



Dr. Ron O'Meara, assistant professor of industrial technology, teaches students in the Polymer Research and Materials Innovation Service Lab the different ways polymers are manufactured.

## RRTTC

The Polymer Research and Materials Innovation Service Laboratory, funded by a grant from the Roy J. Carver Charitable Trust, is serving students, faculty and staff in the Department of Industrial Technology and the RRTTC.

The new facility has enabled the RRTTC's Materials Innovation and Testing Service to expand its testing, research and process assistance to small businesses in Iowa seeking to retool their manufacturing methods to include recycled or by-product content. Most consultation requests involve polymer-based materials, and student projects and research in the Department of Industrial Technology focus more and more on polymer composites and unique properties of polymer materials.

The RRTTC's grants program provides funds to established researchers in areas of solid waste, environmental health science, sustainable by-product re-utilization and industrial ecology. Recently funded projects include "Reactive Iron: Using Solid Waste to Provide a Simple Solution to a Complex Environmental Health Problem Caused by Recycled Animal Waste," "Remediation of Chromated Copper Arsenate Treated Wood" and "Nanotechnology: The Potential for Positive and Negative Impacts on the Environment."

## STORM

Air quality, a new direction for STORM, was the subject of a one-week course for 24 teachers from Iowa and other Midwestern states this past summer. STORM is also playing a strong supporting role in the air quality major, offered by the Department of Earth Science for the first time in the fall of 2006. (See article in this issue.)

The STORM component of a federal Title II grant (No Child Left Behind), called Impacting Achievement with Collaborations and Technology, involves weather forecasting as an authentic use of technology. Instead of inventing an exercise for students to use technology, teachers are receiving instruction from STORM on how to teach students to analyze online weather data and arrive at a forecast. The students can submit their forecasts online, which are then scored by STORM.

## TPC

The Native Roadside Vegetation Center officially became the Tallgrass Prairie Center in January. "The new name more appropriately reflects our mission of developing research, techniques, education and source-identified seed for restoration and preservation of native prairie systems," said Daryl Smith, director of the center. Along with the new name comes a new Web site ([tallgrassprairiecenter.org](http://tallgrassprairiecenter.org)) that explains the mission and the programs of the TPC.

The name change was only one of several exciting developments this past year. One time-consuming project, funded by the USDA, has been developing a



The Tallgrass Prairie Center's new greenhouse is used for Iowa ecotype species.

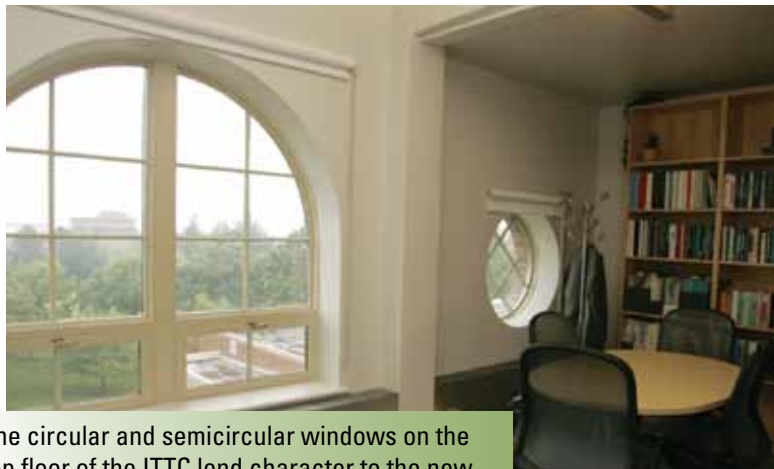
prairie restoration manual for the upper Midwest and an accompanying video. USDA funds, supplemented by Iowa Department of Transportation funds, supported the construction of a greenhouse for Iowa ecotype species and the production of another video, this one on how to do prescribed burns. Additional USDA funding through the Natural Resources Conservation Service is providing an opportunity this year to mount an extra effort in incorporating sedges into the Ecotype Project.

Other projects include development of a manual on native plant production and curriculum activities to accompany *America's Lost Landscape: The Tallgrass Prairie*, the award-winning documentary produced by Smith and David O'Shields of New Light Media, which is scheduled to be aired on Iowa Public Broadcasting in the next 12 months.

# Change of address for Computer Science

Now ensconced in its new space on the top floor of the Innovative Teaching and Technology Center (ITTC, formerly the East Gym), the Department of Computer Science is sitting pretty—literally. “This is a beautiful space,” said Eugene Wallingford, head of the department. With the refurbishing of the original circular and semicircular windows and pressed tin ceilings, Computer Science’s new digs have character in abundance.

Just as important as the historic architecture, the venue now boasts state-of-the-art technology and more space than the department had in Wright Hall, its former location. Between Wright, where Computer Science retains some space, and the ITTC, the department has ample room for laboratories for faculty and students. Two of the laboratories, one for networking and one for digital technology, are Faraday cages, metallic enclosures that prevent the entry or escape of an electromagnetic field. Electromagnetic fields can be created in either lab, without affecting others, which enables experiments with wireless technologies.



The circular and semicircular windows on the top floor of the ITTC lend character to the new home of the Department of Computer Science.

In addition to the department office,

faculty offices and the two labs, Computer Science’s third-floor space contains two classrooms. The department also has a third classroom, on the main floor of the building.

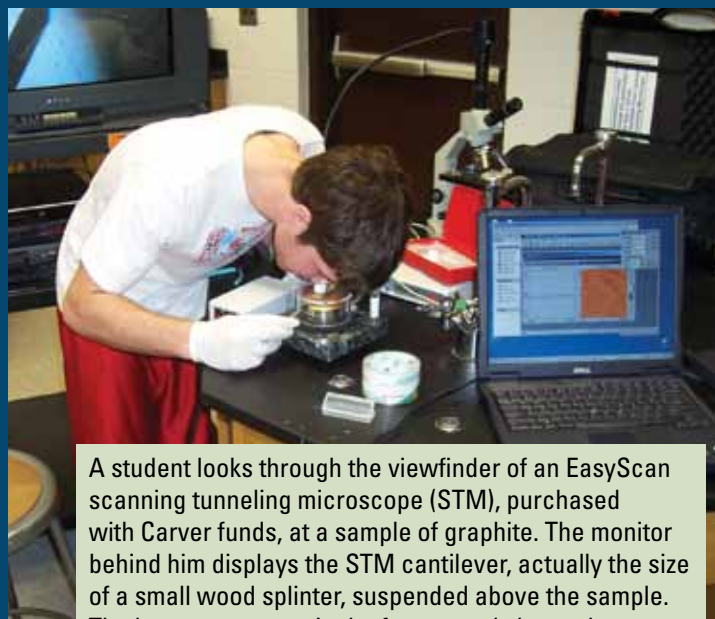
“Not only is our new space attractive,” Wallingford noted, “we have great views of the campus to the west and south.” He encourages alumni and friends to drop by and see the new facilities.

## Carver grants strengthen CNS programs

Grants from the Roy J. Carver Charitable Trust are helping to outfit a studio teaching laboratory within the planned Center for Education in Nanoscience and Nanotechnology (CENN) and to purchase equipment for the new professional science master’s (PSM) degree in ecosystem management. “These grants will enable us to provide learning settings and equipment that will complement and strengthen the programs,” said Joel Haack, CNS dean.

The studio teaching lab in the CENN, which received a \$200,000 Carver grant, will be used for classes in general physics, nanoscience and science education. With its peninsular tables and open area for activities and demonstrations, the studio teaching lab will encourage team work and discussion. The CENN, to be funded by a \$1 million directed grant from the U.S. Department of Defense, will be located in Lang Hall and is expected to be operational by summer 2007.

Start-up funds of almost \$130,000 from the Carver Trust have been granted for the PSM degree in ecosystem management. The grant is supporting the purchase of equipment such as geographic information systems, global positioning systems, radiotelemetry and fire and vegetation management systems. A PSM in ecosystem management prepares students for careers as managers in business, industry and public agencies.



A student looks through the viewfinder of an EasyScan scanning tunneling microscope (STM), purchased with Carver funds, at a sample of graphite. The monitor behind him displays the STM cantilever, actually the size of a small wood splinter, suspended above the sample. The laptop computer in the foreground shows the surface of the graphite as visualized by the STM.

# Partnership for Goods starts at UNI

Little did Bob Good and Brenda Nelson know, when they first met in the UNI plant physiology course taught by Dr. Daryl Smith, that the encounter would turn into a life-long relationship. That was 1972, when Bob was a biology major/chemistry minor from Keystone and Brenda was a mathematics major/biology minor from Mason City. The couple was married in 1974, when Bob started medical school at Des Moines University and Brenda began teaching in Des Moines.

Brenda became manager of research at Blue Cross/Blue Shield of Iowa before she and Bob moved to Florida for his internship. They returned to Iowa, as Bob began his work with the U.S. Public Health Service in Osceola for five years and private family practice in Monticello for ten years. During this time Brenda completed another B.A. degree, this one in accounting and business administration at Coe College. In 1993, they moved back to Florida so that Bob could complete a residency in internal medicine at Nova Southeastern University/Sun Coast Hospital while Brenda served as an accountant for a legal firm. In 1996 they relocated to Charleston, Illinois, where they presently reside.

Brenda is the Director of Administration and Finance for the Radio and Television Center at Eastern Illinois University. Bob is the Medical Director at Carle Foundation Physician Services and is an internal medicine physician at Carle Clinic Association, a 300-physician specialty group in Urbana, Illinois. He is past-president of the Illinois Osteopathic Medical Society and a member of the National Council of Nurses at Valparaiso University. He was the Graduate of Distinction for his class at Des Moines University College of Osteopathic Medicine and was named Physician of the Year in Iowa in 1989 and Illinois in 2001.

Bob completed an undergraduate thesis as part of an honors program at UNI. "The opportunity to be involved in research at the undergraduate level was unique in 1972," he said. "The Biology Department afforded me research space, and funding was achieved through the honors program." Meanwhile, Brenda was able to complete independent study research hours within the Math Department on the statistical analysis and computer programming necessary to analyze Bob's research data.

"This allowed us to work as a team to complete the work in publishable form," Bob continued. "We fully support UNI's efforts to encourage scientific research at the undergraduate level. This prepares students for the study of science and medicine at the graduate level, where students need to be able to analyze a problem and develop a solution."

Two of the Goods' three children are involved in the health care field—as a nurse practitioner and epidemiologist—and one is a commercial interior designer.

The Goods both comment that the education they received at Northern Iowa has prepared them well for their professions. "I was initially concerned in medical school that I might not be able to compete with students with advanced degrees from prestigious institutions, but I found that the scientific education I received at UNI prepared me well for rigorous studies," Bob noted.



Brenda and Robert Good

Brenda is very much the UNI advocate, stating, "Although I started out as a mathematics teacher, the UNI educational experience and the reputation of the institution allowed me to utilize my math skills and analysis in a business setting. UNI's College of Natural Sciences has certainly impacted our lives as a family and in our professions, and we hope to be able to help the future generations through our efforts on the CNS Advisory Board."

# Faculty and Student Research Highlights

## Faculty research

**Lisa Beltz**, associate professor of biology, is studying the effects of various green tea polyphenols on normal



Associate professor of biology Lisa Beltz is researching the effects of green tea polyphenols, from plants such as these, on T lymphocyte and macrophage functions.

and leukemic T lymphocyte and macrophage functions. Her earlier work focused on the ability of individual polyphenols to affect normal and leukemic T cell growth and production of three different cytokines. Currently, she is investigating whether two of the polyphenols, epicatechin and epigallocatechin gallate, act synergistically in this regard.

**Duane Bartak**, professor of chemistry, is researching the synthesis and encapsulation of metal oxide nanoparticles. He has carried out experiments to synthesize gram-quantities of nanoparticles. A key element in the work was to develop synthetic strategies that yield gram-quantities of fine powder materials. The powder material or nanoparticle formulations were consolidated into electrodes by dispersions into conducting materials for electrochemical applications.

**Aleksandar Poleksic**, assistant professor of computer science, is participating in CASP7 (Critical Assessment of Techniques for Protein Structure Prediction), a community-wide, biannual experiment for protein structure prediction. CASP provides research groups with an opportunity to assess the quality of their methods for protein structure determination from the primary sequence.

**Ken De Nault**, associate professor of geology, studied the New Madrid seismic zone, the site of at least five great earthquakes (magnitude greater than 8.0) and hundreds of smaller ones during the winter of 1811-12. The research was for the new course Field Studies in the New Madrid Fault Zone, offered in fall 2006. The course included a four-day

field trip to the fault zone, which takes its name from New Madrid, Missouri, and stretches from just west of Memphis, Tennessee, into southern Illinois.

**Julie Zhang**, assistant professor of industrial technology, is developing, with the support of a grant from the Grow Iowa Values Fund, a cost-competitive data acquisition system for monitoring the machining process during the manufacture of metal parts. Her plan is to develop a device to monitor performance of cutting conditions in order to reduce unnecessary tool replacement.

**Jihwa Noh**, assistant professor of mathematics, has been collaborating with colleagues at other institutions to conduct an international comparison study of American and Korean secondary school mathematics teachers' and students' understanding of the concept of the derivative as well as their algebraic skills to solve traditional derivative problems. Noh is also working with two UNI art and music faculty members to study mathematical connections in art and music.

**John Deisz**, associate professor of physics, is using the parallel-processing capabilities of UNI's advanced computer labs to model p-wave superconductivity. Superconducting materials are used in applications such as medical imaging and power transmission, but their application is limited because they must be kept very cold. An aim of Deisz's research is to determine the conditions that might allow superconducting materials to operate effectively at higher temperatures.

Bell South Telephone retrofitted this switching station in New Madrid by adding the outside steel framework to withstand a major seismic event.





## Student research projects

- A UNI team of computer science students **Jeff Chapin, Andrew Howard, Josh Hoppes** and **Dale Neufeld** earned second place at Iowa State University's annual Cyber Defense Competition in March. Paul Gray, associate professor of computer science, coached the team.
- At the Midwest Instructional Computing Symposium at Iowa Wesleyan College in April, the UNI team of **Dan Samp, Jessica Puls** and **Tara Sundt** finished in third place out of 34 teams, successfully solving five problems in three hours. Mark Fienup, associate professor of computer science, directed the contest.
- Nine undergraduate chemistry and biochemistry majors—**Kathryn Roche, Haley Wheeler, Sarah Griffin, Robert Schwenker, Mitchell Parr, Robert Cunningham, Davenne Mavour, Neysa Allworth** and **Lynne Dieckman**—presented the results of their research with UNI faculty at the American Chemical Society national meeting in Atlanta, Georgia, in March.
- The two papers that won the "best poster" award at the 13th annual Sigma Xi Student Research Conference at UNI in April were "The Calming Effects of Oil on Surface Waves: Measurement of the Wave Energy Dissipation by Laser Interferometry," by physics/chemistry major **William Griffin** and physics major **Kimberly Cordray**, and "Inhibition of Liver Cell Growth by the Pesticide, Atrazine," by biology/chemistry major **Erin Powell**.
- **Julia Moeller**, a science education major, won third place in the Outstanding Master's Thesis category of the UNI Graduate College's awards for her thesis "Investigating the Effectiveness of Professional Development in High School Physics Teachers."
- Five CNS honors students who graduated last spring presented their thesis research projects during the end of the semester: **William Griffin**, physics/chemistry; **John Van Hemert**, MIS/computer science; **Elizabeth Nanke**, psychology/math: statistics & actuarial science; **Erin Powell**, biology/chemistry; and **Kaitlin Stimpson**, biology/chemistry, also a Presidential Scholar.
- Physics major **Cary Pint** was a finalist for the 2006 Vanderbilt University Prize for Undergraduate Research in Physics and Astronomy. He was also one of three winners of the Society of Physics Students (SPS) Outstanding Student Award for Undergraduate Research. The winners represented SPS at the International Conference for Physics Students in Bucharest, Romania, in August. At the conference, Pint was elected editor of an international student research journal in physics. Now a graduate student at Rice University, he is studying experimental nanophysics.
- UNI's eBoat ranked ninth in the 2006 Solar Splash, an international intercollegiate solar/electric-boating competition, held in June in Fayetteville, Arkansas. Team members were **Doug Bechthold, Michael Boomer, Ryan Canfield** and **Benjamin Wagner**. Recayi Pecen, associate professor of industrial technology, accompanied and advised the team, which also won a trophy for the most commercially viable hull design.



Team leader Mike Boomer waits for the final call to begin the race after completing safety inspections at the Solar Splash. The black box is a solar panel/battery charge controller to monitor voltage, current and temperature in the deep cycle battery bank.

# Ensuring a bright future for UNI

*As with flowing water,  
the lives of young people  
are directed by forces,  
both apparent  
and hidden,  
that they encounter.*

—Unknown

**UNI's** recently concluded Students First campaign provided more than \$112 million for scholarships, programs and facilities. In meetings with department heads and Dean Joel Haack in my new duties as director of development for the College of Natural Sciences, I realized that "students first" is more than a mere campaign slogan at UNI. It's a deeply embedded culture.

I am struck by how many times I hear the words "for the students" in my conversations with faculty. You can be proud that UNI is dedicated to helping students excel. Our students are your future colleagues and peers in the work world. As one professor noted, UNI is in the "sweet spot" for size, combining the benefits of a large, world-class university with the personal attention of a smaller school.

As donors and alumni who help our students with scholarships, provide funding for educational programs, help build buildings and hire our graduates, you are a force in helping direct the lives of young people in ways you may never fully know. There are nearly 13,000 Panthers prowling our campus this fall, hopefully, all future alumni who are part of our world's future!

Under the leadership of Ben Allen, our new university president, UNI is poised on the edge of an exciting new era! Part of our next campaign will be an emphasis upon scholarships, program support and planned giving. How can you be a part of UNI's bright future?

- **Create or support an endowed scholarship.** State support for UNI has declined from 77% to 49%. That has resulted in a 60% tuition hike since 2000, shifting much of the cost of a UNI education onto

the shoulders of students. Today, the average UNI student owes \$22,000 upon graduation. Endowed scholarships create a permanent fund that provides vital financial support for our students and help give UNI an advantage when recruiting students to our campus.

- **Give to the CNS Dean's Fund for Excellence.** The Dean's Fund helps support faculty and students in different ways each year. The fund is flexible and allows the College to direct dollars quickly to areas where resources might otherwise be limited.
- **Become a member of the Campanile Society.** With an annual fund gift of \$1,000 or more, you will become a member of the Campanile Society and will join others who are committed to the long-term growth and mission of UNI. The annual fund is critical in providing funds to the University that can be used immediately, as they are needed most.
- **Become a part of UNI's Old Central Associates by creating a legacy for the future with a planned gift.** UNI is important to you and played an important role in launching you into life and a career. By including UNI in your estate planning, or making a planned gift today, you can help students and programs in a way you never thought possible.



Cassie Benning Luze

I am pleased to be at UNI and look forward to meeting our CNS alumni! Please contact me at 800-782-9522 or 319-273-6078 or [cassie.luze@uni.edu](mailto:cassie.luze@uni.edu).

# Alumni News

## 1930s

**Emmett Polder**, BA '37, a retired Loras College professor, is the author of three books: *North Fork Nostalgia* about Iowa frontier history, *Farm Boy Memories* about the ecological significance of various physical features of the Cedar Falls-area environment, and *Mammals of Iowa*, an illustrated description of 75 mammals.

**Dr. Walter E. Ditzler**, BS '38, and his wife are retired and living in Corona de Tucson, AZ.

## 1940s

**Herschel H. Slater**, BA '41, a retired lieutenant colonel in the U.S. Air Force, is a meteorologist and newspaper columnist for the *Chapel Hill (NC) News* and lives in a retirement community.

**Clarence E. Westphal**, BA '47, retired after 33 years in mortgage banking, which followed 10 years of teaching and secondary school administration. He enjoys staying in touch with former students and last summer attended the 55th reunion of a high school class at West Liberty, where he was principal from 1949-52. He retired in '87 and has lived in Omaha for the past 46 years.

## 1950s

**Arlene Ritchey**, BA '50, moved from Fountain, CO, where her husband, Dick, was chief of police for 10 years, to Cottonwood, AZ, in '02. In the past few years they have traveled extensively by RV to Canada, Alaska, Mexico, Guatemala and in the U.S. They have taken cruises to the Panama Canal, Hawaii, Antarctica and the Chilean fjords.

**Bill D. Page**, BA '51, PhD, received the Muskegon (MI) Community Solidarity, Dr. Martin Luther King, Jr., "Drum Major Award" for '06. The award was given to the retired superintendent of schools for his leadership in the community and commitment to ideals that advance mutual respect and promote justice, peace, racial equality, service and economic opportunity.

**Dave Koos**, BA '59, was inducted into the Iowa Association of Track Coaches and Iowa Association of Track Officials Hall of Fame in December of '05. He taught and coached in various Iowa high schools, as well as Simpson College, from 1959-72, began his officiating career in '69, working high school and college track, football, basketball and baseball. He has been a Drake Relays official and a State Track Meet official since '72 and was inducted into the Drake Relays Wall of Honor in '04. He has served as chief umpire at the state meets since '99. Koos and his wife of 44 years, Kay, spend spring and summer in Harlan and fall and winter in Chandler, AZ. They have two sons, Tom and Todd, and four grandchildren.

## 1960s

**Gordon W. Franck**, BA '61, retired from John Deere Product Engineering Center (PEC) after 30 years of work in drafting and engineering. His

last position was as a designer in current tractor engineering. Before joining the PEC, he taught industrial arts drawing and woodworking in the public schools for two years. He enjoys trout fishing at Gunnison, CO.

**Linda L. (Andrews) Thompson**, BA '61, co-owner of Puzzled Parents Press in San Luis Obispo, CA, recently co-authored and published *Math for Puzzled Parents*, a book designed to help parents review math skills they need to help their kids do math homework.

**Larry Nelson**, BA '63, retired from teaching after 35 years. His last position was as a biology professor at Waldorf College. He is now a bookseller on Amazon.com.

**John Koser**, BA '64, is an adjunct faculty member in physics, teacher education at the University of St. Thomas in St. Paul, MN, where he teaches general physics and astronomy and supervises student teachers.

**Dennis C. Vrba**, BA '66, MA '70, retired in December 2003 after 33 years in education, the last 15 as natural science division chair at NIACC in Mason City. He enjoys many community, church and family activities, as well as travel with his wife Jeanne. They have three grandsons. He is also active in expanding a growing Internet business in the Midwest.

## 1970s

**Lewis Naylor**, MA '70, retired from Black & Veatch in July '06 and moved from Baltimore, MD, to Goshen, IN, where he was born. He spends his time remodeling a 100-year-old house, doing environmental consulting and traveling with his wife Ann.

**Jan (Schnor) Dubbeld** (BA '71, MA '73), science department chair and classroom teacher at Huntington (IN) North High School, has presented twice at the Hoosier Association of Science Teachers, Inc. state convention on a student-driven cross-curricular energy project. Now in her 13th year of teaching, she says that Dr. Wayne Anderson is still an inspiration to her after 35 years.

## 1980s

**Jill DeAnn (Beyer) Niehaus**, BA '86, MA '92, teaches statistics (college credit) and geometry at Southeast Polk High School. She recently upgraded her teaching certificate to the master educator level. This is her 20th year of teaching high school or college mathematics.

## 1990s

**Dan Glascock**, BA '90, BA '96, is a family practice physician at Cedarloo Family Practice in Cedar Falls, and **Stacy (Miller) Glascock**, BA '91, BA '96, is a physician assistant. Their second daughter, Abby Kate, was born 9/05.

**Chad Schweitzer**, BA '90, worked on the development and manufacturing scale up of Allegra-D 24 hour for Sanofi Aventis July '05-December '05 as the lead manufacturing leader.

In December '05 he joined PRA International as a manager of clinical data management. He manages pharmaceutical research data from phase I through phase IV of the FDA approval process for multiple pharmaceutical companies.

**Raj Desai**, DIT '91, was the founding faculty member of the industrial technology program at the University of Texas of the Permian Basin and was selected to be the coordinator of the program in '04.

**Brian Lammers**, BA '91, who is serving his 15th year in county conservation in Iowa, was promoted to executive director of the Hamilton County Conservation Board in October '05. He was previously parks operations officer for Hamilton County.

**Michelle (Kuhn) Robinson**, BA '93, is a medical technologist at Avera McKennan Hospital in Sioux Falls, SD.

**Allison (Hanneman) Staudt**, BA '93, is a sales representative for Homecare Medical Supply in Charles City. She and her husband Dan have three children, Adam, 8, Megan, 5, and Olivia, 3.

**Cindi Miller**, BA '94, a software development manager with Fair Isaac Corporation, recently was transferred from Minneapolis, MN, to Emeryville, CA, in the San Francisco Bay area.

**Darren Bechthold**, BS '95, is a millwright, welder and pipefitter for Cedar River Paper in Cedar Rapids. He and his wife Angela have three children, Nicole, Jacob and Joshua. They live on a farm southeast of La Porte City and raise purebred Black Angus cattle and grain farm.

**Dawn (Dierks) Luna**, BA '95, was promoted to executive sales consultant—pharmaceutical representative at Novartis. She has been with Novartis for four years and in pharmaceuticals for 11 years. She and her husband Dan have two daughters, Elizabeth, born 1/02, and Abbygail, born 9/05. They own A+ Self-Storage, Inc. in Davenport.

**Thomas Trego**, BA '95, has been a product manager with Bandag, Inc., in Muscatine for 10 years.

**Melissa (Nemmers) Billings**, BA '96, is a doctor of optometry with Vision Park Family Eyecare in Urbandale, where she was named a partner in January '05. She was named "Young OD of the Year" for 2004-05 for the state of Iowa. She married **David Billings**, BA '96, in '96. Their daughter, Ashtyn, was born in July '04.

**David S. Freiberg**, BA '96, is the manager of Craters of the Moon National Monument for the U.S. Department of the Interior, Bureau of Land Management. He earned an MS in environmental studies from the University of Montana, Missoula, and completed seminary. He is married to Rebecca Petroch of Gooding, ID, and has a golden retriever and three horses.

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**Greg Hawthorne**, BA '96, a dentist, has been a partner at Staniforth Calhoun Hawthorne Dental Office in Ames for four years. His wife **Amy (Bryant) Hawthorne**, BA '95, is a physician assistant with McFarland Clinic P.C., Department of Adult Medicine, in Ames. They have two children, Drew, born 10/01, and Ava, born 11/03.

**Shawn Gehlsen**, BA '97, graduated from Northwestern College of Chiropractic in April '04. He now owns and operates a private chiropractic practice in Nixa, MO.

**Craig McClure**, BS/BA '97, received a PhD in chemistry from the University of Michigan in '04 and is an assistant professor of chemistry at the University of Alabama at Birmingham. He lives in Hoover, AL, with his wife Leslie, assistant professor of biostatistics at UAB, and their daughter, Lillian, 3.

**Sheila Wemark**, BA '97, opened two chiropractic offices, in Lime Springs and Elma, IA, in October of '02 after graduating from Palmer College of Chiropractic in March of that year. She and her husband Aaron have two boys, Keagan, born 5/03, and Zane, born 11/04.

**Travis J. Broell**, BS '98, is a design technician with Hall and Hall Engineers in Hiawatha. He has two children, Grace McKenna, born 7/03, and Tavian Jacob, born 8/05.

**Brian Hynek**, BA '98, a research associate at the Laboratory for Atmospheric and Space Physics at the University of Colorado, Boulder, gave two presentations at UNI in March on the latest research results from Mars. His research involves the geologic, geochemical, hydrologic and climatic evolution of Mars, and he is working with three of the current NASA missions on the Red Planet. Hynek received a PhD in Earth and planetary science from Washington University in '03.

## 2000s

**Ryan M. Flaherty**, BS '00, recently accepted a position as principal scientist with StellarNet Spectrometers in Tampa, FL.

**Tanya Sperry**, BA '00, is the math coordinator at Littleton (CO) Academy, a K-8 core knowledge charter school, where she teaches sixth through eighth grade math. She has two daughters, Sasha, 3, and Natalia, 6.

**Eric Dybvig**, BA '01, is an assistant athletic trainer and professor at Cornell College in Mount Vernon. He married **Kelly Werkman**, BA '02, and their son, Jackson, was born in '05.

**Tim Pottebaum**, BS '01, is an R & D chemist with Diamond Vogel Paints in Orange City.

**Wade Williams**, MS '01, teaches physics, chemistry and earth science at Camanche High School in Camanche.

**Carrie Karvonen-Gutierrez**, BA '02, is a research analyst/epidemiologist in the School of Public Health at the University of Michigan, Ann Arbor. She graduated from the University of Michigan in '05 with a master's in public health in epidemiology/reproductive and women's health. She married Jaime Gutierrez in August '05.

**Eric Murphy**, BA '02, is a software engineer with Lockheed Martin in Omaha, NE. He has a Six Sigma Green Belt, which means that he has received two weeks of training in Six Sigma, an integrated approach for improving business performance.

**Nicolette (Riherd) Rumney**, BA '02, is a pre-algebra teacher at Discovery Middle School in Madison, AL. She gave birth to a daughter, Rebecca Ann, 7/05.

**Brad Bechthold**, BA '03, a supplier quality engineer at John Deere Power Systems in

Waterloo, received a German Language Studies Certificate from UNI in December '05.

**Jennifer Duffy**, BS '03, is a programmer analyst with Rockwell Collins in Cedar Rapids.

**Hannah Haarhues-Casey**, BA '03, is a high school science teacher and head cross country coach in the Riverside Community School District in Oakland, IA. She married Adam Casey of Brisbane, Australia, in December of '04 and traveled to Australia the preceding summer.

**Vanessa Hileman**, BA '03, is a lab technician for quality control at Wells Blue Bunny in Le Mars.

**Stacy (Felderman) Hirsch**, BA '03, is a graphic designer at Weitz Sign in Dubuque. She was married Sept. 17, '05, to Jim Hirsch in Dubuque. UNI alumni in the wedding were **Matt Kennedy**, BA '03, **Jamie Morrow**, BA '04, **Melissa George**, BA '04, and **Scott Clausen**, BA '98.

**Adam L. Hoefler**, BA '03, is an architectural drafter with the Pella Corporation in Pella.

**Matthew A. Boucher**, BA '04, was awarded a master's degree in tuba performance from Indiana University in '06.

**Heather M. Krueger**, B.S. '05, is a first-year graduate student at the University of Michigan working toward a PhD in cellular and molecular biology.

## Marriages

**Steven Hauser**, BA '84, married Jeanne Hindman Dec. 31, '05. They live in Marion.

**Amy (Hanner) Wyant**, BA '04, married Tyler Wyant on July 16, '05. They live in Cedar Rapids.

## Births

**Brian Hiles**, BA '98, a systems analyst with State Farm Insurance, has a son, William Harold, born 2/05.

**Stephanie (Michur) Fowler**, BA '99, a physical therapist assistant with Genesis Medical Center in Davenport, gave birth to her first child, Gavin Christopher, 11/05.

**Kristen (Barnett) Clark**, BA '03, Clarksville, gave birth to her first child, Howard Lyle.

## Deaths

**Marion T. Carr**, BA '50, Mankato, MN, died Dec. 10, '03. He earned an M.S. in guidance and counseling in '62 and a specialist degree in administration in '71, both from Mankato State University. He taught in schools in Kamrar and Strawberry Point, IA, and in Mankato, MN. He was very active in the Boy Scouts and traveled extensively. In '75, he was one of 11 teachers chosen as the first contingent of educators to travel to China after President Nixon made his breakthrough visit.



## CNS Advisory Board

The College of Natural Sciences Advisory Board provides advice, guidance, support and advocacy for the College's undergraduate and graduate programs: The Board members help to align the College's curricular offerings with changing educational needs; help to identify outside funding sources for the College and internship and other professional opportunities for students; and serve as advocates for the College by promoting positive relations with the external community.

James Arns  
Principal Optical Systems  
Engineer  
Kaiser Optical Systems, Inc.

Conrad Baumler  
Chief Financial Officer  
Shive Hattery Engineers and  
Architects

Dr. David Faber  
President  
Trans Ova Genetics

Brenda Good  
Director of Administration and  
Finance  
Radio and Television Program  
Center  
Eastern Illinois University

Dr. Robert G. Good  
Medical Director of Physician  
Services  
Carle Clinic Association

Rich James  
Vice President of Investments  
A.G. Edwards

Mark Kittrell  
Technology Consultant

John Krueger  
Vice President  
West Coast Air

Mike Lang  
President  
Alliance Technologies

Patricia Larson  
Associate General Counsel  
Office of the General Counsel  
American Bar Association

Phil Mulvey  
Factory Manager  
John Deere Engine Works

Dr. John Schlicher  
Wichita Clinic

Dr. Kevin Smith  
Associate Dean for Clinical  
Affairs  
College of Podiatric Medicine  
and Surgery  
Des Moines University

Larry Smith  
Geophysical Consultant

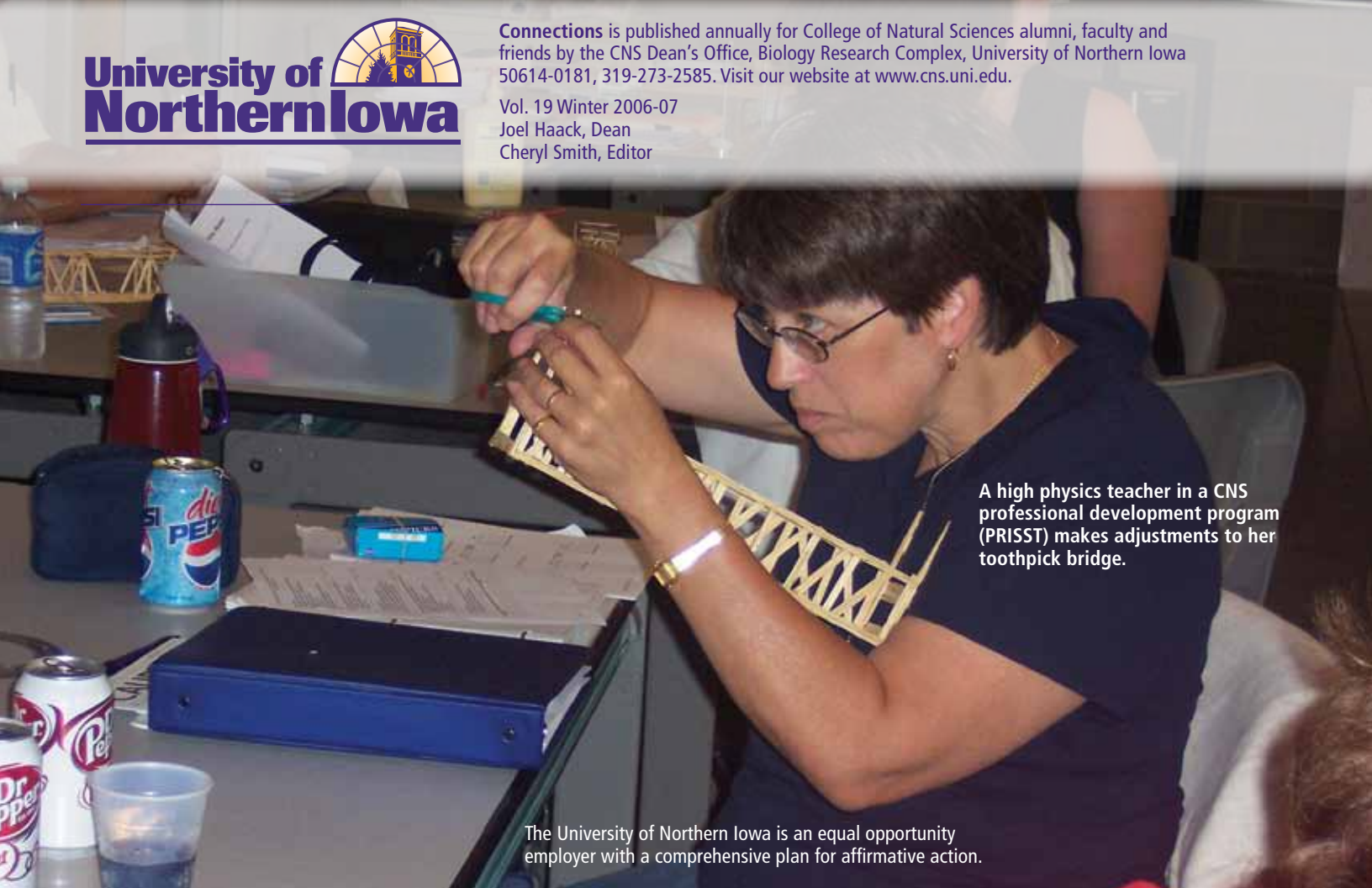
Randy J. Wadle  
Vice President of Information  
Technology  
Royal Caribbean International &  
Celebrity Cruises

Michael Williams  
Teacher  
Keota High School



### **New CNS Advisory Board member**

The newest member of the CNS Advisory Board is Kevin Smith, associate dean for clinical affairs at Des Moines University (DMU), where he practices podiatric medicine. A UNI graduate in biology and a DMU graduate, he is a Diplomate of the American Board of Podiatric Surgery and is certified in foot surgery and reconstructive rearfoot/ankle surgery.



A high physics teacher in a CNS professional development program (PRISST) makes adjustments to her toothpick bridge.

The University of Northern Iowa is an equal opportunity employer with a comprehensive plan for affirmative action.