Ur latest CCEEnews issue offers yet another compelling demonstration of the many pride points and positive attention that departmental students, faculty, and alumni have earned in recent months.

These highlighted topics featured in this Summer-2009 edition include 2000-plus student service hours spent with rebuilding flood-ravaged Iowan communities, special scholarships and awards in recognition of outstanding academic accomplishments, and several cutting-edge research initiatives (on biorenewable asphalt, fungal bioresiduals conversion, advanced earthworks engineering, and next-generation wind tower design) literally intended to tackle technical challenges for decades to come.

Our department is also quite proud to have had two of our own selected for special recognition at the recent Winter 2008 and Spring 2009 university commencement programs. Graduating environmental engineering senior, Jennifer Ruddy, was chosen as the College of Engineering’s Student Marshall for her entire class (see pg. 15), after having earned a nearly perfect grade point average.

Even more recently, though, our long-standing departmental friend, patron, and all-around research mentor in the realm of geotechnical and earthworks engineering, Dwayne McAninch, received an honorary doctoral degree this past May 9th…which by his account qualifies him to claim the title of “Dr. Dirt!”

On behalf of our entire CCEE team, therefore, a tip of the hat is duly warranted for the hard work and academic enthusiasm which generated such notable outcomes!

James E. Alleman
Department Chair, Professor

CCEEnews gratefully accepts articles, story ideas, photos, “What’s New with You” contributions, comments, inquiries, and address changes at this address:
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Between issues of CCEEnews, visit us online at www.ccee.iastate.edu for current and recent news and events from Iowa State University’s Department of Civil, Construction, and Environmental Engineering.

Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, gender, marital status, disability, or veteran status. Anyone with inquiries concerning this may contact ISU’s Director of Affirmative Action, 318 Beardshear Hall, (515) 294-7612.

On the Cover
AGC Students Go Above and Beyond

Event News
Equipment Focus
Department News
Alumni News
‘News From You’ Form
In the Department
Graduate Program News
Student Awards

Watch “Two Minutes with” Cory McDermott, CCEE graduate student and one of the founders of a student organization called CyBuild or Cyclones Rebuilding Iowa. The organization evolved from the experience McDermott and Tim Corcoran, ConE senior, had when they organized a group of volunteers to assist in cleanup efforts following a tornado in Parkersburg in May of 2008. Follow our link on our homepage http://www.ccee.iastate.edu.

Download our annual report on our homepage http://www.ccee.iastate.edu/report.

CCEE Courtesy
Associate Professor Jacek Koziel was interviewed for a Scientific American article about pig odor. Go to http://www.scientificamerican.com/article.cfm?id=why-study-pig-odor to read more.
First ISU Wind Energy Symposium

Iowa State University launched what it hopes will be a long-term initiative in alternative energy technologies by hosting the First ISU Wind Energy Symposium on December 9, 2008.

More than 220 participants registered for the event, including Iowa State faculty, students, and staff, attendees for the daylong program included representatives of state agencies, farmers’ groups interested in leveraging public and private investment in wind farm expansion in Iowa, and venture capitalists exploring opportunities in the burgeoning wind energy industry.

The morning session was chaired by symposium organizer Dr. Balaji Narasimhan, associate dean of the Iowa State University College of Engineering. After introductory remarks by Iowa State President Gregory Geoffroy, presentations were given by representatives from the State of Iowa’s Office of Energy Independence and Department of Economic Development, the U.S. Department of Energy, the American Wind Energy Association, Sandia National Laboratory, Siemens Wind Power, and MidAmerican Energy.

“Wind energy has certainly been on our radar for quite a long time, and we’ve had a good history of faculty working in this area,” said Narasimhan. “The wind tunnel in Howe Hall is a pretty unique facility. We have faculty doing research in climate modeling, faculty in the business school working on supply chain—this represented a wonderful opportunity to really bring all of these people together, because they’re all working on the same problem.”

According to the Global Wind Energy Council, the use of wind technologies to produce electricity has grown more than fivefold since the beginning of this decade, with annual worldwide production approaching 100 gigawatts of power by 2008. The United States leads the world in total power generated from wind, and Iowa is currently the third-largest producer of wind energy in the United States, behind Texas and California.

Because of their large size, wind turbines, towers, and blades must be manufactured close to their point of use, so Iowa is particularly well suited to take advantage of the anticipated boom in wind turbine construction in the years to come. The role of Iowa’s research universities will therefore be critical in developing and sustaining the state’s role as a national leader in wind technologies. CCEE Associate Professor Sri Srintharan is currently working on addressing these issues with the use of ultra-high performance concrete. (Read more about Dr. Srintharan’s work in our annual report at http://www.ccee.iastate.edu.)

Chairing Ron Cox of ISU’s Center for Industrial Research and Service, the symposium’s afternoon session featured panel presentations featuring university research faculty, industrial representatives, and government officials. The sessions covered wind turbine systems, manufacturing and deployment, and infrastructure and delivery of wind-produced energy. The symposium concluded with a summary of the next steps that ISU should take to ensure its role as a major actor nationally in wind energy.

The EERC’s FWD is mounted on a trailer and equipped with a loading system, seven seismometers, a data integration system, and a control system. In addition, the FWD is designed to fit into a compartment on the EERC’s mobile research facility during storage and long-distance travel.

EERC researchers also plan to evaluate the FWD’s performance in nonstandard FWD applications, such as detecting pavement subsurface voids, foundation elements or testing bridge abutments.
Hoover DVD receives CASE award

Iowa State University Foundation received a 2009 Institution gold medal award for their DVD “No Ivory Tower: The Life and Legacy of Jim Hoover” from the Council for Advancement and Support of Education (CASE) in the Excellence in Multimedia CD/ DVD category. The association honors exemplary programs among over 3,400 colleges and universities.

NO IVORY TOWER

In 2003, Craig and Terry Denny established the James M. Hoover Chair in Geotechnical Engineering to honor the memory of Craig’s mentor, Jim Hoover, a long-time civil engineering faculty member at Iowa State University. They also created the Hoover Mentoring Workshop to motivate and inspire undergraduate and graduate students to realize their full potential through mentoring relationships with faculty and practicing engineers. “No Ivory Tower” was created as a tool to help the Denny’s tell the story of Craig’s beloved teacher.

Veisha Parade

A little bit of rain did not stop the AGC students from smiling and walking in the 2009 Veisha parade.

Big Beam Test

As part of the participation in the national PCI competition, the 2009 SUICCEE Big Beam team tested a prestressed concrete beam. In the structures lab, the team observed the test and witnessed the accuracy of their predicted test results. Iowa Prestressed Concrete (IPC) constructed the beam, and certified the test results as required by PCI.

Veisha Parade

CCEE Associate Professor Shihwu Sung enjoying a visit to his friend’s lychee fruit farm in Kaohsiung, Taiwan.

JHU DVD receives CASE award

Jonathan Wickert, ISU mechanical engineering chair and the Larry and Pam Pithan Professor of Mechanical Engineering, will become dean of the College of Engineering effective July 1. Wickert succeeds Mark J. Kushnir, who resigned last September to join the faculty at the University of Michigan, Ann Arbor. James Bernard, Anson Marston Distinguished Professor of Engineering, has served as interim dean.

Wickert has nearly 20 years of experience as a mechanical engineering faculty member with Carnegie Mellon University and Iowa State, and he has served as a visiting research fellow at the University of Cambridge, England, and a visiting professor at Helsinki University of Technology, Finland. He joined the Iowa State faculty in 2007 as the mechanical engineering chair. Leading one of the largest mechanical engineering programs in the country, he has encouraged an environment of excellence across the department through the hiring and professional development of faculty and staff, strategic research programs, student recruiting and diversity initiatives, accessibility to new educational opportunities, and communication with stakeholders.

Chris Williams, CCEE associate professor, along with other Iowa State University scientists and engineers are working on new technologies to produce bio-oil that can substitute for petroleum-based ingredients in asphalt. The process used to produce the bio-oil is called fast pyrolysis. Fast pyrolysis systems produce bio-oil by quickly heating fibrous non-food biomass such as switchgrass, hybrid poplar, or cornstover to 400 to 550 degrees C, followed by rapid quenching of the vapors to produce bio-oil and biochar. New bio-oil fractionation technologies developed at Iowa State University separate the bio-oil into different fractions; some of which appear to be ideal materials for asphalt.

Preliminary tests using bio-oil fractions in asphalt applications indicate that bio-oil asphalt is more sustainable in cold and hot temperatures. Other benefits of bio-oil asphalt include lower energy requirements for mixing the asphalt, and lower greenhouse gas emissions.

Next Generation Asphalt

Asphalt industry leaders are closely monitoring the opportunities provided by bio-oil. “Finding additional sources of asphalt binder that are alternatives to crude oil, that are bio-based, and renewable, could further develop Iowa into a leader for the nation and the world in the development of bio-based technologies,” said Bill Rosener of the Asphalt Paving Association of Iowa. “It is great to think of Iowa-grown crops being used to construct Iowa roads.”

The Asphalt Showcase was sponsored by the Bioeconomy Institute and the Center for Transportation Research and Education at Iowa State University, and by the Asphalt Paving Association of Iowa.

Jim Bolluyt Retires

A fter over 30 years of service at Iowa State University, Jim Bolluyt is retiring. At his retirement reception on May 1, 2009, there was a special performance by Jim’s former barbershop quartet, “The Westside Four” who performed a reunion gig. He will be greatly missed and we wish him the best of luck!

Jim is second from the left.

Jim’s biography...

I grew up in a couple of small, mostly Dutch towns in northwest Iowa. I inherited whatever careful, steady work habits and woodworking skills from my father and whatever musical interests and abilities from my mother. I lost my mother to cancer at a fairly young age and developed several adult friends who, along with my father, and some very special teachers, were very influential in my early life.

To begin my career, I attended Northwestern College in my hometown Orange City. I postponed transferring to Iowa State to woo the girl of my dreams, Karen, but eventually talked her into marrying me! Then, I talked her into working while I finished my degree in history at Northwestern. Then, I talked her into living in East Africa for three years as a Peace Corps volunteer. Then, I talked her into working while I resumed as a student at Iowa State to get a degree in Architecture. Then, I convinced her to quit her job, so I could take a job in Florida that didn’t pan out. By this time, I was having a harder and harder time talking her into things!

Fortunately for me (and my marriage), Iowa State offered me a job teaching in the Department of Freshman Engineering, which later became the Department of Engineering Fundamentals and Multidisciplinary Design (EFMD), and then was dissolved because saying the name tickered people out. Luckily for me, the Department of Civil Engineering (now the Department of Civil, Construction, and Environmental Engineering) offered me a job so I could continue doing the work I enjoy the most, teaching. I have been teaching at Iowa State for 34 years as of this spring.

My main teaching assignment in the last several years has been the structures courses for architects. I enjoy teaching the architectural students and like having one foot in architecture and the other in engineering. Though many were easily convinced to celebrate my retirement in early May, I am currently teaching a summer class (CE 333) and might continue to teach in some capacity next fall for the Department of Architecture.

Eldon Boes, Science Advisor to Senator Tom Harkin, Chris Williams, CCEE Associate Professor Robert Brown, Professor in Engineering and David Laird, USDA AMES, Iowa – The Asphalt Showcase at Iowa State University on December 12, 2008 brought together transportation and thermochemical researchers as well as industry partners and policymakers to investigate the development of biorenewable substitutes for petroleum in the production of asphalt for road surfaces and transportation fuels.

A series of presentations by legislators and Iowa State University researchers, as well as laboratory tours, focused on the research, development and ultimate benefits of the utilization of biobased products in transportation infrastructure.

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CCEE alum inducted into Iowa Business Hall of Fame

Glenn De Stigter, CCEE alum and chairman of The Weitz Company, along with three other business leaders, were inducted into the Iowa Business Hall of Fame December 11, 2008 at the 2008 Black Tie Dinner presented by the Greater Des Moines Committee.

The other inductees were David Miller of West Bancorporation Inc., and Joe Crookham and Myron Gordin of Musco Lighting. The program, chaired by former Gov. Robert Ray, also honored past hall of fame inductees Marvin Pomerantz and John Fitzgibbon in memoriam.

The Iowa Business Hall of Fame was founded in 1975 to honor the achievements of Iowans who have made strong contributions to the development and enhancement of Iowa’s business climate.

Montague-Betts professor Easterling named

W. Samuel Easterling, PE, (PhD, 1987) professor and assistant department head of the Charles Edward Via Jr. Department of Civil and Environmental Engineering at Virginia Tech, has been named the Montague-Betts Professor of Structural Steel Design by the Virginia Tech Board of Visitors.

Easterling received his BS in 1981 and MS in 1983 in Civil Engineering from West Virginia University and a Ph.D. in Structural Engineering from Iowa State University in 1987.

He is acknowledged to be one of the leading researchers in composite floor systems, and his work has positively impacted numerous national design codes. His many accolades include American Society of Civil Engineers’ (ASCE) 1998 Walter L. Huber Civil Engineering Research Prize and its 2000 State-of-the-Art of Civil Engineering Award.

Easterling teaches courses in structural engineering and steel design.

in memorandum

CCEE would like to recognize alumni who have passed away in the last year between May 2008 and May 2009. The following list is arranged by graduation decade, then alphabetically.

1940s
Alfred Rasmussen (BSCE ’40)
Gordon Churchill (BSCE ’41)
John Lieb (BSCE ’41)
Maurice Albertson (BSCE ’41)
Magnus Christensen (BSCE ’41)
Robert Schamborg (BSCE ’42)
Everett Ormsby (BSCE ’42)
Marion Wilson (BSCE ’43)
James Cobb (BSCE ’43)
Warren Zitzman (BSCE ’45)
Neil Carpenter (BSCE ’47, MenCE ’66)
John Cota (BSCE ’47)
Russell Helms (BSCE ’48)

1950s
Glen Brand (BSCE ’50)
Kenneth McLaughlin (BSCE ’50)
Quentin Wildman (BSCE ’50)
Dale Hawn (BSCE ’50)
Mark Looschen (BSCE ’51)
J. Roger Miller (BSCE ’51)
Denis Kelleher (BSCE ’52)
Clyde Titusn (BSCE ’54)
Dennis Van Liew (BSCE ’54)
Bob Sandy (BSCE ’57)
Robert Johnson (BSCE ’57, MSCE ’63, PhDCE ’69)
Roger Miller (PhDCE ’75, BSCE ’58)
Harold Steinbrecher (BSCE ’58)

1960s
Robert Bacon (MSCE ’62)
George Glenn (PhDCE ’63)

1970s
Walter Stottmann (MSCE ’70)

ConE grad receives leadership award

Brian Harry receiving his National Distinguished Leadership Award from Lee Evey, President of DBIA, at the annual conference and expo in Las Vegas November 2008.

Harry graduated May 2008 from Iowa State University with a degree in Construction Engineering. As President of the Iowa State DBIA Student Chapter, he increased membership by 40 percent, organized presentations by PCL Civil Constructors and John Deere Wind Energy, and recruited ten corporate sponsors. In addition, he led an extremely successful fundraising campaign that allowed seven Iowa State students to attend the 2007 DBIA Annual Conference in Dallas.

He is an active participant in the DBIA Mid-America Region by serving on the Iowa Chapter steering committee and recently became a LEED Accredited Professional. Currently, Harry is an Associate Project Manager for Ryan Companies US in Davenport, Iowa.
in the department

news from you

Name: __________________________
Address: __________________________
City: __________________________ State: __________________________
Zip: ______________ Country ______________
E-mail __________________________________________
Degree __________________________ Year ______________
Institution ___________________________________
Degree __________________________ Year ______________
Institution ___________________________________
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Max Porter, CCEE professor, was the recipient of 2009 Dennis L. Tewksbury Award for Outstanding Service to the Structural Engineering Institute of ASCE.

The Tewksbury Award was instituted to recognize an individual member of the Structural Engineering Institute of ASCE who has advanced the interests of SEI through innovative or visionary leadership; who has promoted the growth and visibility of SEI; who has established working relationships between SEI and other structural engineering organizations; or who has otherwise rendered valuable service to the structural engineering profession.

Under his leadership, 12 national standards for building codes have been produced. His many contributions to SEI and ASCE include serving as past president of SEI during the “9/11” events, Institute member of ASCE Executive Committee, Institute representative to the ASCE Board of Direction, Chair of Codes and Standards Activities Committee, Chair of Codes and Standards Division, Chair of Masonry Standards Committee, and Chair of Steel Deck with Concrete Standards Committee. In addition he was President of The Masonry Society.

Hans van Leeuwen, CCEE professor, is the lead engineer for a research project that won a Grand Prize in American Academy of Environmental Engineers (AAEE) Excellence in Environmental Engineering Competition in the University Research category. The research project was for the “Production of Single Cell Oil from Cellulosic Biomass By Fungal Processing.”

The research team took lignocellulosic biomass — corn stover — treated with ammonia and various wood rot fungi, then mixed it with yeast. The end results include fuel — biodiesel — protein-rich animal feed and usable co-products, including lignin. Van Leeuwen says, “Protein is the key to good nutrition. Animal production requires high-protein diets and farmers would be the main beneficiaries of sources of good protein. But, this is better for humans too. Millions of people die annually in 3rd world countries from malnutrition, mainly due to a lack of protein, from diseases such as kwashiorkor. We could help combat that.”

Nadia Gkritza, CCEE assistant professor, was among the research team that was awarded a four-year, $1.98 million grant from the National Science Foundation for their project, “NETSCORE-21; “ The 21st Century National Energy and Transportation Infrastructures Balancing Sustainability, Costs, and Resiliency Research Project.” The research team will develop new and better infrastructure designs for the country’s energy and transportation systems.

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Both $5000 awards are given annually to outstanding faculty members. Congratulations, Fouad and Jennifer!

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Faculty members. Congratulations, fouad and Jennifer!

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photo story

before

current progress

Jennifer Shane, Doug Gransberg and Carla Lopez

in the department

Roberto Leon, President-elect of the Structural Engineering Institute, Max Porter, and James Hams, President of the Structural Engineering Institute.

Dr. Sam Beattie, Asst Prof Food Science Human Nutrition, ISU, co-prizewinner

Terry Wipf, CCEE professor, was recently initiated as a Chapter Honor Member for the University of Nebraska - Lincoln Chapter of Chi Epsilon, National Civil Engineering Honor Society.

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Jennifer Shane, CCEE assistant professor, recently won the American Society of Civil Engineering 2008 Journal of Management in Engineering — Best Peer Reviewed Paper Award.

In the paper, “Comparative Analysis of Owner Goals for Design/Build Projects,” Shane, along with Carla Lopez del Puerto from Southern Illinois University and Doug Gransberg from the University of Oklahoma, explore industry attitudes about design/build project delivery and compare those with owner attitudes regarding design/build project success. The award was presented in November at the 2008 ASCE annual conference in Pittsburgh.
The devastating floods of 2008 still have many Iowa towns reeling from the damage even one year later. No town suffered a greater per-capita loss than Palo, Iowa. All but 13 of the Palo’s 423 homes suffered some kind of flood damage, estimated at $22 million. This 2009 Spring Break, Iowa State University’s AGC Student Chapter spent their week volunteering an incredible 2010 hours of community service and building hope for the Palo residents.

Landon Streit, senior in construction engineering and President of AGC led thirty-five members to the Cedar Rapids area. The students contributed to fifteen different families by framing, subflooring, exterior sheathing, siding, roofing, insulation, drywall, cabinet installation, flooring, door installation, and deck building.

The week was filled with uplifting moments. The students helped to finish an entire basement in just three days for a couple living in the same bedroom as their two kids. They rebuilt a deck for a single mom and her daughter allowing them to enter their house safely. They transformed a basement for an elderly couple and their grandchildren to enjoy. Many families said that it finally felt like “home” again because of what the students did.

Throughout the week, Palo residents stopped by jobsites and thanked the students for their work. One homeowner called them her “kids.” Some called them their angels. They said there was a “Halo over Palo.” On the Wednesday of their trip, Governor Chet Culver visited the students to show his gratitude.

On their last night, the students worked well into the dark and before they left, the town of Palo presented the students with a Certificate of Appreciation for going above and beyond.

“It’s hard to express how amazing it feels to help improve someone’s life, to give them hope again, or to make them laugh as they struggle to recover from such a catastrophe,” said Anna Claussen, senior in construction engineering. She, like many of the other students, said the trip was hugely impactful and memorable.
The Department of Civil, Construction and Environmental Engineering department planning to launch a Master of Engineering Program in Civil Engineering for Fall of 2009.

Specializations will be offered in:

- Construction Engineering and Management
- Environmental Engineering
- Geotechnical and Materials Engineering
- Structural Engineering
- Transportation Engineering
- Degree without specialization also offered.

Currently, the Construction Engineering and Management specialization, as well as many Environmental Engineering Classes, are offer completely online via video streaming for distance learning.

The Masters of Engineering Degree is based on coursework credits only and does not require students to write a thesis or a research report (creative component). This provides a more structured approach that fits the needs of results driven professionals that are not planning to continue for a PhD degree.

The Certificate in Construction Management provides recognition for students who deepen their knowledge of construction at a graduate level, without having to commit to a full masters degree program. The objectives of the certificate are:

1. To prepare students for lifelong careers in the constantly changing technical and managerial environment of the construction industry.
2. To provide knowledge in construction process designs, cost estimating, planning, scheduling, and risk assessment.
3. To provide advanced construction management education to students with and without an engineering undergraduate degree.

Students are required to take 12 credits of graduate classes within the specialization of Construction Engineering and Management. Students may enter the program directly if they have a bachelor’s degree from a construction related ABET accredited engineering or technology program or any ACCE accredited program. Alternatively, students with any regionally accredited bachelors degree and five years of construction experience may also be admitted.

For more information, please contact CCEE Associate Professor Chuck Jahren at cjjahren@iastate.edu or 515-294-3829.

Introducing the Master of Engineering Program

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Scholarship Winner

Bo Wang, a junior in Civil Engineering is the recipient of a 2009 Intelligent Transportation Systems (ITS) Minnesota Undergraduate Scholarship. ITS MN offered two $750 awards open to all undergraduate students in Minnesota, North Dakota, South Dakota and Iowa that have an interest in intelligent transportation systems or transportation engineering. The awards reward exceptional students interested in these areas.

Wang came to CCEE and Iowa State University from Lanzhou Jaotong University last fall. He is currently interning for the Iowa Department of Transportation in the Traffic and Safety Office. Wang is also working on an essay being submitted to the International Road Federation about the reduction of risks with vulnerable users in highway system. Wang was presented his award at the ITS Minnesota Annual Meeting on March 10, 2009.

International Forum

Melissa Montalbo-Lomboy and Prachand Shrestha, both students of CCEE Professor Hans van Leeuwen have been selected in the Biovision nxt 2009 program, a project that gathers 100 young PhDs and promising researchers to actively participate in world life science forum. Biovision nxt is an internationally attended forum that presents industry leaders, government, non-governmental organizations (NGO) and academia. Biovision also invites renowned researchers and Nobel Prize laureates to debate important issues, such as energy crisis, environmental pollution, health problems, and sustainable urbanization.

Students are selected worldwide based on the quality of their academic and professional achievements. The objective of the program is to promote networking among young researchers and encourage their participation in the Biovision project. Montalbo-Lomboy and Shrestha both completed their PhD degrees in December 2008. They were joined by two other Iowa State University students, Jose Gerde of the Food Science department and Matthew Moscow of the Plant Pathology department.

Among the nation’s universities, Iowa State has the highest number of students selected to join the program. The forum was held March 2009 in Lyon, France and is the 6th edition of Biovision and focused on the topic of the challenging role of life science in the expanding cities.

Biovision is organized in partnership with the French Academy of Science, Bibliotheca Alexandrina, the Academy of Science for the Developing World (TWAS) and European University Association.

Student Awards

Jennifer Ruddy, a senior in civil engineering, was the student marshal who led the engineering graduating class into Iowa State’s undergraduate commencement ceremony on December 20, 2008. She was selected for this honor from nominees submitted by the departments. Ruddy chose CCEE Professor Say Kee Ong as her faculty escort.

Ruddy is earning her BS in civil engineering with an emphasis in environmental engineering and a minor in business. She is in the concurrent degree program in environmental engineering and plans to complete her MS degree in December 2009. Originally from Ankeny, Iowa, Ruddy became interested in research through a Freshman Honors Program research assistantship and has gained a variety of research experiences throughout her undergraduate career. In addition, she has been a mentor and role model for other students through her active participation in such organizations as Women in Science and Engineering, the Iowa State Chi Epsilon chapter, and the Freshman Honors Program. Ruddy has interned the last two summers with Fox Engineering in Ames and will join the firm in a permanent position after completing her MS degree.

Melissa Montalbo-Lomboy and Matthew Moscow (ISU), Ken Lau (MIT)
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