

the Trend

Spring 2008: Volume 58, Issue 1

in engineering





The photo on the cover of this issue tells the plight of far too many people on this planet. The chasm between their lives and our materially abundant, high-tech world seems impossible to bridge. Yet,

our engineering students are doing just that via their volunteer work with the UW Student Chapter of Engineers Without Borders (EWB). They have taken solid, practical steps to help improve life in a tiny Bolivian village, work that will continue for at least three more years to ensure sustainable changes.

We were delighted to host the national conference of Engineers Without Borders USA in late March. Eight years old, it's growing exponentially, a sign that engineers have an important role in international development. I would love to see our students tackle more volunteer projects, especially in partnership with local companies.

We want to incorporate issues important to developing cultures into our curriculum, most directly through capstone design classes addressing sustainability. Like cost, sustainability should be a design constraint. Students in a capstone course last year designed a prototype biomass stove for the EWB work in Bolivia, and used environmentally appropriate materials to build a series of them. You can read about their work on page 6.

New Admissions Initiative

In other College of Engineering news, we will soon offer Advanced Admission to exceptionally qualified entering freshmen. Six of our ten departments now offer direct freshman admission to top students ready to commit to a specific major. In the past, we have lost many of the best

in-state students to peer institutions because they want to explore several disciplines. These students worry they could invest up to two years in prerequisite course work and then, once settled on a major, be denied junior-year admission to that department.

Beginning in 2009, the college will offer Advanced Admission to 20–30 incoming students who represent the top 1–2 percent of the applicant field. They will declare their intended major at the end of their freshman year, and will be guaranteed sophomore admission to their first-choice department if they meet the academic criteria. The process will spread the admissions over the nine participating departments, with no more than five students per year likely to enter any single department. We are confident this program will enhance our ability to keep the most talented in-state students home.

Expanding Collaborations

Speaking of talent, our faculty continue garnering prestigious awards. CSE's Pedro Domingos directs a new Multidisciplinary University Research Initiative (MURI) grant involving seven institutions

across the nation. This federal grant provides \$6.25 million over five years to develop an electronic "Sherlock Holmes" to interpret data and predict behavior of complex systems. Engineering faculty are partners in three other MURI grants awarded since 2005, including ME's Minoru Taya and John Sidles and EE's Jeff Bilmes.

These large center grants concentrate both resources and brain power on complex engineering problems, so UW Engineering will seek more center grants.

You can read about awards to our faculty and students and the distinguished alumni honored with the 2008 Diamond Awards on pages 4–5. Congratulations to all.

Our work, as evidenced by the projects described in this issue of *The Trend*, is diverse and far reaching. From simple, adobe brick stoves in a poor Bolivian village to complex technology systems, UW engineers are using their skills to improve the world.

MATTHEW O'DONNELL
Frank and Julie Jungers Dean
of Engineering



Jan Spyridakis to Lead Technical Communication

Professor Jan Spyridakis becomes chair of TC on August 1, succeeding Judy Ramey, who steps down after 10 years in the position. Spyridakis has won numerous awards for her research on document design, usability, and online learning. She mentors graduate students by day, teaches professionals in evening programs, and has been honored with the UW Distinguished Teaching Award. A lifelong Husky, she earned her BA through PhD degrees at the UW.



James Dorsey Named MESA State Director

James Dorsey is the new executive director of Washington Mathematics Engineering and Science Achievement, headquartered at UW Engineering. The program offers curricula, workshops, internships, and scholarships to 5000 underrepresented K-12 students across the state. Dorsey was national director of program development for California MESA and has an extensive professional background in advancing equity education.



Their work in Yanayo, Bolivia, earned the UW Student Chapter the 2008 Humanitarian Award from EWB-USA. Front from left: Robyn Wilmouth, Donee Alexander, Professor Susan Bolton (chapter mentor), Jessica Sunshine, Amanda Jellin, and EWB-USA executive director Cathy Leslie; Back row from left: Bolivia liaison Edward Gonzalez, Mark Raleigh, Aaron Liss, Jonathan Miller, Greg Curtiss, and Jason Padvorac.



Left: William H. Gates, Sr., co-chair of the Bill & Melinda Gates Foundation, fields questions from the audience following his keynote address. Dean Matt O'Donnell moderated the Q&A session.

UW Hosts Engineers Without Borders Conference; Student Chapter Wins Humanitarian Award

Engineers Without Borders (EWB)-USA is on a mission to tackle global poverty one village at a time. Some 10,000 engineering students, faculty, and professionals nationwide are answering the call to apply their skills to problems of clean water, sanitation, food, energy sources, and infrastructure. More than 650 came to campus March 28-30 for EWB-USA's fourth annual conference, hosted by the UW, Seattle University, and the Puget Sound Professional Chapter of EWB. President Mark Emmert welcomed attendees at the opening session. UW Regent William H. Gates, Sr., co-chair of the Bill & Melinda Gates Foundation, delivered the keynote address on global health and development. The UW Student Chapter of EWB received the annual Humanitarian Award for its project in Bolivia (story on page 6). Conference presentations and photos are available at: www.ewb-usa.org.

New Doctoral Program Crosses Disciplines to Focus on Development of Biofuels

The promise and pitfalls of biofuels have been grabbing recent headlines, especially biofuels derived from food crops. A new graduate training program is taking a more sustainable approach to biofuel development. UW faculty, doctoral students, and local Native American tribes aim to transform local forestry and agricultural wastes into plant-based fuels. Right now biodiesel and ethanol are generally made from plants such as corn or soy grown in other states.

"We want to create a new generation of PhD graduates in sustainable energy and develop local sources of renewable fuels," said Dan Schwartz, professor of chemical engineering and leader of the new interdisciplinary group.

The UW has received a National Science Foundation IGERT award for Integrated Graduate Education and Training. The \$3-million award funds six interdisciplinary doctoral students each year for five years. Program partners are the College of Engineering, the College of Forest Resources, and the American Indian Studies Program.

For more information, visit: <http://bioenergy.washington.edu>.



UW Engineering News Circles Globe Faster than a Speeding Photon

Engineering faculty and students are getting high-profile coverage in print and on the Web. Fire up your favorite browser and check out some of these articles. Visit our News site to tap into more stories:

www.engr.washington.edu/news/

- **Why Is the Internet Sometimes So Slow? ... 'Black Holes' May Be To Blame** (sciencedaily.com, Apr. 12, 2008) A CSE team develops a system named "Hubble" to map the black holes that swallow up Web traffic.
- **Someday We May Be Surfing with Our Eyes Closed** (The Washington Post, Mar. 25, 2008) EE's Babak Parviz creates a "bionic" lens. Also see a longer article, **Eying Up a New Technology** (Economist.com, Jan. 22, 2008).
- **A Heart Device Is Found Vulnerable to Hacker Attacks** (The New York Times, Mar. 12, 2008) CSE's Tadayoshi Kohno and colleagues discover a potential risk.
- **Seattle Taps Its Inner Silicon Valley** (New York Times, Feb. 8, 2008) CSE faculty and the UW take center stage along with Google and Microsoft.
- **Pill-sized Camera Is Easy to Swallow** (usatoday.com, Feb. 7, 2008) ME's Eric Seibel develops a breakthrough in endoscope technology.



Pedro Domingos to Lead Multi-University Project

Pedro Domingos, associate professor of computer science and engineering, is leading seven institutions in a new initiative to expand the ability of computers to interpret data and predict the behavior of complex systems. The seven include Carnegie Mellon and MIT. The \$6.25 million project is funded by the Department of Defense.



Dennis Lettenmaier Elected AAAS Fellow

The American Association for the Advancement of Science is honoring Dennis Lettenmaier, professor of civil and environmental engineering, for his work in hydrology to develop land-surface atmosphere schemes used in climate modeling. He earned his BS and PhD at UW.



Tadayoshi Kohno Wins Sloan Fellowship

Tadayoshi Kohno, assistant professor of computer science and engineering, has received a prestigious Sloan Research Fellowship, an early career award. It provides \$50,000 from the Alfred P. Sloan Foundation and the freedom to pursue any line of inquiry. Kohno is a rising star in the areas of computer security and electronic privacy.

Matt O'Donnell Recognized for Ultrasound Advances

Outstanding contributions to biomedical ultrasonics and real-time ultrasound imaging technologies earned Dean Matt O'Donnell the 2007 Achievement Award from the Ultrasonics, Ferroelectrics and Frequency Control Society, a unit of the Institute of Electrical and Electronics Engineers.



◆ Winners ◆

◆ Student Honors

GOLDWATER SCHOLARSHIPS: Computer Science & Engineering undergraduates **Julia Moore** and **Kathy Wei** have won the premier award for students majoring in engineering and the sciences.

NSF GRADUATE STUDENT FELLOWSHIPS: CSE students **Laura Effinger-Dean**, **Brian DeRenzi**, and **Jessica Chang** have received 2008 fellowships.

INTEL FOUNDATION AND SEMICONDUCTOR RESEARCH SCHOLARSHIP: EE graduate student **Ying Su** has won a renewable master's scholarship.

2008 UW MEDALISTS: It's a sweep! Three CSE students have won the UW's highest academic honors this year. They are Chad Klumb, freshman medalist; Pavan Vaswani, sophomore medalist; and Ting-You Wang, junior medalist. These talented students are all co-majoring in at least one other science field.

◆ Faculty Honors

EARLY CAREER DEVELOPMENT AWARDS: Three assistant professors have won five-year National Science Foundation CAREER Awards — **Alberto Aliseda** (ME) to support his research on microbubble dynamics in blood circulation; **Christine Luscombe** (MSE) to support her research on organic polymers; and **Hong Shen** (ChemE) for her work using nanomaterials to fight cancers, infections, and autoimmune diseases.

CIVIL & ENVIRONMENTAL ENGINEERING: Professor **Stephen Burges** is the 2008 recipient of the ASCE Ven Te Chow Award recognizing lifetime achievement in the field of hydrologic engineering. The American Road and Transportation Builders Association is honoring Professor **Nancy Nihan** with the S.S. Steinberg Award for remarkable contributions to transportation education.

COMPUTER SCIENCE & ENGINEERING: The Computing Research Association is honoring Professor **Richard Ladner** with the 2008 Habermann Award for his lifelong advocacy on behalf of persons with disabilities. Professor **David Notkin** has been elected a Fellow of the Institute for Electrical and Electronic Engineers.

ELECTRICAL ENGINEERING: Associate Professor **Denise Wilson** will receive the UW's 2008 S. Sterling Munro Public Service Teaching Award for her leadership in the service learning movement in engineering.

MATERIALS SCIENCE & ENGINEERING: Germany's Alexander von Humboldt Foundation honored Professor **Raj Bordia** with the Humboldt Research Award, a prestigious international honor for senior scientists. Professor/Chair **Alex Jen** has been elected a Fellow of the Optical Society of America. Assistant Professor **Christine Luscombe** has won a Young Faculty Award from the Defense Advanced Research Projects Agency for work on organic photovoltaic devices.

MECHANICAL ENGINEERING: Professors **Mamidala Ramulu** and **Steve Shen** have been elected Fellows of the American Society of Manufacturing Engineers (ASME). Professor **Ramulu** also received the Distinguished Alumni in Academics Award from Osmania University in India.

DIAMOND

AWARDS

2008

The College of Engineering is excited to honor five eminent alumni with the 2008 Diamond Awards. These awards recognize outstanding professional and community achievement and celebrate the ingenuity and entrepreneurship of all engineers.

Please join Dean Matt O'Donnell, college faculty, and community friends as we honor these exceptional alumni at the third annual Diamond Awards dinner on Friday, May 30. The program features brief video highlights of the careers of the honorees.

Special thanks to this year's Diamond Awards selection committee: chair Tom Delimitros ('66), COE Dean Emeritus Ray Bowen, Ark Chin ('52), Bob Davis ('64), and Bonnie Dunbar ('75).

Visit www.engr.washington.edu for more information about the awards and the recipients.

Third Annual Diamond Awards Dinner

Friday, May 30, 2008

6~9 pm

Hotel Deca
University District, Seattle

Reception • Dinner • Program
\$50 per guest

For more information and
to make a reservation, contact
Karen Howard, 206-616-8259
by May 23.



Jagjeet (Jeet) Bindra '70 MS CHEME
Distinguished Achievement in Industry

As president of Chevron Global Refining, Jeet Bindra heads the Chevron Corporation's worldwide refining operations. Among many accomplishments over his 30-year career at Chevron, he led negotiations with Russia, Oman, and Kazakhstan for design and construction of a pipeline to the Black Sea.



Savio Woo '71 PHD ME
Distinguished Achievement in Academia

A bioengineering pioneer, Dr. Savio Woo's discoveries on the biomechanics of the knee transformed the healing process for ligament injuries and greatly shortened rehabilitation time for sports injuries. In 1988 he received an Olympic gold medal for his contributions to the science of sports medicine.



Rob Short '87 MS CSE
Entrepreneurial Excellence

As the former corporate vice president for Windows Core Technology at Microsoft, Rob Short led the effort to build the hardware for the Windows/NT operating system. His work in processor design helped simplify the human-computer interface and contributed to modern portable operating systems.



Donna Sakson '86 BS TC
Distinguished Service

Donna Sakson founded Sakson & Taylor Inc., which she developed into the leading technical communication firm in the U.S. She is a role model for community involvement and service, with contributions benefiting Bike Works, Action Against Hunger, United Way, the Red Cross, and UW Engineering.



Gail Murphy '96 PHD CSE
Early Career

Gail Murphy is widely recognized as one of the most promising researchers in computer science. She contributed significantly to reducing the problems associated with large evolving software systems and was a key player in building the world-class computer science program at the University of British Columbia, where she is a professor.

Poor Village, / Rich Experience

Students put skills to work in the Bolivian Andes

Boiling potatoes is a ho hum task in most kitchens. But not for the first firing up of an adobe brick stove that held two blackened pots. Not when the potato pot was sitting behind the fire hole. “The women didn’t believe the water would boil,” recalls Gina Hicks, a mechanical and electrical engineering student. “I told them to feel the stove pipe with the hot air flowing through. They got so excited when the water bubbled.”

The potatoes transformed into a celebratory meal in the remote village of Yanayo in the Bolivian Andes — 23 homes and 100 people

scraping away at life in the poorest region of the poorest country in Latin America. Hicks and other student members of the UW Chapter of Engineers Without Borders (EWB) were in Yanayo last July to show the villagers how to build efficient biomass stoves and to work on other projects.

Founded with five members in 2005, the chapter in 2006 signed on

for a five-year commitment to help Yanayo implement economical and environmentally sustainable projects that could boost quality of life in the village. The group, now with over 50 active members, partners with the Puget Sound Professional Chapter of EWB, which offers advisory help.

During an assessment trip in October 2006, a three-member UW

team traveled by Jeep up tortuous mountain roads and then over nearly impassible terrain to reach Yanayo, up to an eight-hour ride from the nearest city, Cochabamba. Edward Gonzalez, a U.S.-trained engineer with family roots in Yanayo, introduced the team to the community and served as official liaison. Yanayo’s mayor, one of only four villagers who spoke Spanish, organized meetings to bring villagers together to talk about their needs.

Needs ~ So Basic, So Big

“Building a road into the village was their top priority,” says Donee Alexander, a civil and environmental engineering doctoral student and EWB Yanayo project director. The community had survived for 500 years on subsistence farming of potatoes, wheat, and a few other crops because they lacked access to markets, and they also wanted access to health care and education.

“Hardly any of the children stay in school beyond third grade because to continue their education they must walk three to four hours to the nearest town, board there during the week, and then trek back home on Friday afternoon,” Alexander explains. “Many youth leave Yanayo when they grow up because the village lacks opportunities.”

Building a road seemed like an impossibly daunting first project. Yanayo had no sanitation, so the UW team offered to build outhouses. No interest. The villagers were fine with going out to the fields, as they had been doing for generations.

Visiting their thatched-roofed adobe homes revealed more pressing problems. Cooking over open fires filled the homes with smoke that



Music and dancing are an important aspect of village life, as is showing appreciation to visitors who help the community. Professor Susan Bolton (inset) is stunned to receive a baby goat as a parting gift last July. The goat couldn’t get a U.S. visa, so luckily was able to stay home.

irritated eyes and lungs and especially endangered children’s health. Chagas disease also was common, spread by parasite-carrying insects that live in thatch. Chronic Chagas can cause congestive heart failure. The village women were eager to address these problems, so the team proposed installing efficient biomass stoves with pipes venting through new, galvanized steel roofs.

Once back at the UW, chapter members and engineering faculty organized a senior capstone project to design an inexpensive rocket-type stove that could be built from local materials, including the adobe bricks made in Yanayo. After the school year ended, Aaron Liss (BSME, ’07) and chapter members built a second prototype stove in his backyard to experiment further with the design.

The students’ annual Dessert and Wine Fundraiser with Silent Auction, plus other support (see box on page 12), covered \$30,000 in costs for travel and construction materials for the July 2007 implementation trip. Project mentors, Professor Susan Bolton (UW Forest Resources) and Peter Sturtevant of the EWB Professional Chapter, paid their own travel costs.



Girls in festival finery. Village life is rich in spirit, expressed in love of vibrant color.



Progress in Yanayo

First stop — Cochabamba. The nine-member team included four graduate students, two undergrads, and faculty, professional, and technical mentors. Over five days they scoured the city for corrugated metal, stove pipe, tiles, and other materials for their projects, a surprisingly big logistical challenge. No one-stop Home Depot stores here.

Then it was on to Yanayo. The mayor had convinced the state jurisdiction to bulldoze a spur road linking to the main road. Now the UW team could get in with supply-

laden trucks. They found a few surprises. In eager anticipation of the new stoves, most families had built cooking huts adjacent to their houses. They also learned of a huge rainwater collection tank built on a hilltop by a previous aid group, which inexplicably failed to install piping to bring the water to the village. Several team members took on that job, which now permits the villagers to irrigate their fields, grow more vegetables, and extend their growing season in the semi-arid, drought-stricken region.

Meanwhile, the stove team adapted the prototype design to accommodate varied sizes of cooking pots and also lowered the height to a level preferred by the women. “Despite careful advance planning, we encountered the unexpected so we had to be flexible and change several design aspects given the materials available and to meet the needs of the villagers,” Liss reports.

They trained two village men to build the stoves and enlisted the mayor’s wife, “an extremely smart woman,” according to Alexander, to help organize sessions to teach the other women how to use and maintain the stoves.

CEE graduate students Robyn Wilmouth and Greg Curtiss also led recycling education sessions for the schoolchildren. It seems nearly

every step toward progress has a downside, and travelers driving through the village were dumping trash by the side of the new road.

“The villagers are so poor they had little trash, but now they have to deal with litter,” Wilmouth says. “I organized a game where the children ran through the village and put all the trash they could find in plastic bags. The adults thought I was crazy.” She then taught the children about reducing trash and reusing items, such as making pencil containers out of plastic bottles.

Team members also went to a neighboring village to test carbon monoxide and particulate levels in homes that still use open cooking fires. This summer they will do tests in the Yanayo homes to collect comparative data to assess air quality improvements.

Projects over the next few years include installing stoves and metal roofs in nearby villages, stabilizing the crude access road (which washed

Continued on page 12



Right: Village men prepare to install a corrugated metal roof in a new cooking hut. Below-Left: Old, wood-burning stoves with no ventilation filled homes with smoke and harmful pollutants. Center: A woman tries out her efficient new biomass stove. Right: Take a deep breath, then blow hard! Donee Alexander (R) administers lung capacity (spirometry) tests at the village school.



Two venerable childhood games, tag and hide and seek, are merging physical space and cyberspace in The Paul G. Allen Center, but with high-tech twists. The “hid-ers” are all in plain sight in a hallway, office, or computer lab, and the seekers need only log on to a Web site.

If Evan Welbourne, a computer science and engineering doctoral student, wants to locate Assistant Professor Magda Balazinska, he can simply go online and see that she is in her office, or perhaps walking down a hallway. Balazinska wears a thin, flexible badge embedded with a radiofrequency identification (RFID) tag — a miniature computer chip unit encoded with information and nestled in an antenna (center photo). More than 200 scanner/antenna

units mounted throughout the building can read the RFID tag and transmit signals to a computer.

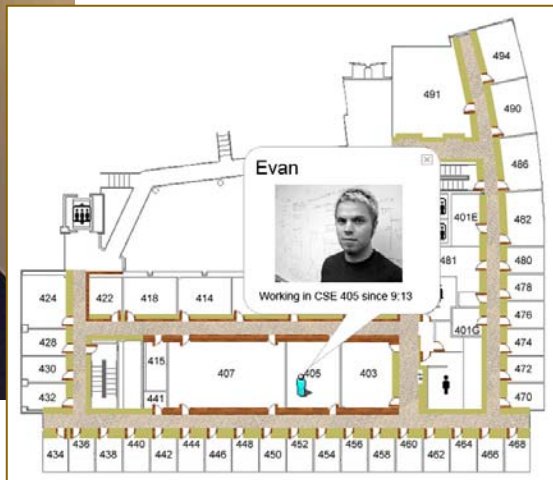
No, it’s not just an alternative to locating someone by cell phone. What appears to be a quirky exercise is a serious research study with big implications for use of tracking technology that is rapidly pervading many aspects of daily life.

Radiofrequency identification is not new. Allied forces used it to track German bombers toward the close of World War II, after which it went onto a technology back shelf. Over the past decade, it burst back into a society eagerly embracing high-tech tools, with use particularly exploding in industry, commerce, and the transportation sector.

The shipping industry puts RFID tags on cargo containers, manufacturers use them to track parts, retailers to manage inventory, and bus, subway, and freeway systems use them to collect fares and tolls. Such applications increase efficiency, reduce costs, enhance safety, or make our lives easier or even a bit happier. Pet owners are thrilled to

CSE project co-leader Magda Balazinska walks an Allen Center hallway with RFID tags on her clothing and backpack. A radio-frequency scanner (white box on the ceiling above her) provides power to the RFID tags and collects and transmits data on her movements.

Below: A screen-capture image shows the location of research team member Evan Welbourne.



Tag ... you

Study examines and perils of tracking

be reunited with a “chipped” cat or dog that went astray.

Moving this advance up the evolutionary chain, the FDA in 2004 approved RFID microchips for humans, typically for implantation under the skin in the arm, for medical records access and other clinical uses. Safety and privacy concerns are likely to inhibit widespread adoption any time soon.

Of more imminent concern are the RFID items most people will increasingly carry — “smart” credit, debit, and transit cards, “enhanced” drivers’ licenses in Washington and seven other states, and the new U.S. passports. Technology experts predict that RFID tags will soon be incorporated in consumer devices

Study volunteers may attach tags to purses, backpacks, jackets, books, or other items.





© 2008 The Seattle Times, photo by Tom Reese.

A U.S. quarter shows the scale of a square RFID chip centered in a thin silver antenna. Washington's head peeks out on the left.

're found!

the potentials networking technology

such as cell phones, laptops, and music players. How will such devices expand the social networking activities booming in cyberspace? What is the potential for misuse?

To explore these questions, project co-directors Balazinska and CSE Professor Gaetano Borriello and their team of graduate and undergraduate students are doing a pilot study examining the next step in social networking — wirelessly monitoring people in the closed environment of the Allen Center. Their RFID Ecosystem project aims to create a world that many technology experts predict is just on the horizon.

What if everything had RFID tags?

“Our goal is to ask what benefits we can get out of this technology and how can we protect people’s privacy at the same time,” Balazinska says. “We want to get a handle on the issues that would crop up if these systems become a reality.”

A scanner can read the tag through any non-metal barrier and from up to 30 feet away, depending on the type of tag. That means an item with an RFID chip can be read from a distance and without the user’s knowledge.

“What if RFID readers were everywhere, and everything had RFID

tags? What are the pluses and minuses? What do you do with all that data?” asks Borriello. “We’d like to get some experience rather than just conjecture about this.”

The team is recruiting 50 volunteers from 400 students, faculty, and staff who regularly use the building. They will put RFID tags on their clothing and belongings to allow the scanners to sense their location every five seconds throughout much of the six-story building. RFID readers are not located near bathrooms or eating areas, because these are considered personal spaces.

The information will be saved to a database, published to Web pages, and used in various custom tools. The project is one of the largest studies looking at wireless tags in a social setting.

Each participant will be able to control who can see his or her data, and can delete any data or opt out of the study at any time without explanation or penalty. Participants will be interviewed periodically. The researchers will assess positive aspects, such as keeping track of where someone lost a tagged laptop charger to where friends are meeting for coffee, and negative aspects in terms of loss of privacy.

The researchers have tested the system on themselves over the past year. Balazinska set the system so that she can’t see her students, but she allows them to access her data.

The pilot study will incorporate two new student-developed features. One is a tool that records a person’s movements in Google Calendar. Study participants can set the system to instantaneously publish activities on their Web calendar, such as meetings or lunch breaks.

“It’s a perfect memory system that records all your personal interactions,” Welbourne says. “You can go back a month later, and see, ‘What did I do that day?’ or, ‘Who have I spent my time with lately?’”

Another tool is a friend finder, RFIDder (pronounced “fritter”). It sends instant alerts to participants’ e-mail addresses or cell phones telling them when friends are in certain places. With RFIDder, users can specify who is allowed to see their data. They can change the settings at any time, and can easily turn it off whenever they don’t want to be found. The system will link to Twitter, an online blog that lets people post their whereabouts.

Researchers are also devising ways to deal with the many technical challenges involved in sorting RFID data. They want to develop a main database where people can find the information they need, but can’t abuse it by looking at too much of the personal information of other people. Proposals include systems that would impose a cost for looking up certain types of information, or that would let users see who is accessing their data.

“This is a major project that has many facets,” Balazinska notes. “We worry that these technologies are being implemented too quickly, and with this system we want to explore it in a controlled environment, to inform the public and policymakers about issues we might face.”

The National Science Foundation, Microsoft Research, and UW College of Engineering fund the project.

More information on the RFID Ecosystem is at <http://rfid.cs.washington.edu/>.

Or, contact:

Magda Balazinska at (206) 616-1069 or magda@cs.washington.edu; or Evan Welbourne at (206) 276-7969, evan@cs.washington.edu.



Hacherl Fellowship Draws a Top Graduate Student

As an undergraduate computer science and mathematics major at Purdue, Alexei Czeskis immersed himself in research projects and summer internships at Stanford, the U.S. Geological Survey, Amazon.com, and the electronics and pharmaceutical industries. He gained experience in RFID technology, information systems data management, computer security, and bioinformatics. Almost any graduate program would have snapped him up, and indeed, he received a fellowship offer from a computer science program ranked in the top four.



Alexei Czeskis, CSE doctoral student.

Czeskis turned that down, in part because the fellowship confined him to one specific research team. “UW Computer Science & Engineering extended a far better and more flexible offer,” Czeskis said. “I’ve been called an intellectual omnivore, and now in my first year of doctoral research at CSE I have the freedom to explore my many interests.”

He is one of the initial recipients of a Students First fellowship — the Hacherl Endowed Graduate Fellowship established by engineering alumnus Don Hacherl (’85). He also received a \$10,000 Clairmont L. Egtvedt Fellowship, a College of Engineering recruitment award.

Czeskis is now immersed in computer security research under the mentorship of Assistant Professor Yoshi Kohno, who last fall was recognized by Technology Review as one of the nation’s top 35 innovators under age 35.

“Alexei shows a great combination of technical skills, drive, and desire to do research that will benefit humanity,” Kohno said. “He wants to develop security solutions that will ensure individual privacy as information technology expands in sensitive areas such as the health care field. He is a perfect fit for our program.”

“I’m impressed with the UW and CSE and am very happy here,” Czeskis affirmed. “The opportunity to join a strong security research group, along with terrific fellowship support, made it easy to turn down other offers.”

Local Professional Group Rallies Members to Fund Geotechnical Education

The Geotechnical Group of the Seattle Chapter, American Society of Civil Engineers, has created the Robert D. Holtz Endowed Fellowship to support graduate student education and research in geotechnical engineering. The fellowship honors Professor Robert Holtz, an esteemed member of the local chapter and a 20-year faculty member in Civil & Environmental Engineering.

Over 70 individuals and firms contributed more than \$100,000 to establish the fellowship. In addition, the State of Washington contributed \$25,000 to the fund through a graduate fellowship matching grant.



Judy Mahoney (UW Engineering) with chapter members (L to R) Stan Boyle, Mark Rohrbach, and Michael Harney.



Engineering Is Over the Top!

We are thrilled to report that the College of Engineering recently reached its Creating Futures goal of \$250 million. That’s great news and a tribute to our dedicated alumni and corporate and community friends. We still welcome gifts because the only thing better than meeting a goal is exceeding it. Even \$250 million does not cover all the needs for new scholarships, fellowships, endowed faculty positions, and the resources essential to draw the best talent to an exceptional educational and research environment. If you would like to be part of Campaign UW before it ends on June 30, please see the sidebar on the facing page for information on how to contribute. And thank you!

STEVEN R. ROGEL, ’65 ChemE – Chairman, COE Campaign Executive Committee
Chairman, Weyerhaeuser Company



Ruth Mary Close (third from left, with great granddaughter) and family members.

Four Generations of the Close Family Celebrate a Legacy for Electrical Engineering

The first privately endowed professorship in Electrical Engineering realizes a husband and father's dream. Donald Close (BSEE '37) had a great interest and expertise in electrical energy. When observing our reliance on computers and modern inventions, he would remark, "When the lights go out, it's not going to do anyone a bit of good." He believed that we needed to do more to find new ways of producing and distributing reliable power. He built his career and electrical contracting business, the Donald W. Close Company, with expertise in unusual or technically complex projects.

Throughout his career he worked on a diverse range of projects including hydroelectric plants, underground cabling, generators, and transformers. These experiences taught him the value of an educational curriculum that provides hands-on experience while pressing the boundaries of technological know-how. One of his dreams was to involve UW students in exploring the challenges of electricity as a source of power while gaining direct experience through interaction with industry.

Don and his wife of 68 years, Ruth Mary (BA '38), established a planned gift through their estate to fund an endowed professorship. Don passed away in April 2006. Last year, Ruth Mary decided that she would receive great satisfaction from seeing her husband's dream come to fruition, and thus sold their home to fund the professorship. The Donald W. and Ruth Mary Close Endowed Professorship in Electrical Engineering was established in December 2007. It will enable the department to support a faculty member in the critical area of advanced energy. Endowed professorships also expand research opportunities for students.

At a January 10 event to thank Ruth Mary Close and family members, EE Chair Leung Tsang noted that the professorship "Will enhance the ability to attract and retain distinguished faculty and support research and educational activities focused on electrical power."

If you would like to invest in the education of future generations through planned giving, please call Judy Mahoney at 206-685-8629.

Students First Update Thirty-four Endowments and Still Counting

Engineering alumni and friends have established 34 Students First scholarship and fellowship endowments totaling more than \$7.7 million since this popular Campaign UW initiative began in late 2006. These endowments qualify for close to \$3.9 million in UW matching funds. By this fall, dozens of engineering undergraduates will benefit from Students First support, which will open doors for students like Maggie Ramirez (below). A junior IE major, she could not have afforded a UW education without scholarships. The matching initiative ends on June 30, so take advantage of this opportunity.



Thank you!

To alumni and friends who supported Engineering during Campaign UW.

And it's not over till the sun sets on June 30, 2008.

You can still help create the future.

To do so, please contact Anne Fitzmaurice Adams
206-685-3041 or
afa9@u.washington.edu
or contribute online at:

www.engr.washington.edu/development



Photo by Peter Mackenzie.

Concrete Canoe Team Finishes #1 in the regional competition — now on to Montreal for the nationals in June.



Open House Was a Blast for close to 8000 schoolchildren and curious people of all ages on April 25–26. They launched bottle rockets (above), guided robots, and rode the earthquake shake table, among more than 125 hands-on activities and exhibits.

Rich Experience *(from page 7)*

out during winter flooding), possibly building a bridge, and continuing education on health, sanitation, agriculture, and animal husbandry. “We estimate that project costs this summer will hit \$100,000,” Alexander says.

Team members such as Alexander, Hicks, and Wilmouth are aiming for careers in the arenas of sustainable development and improving quality of life for people living in extreme poverty. Each decided to pursue an engineering degree to acquire the expertise and credentials needed to make an impact. The EWB chapter was a prime draw for enrolling at the UW.

Rewards include seeing the benefits of their efforts and the gratitude of the villagers, joyfully expressed in farewell parties and thank you ceremonies with music, dancing, confetti rubbed into the visitors’ hair, and gifts.

The villagers opened not only homes and hearths, but their hearts too. “They are the poorest people I have ever known, but also the most giving and gracious,” Wilmouth says. “They have the biggest, most gorgeous smiles.”

How to Support the 2008 Work in Yanayo

EWB Chapter students are grateful for contributions. For information on how to donate, visit:

<http://students.washington.edu/ewbuw/help/donate.php>
or contact Jeanne Thompson, 206-616-1231 or jthompson@u.washington.edu

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