

CREATE
INTEGRATE
ADVANCE

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Professor and Dean
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University of Idaho
College of Engineering

November 30, 2010

Dear Idaho Engineering and Computer Science Alumni and Friends,

Valerie Barry, president of the student chapter of the UI Society of Woman Engineers and a junior in electrical engineering, is among 186 female students enrolled with a major in engineering in the College of Engineering. On November 5, the College of Engineering and the student chapter of the **Society of Women Engineers** hosted its annual **Women in Engineering Day (WIE)**, a one-day workshop for female 11 and 12 grade high school students who show an aptitude and interest in engineering and computer science. The day included a team design contest, a panel discussion by professionals in the field and a chance for the participants to meet women who are engineering majors.

WIE Panelist **Jennifer Hasenoehrl** is a UI graduate student in mechanical engineering and wanted to let the young women understand the range of jobs available to an engineer; panelist **Cara Haley** is a UI graduate in civil engineering and talked about the diversity of her work day activities at Moscow company TerraGraphics; and panelist **Erin Jessup**, an electrical engineering graduate student, explained to the group that they are not alone if they like math and science. Alumnae **Deena Henkins**, '69 chemical engineering graduate, joined the panel to answer questions and let students know that engineering is a valuable degree in that you really learn how to think differently and ask the right questions to zero in on a problem, even if it isn't related to engineering. One of the goals of the day was to have the young women get a chance to socialize with each other and with the women engineers on campus and in the profession.

Research says women are more likely to seek careers that make a difference in the world, and to the people around them, and **Anna Camery**, graduating in December with a bachelor's degree in electrical engineering, realizes that a career in engineering will do just that. "There are so many different areas where you can have impact," says Anna. "Engineering is technology based. You're not a doctor, saving lives, but maybe you're creating technology that in the future will save many lives."

"I've done projects working on space and aerospace technology. You can work on prosthetics, defense technology, construction, anything involving computers, or power – helping to supply power to everyone in the world. Those projects assist people," says Anna. "Engineering's impact is really spread out over everything; it's the behind the scenes groundwork that makes everything work."

As a freshman at UI, she led a team in the design, development and implementation of a mobile artificial intelligence robotic system that ultimately placed second out of 10 teams in a Warbots Competition. "That was the class that got me interested in engineering and showed me what it had to offer," says Anna. "Those first couple of classes drew me in and kept me there." In her four and a half years at the UI, Anna has taken on a variety of leadership roles in the **Idaho RISE Near Space Engineering** program, the **Idaho Space Grant Consortium's** (ISGC) student high-altitude scientific balloon program. She led the team responsible for all RISE communications instrumentation, protocols, procedures, weather predictions, launch site selection, and navigation and tracking of balloons during flights.

In 2009 and again in 2010, she was selected to serve summer internships at **NASA's Jet Propulsion Laboratory (JPL)**, in Pasadena, California. Anna has logged 20 weeks of work experience in JPL's In Situ instrument section, assisting the chief engineer in research, design and construction of extreme environment instruments for future planetary exploration. That experience includes hands-on field and lab work, where she tested the electronics, circuitry and power systems for the Antarctica Borehole Probe Project.

As a senior, Anna worked as a member of the ISGC/NASA-sponsored robotics team, and designed and built operational inductive charging systems for a future NASA Lunar Rover, an experience culminating in a presentation to NASA engineers and researchers. She also volunteers on public service projects, is a member of the National Association for Women in Construction, and served as technology and electronics operator for her sorority, Delta Gamma.

It's always a pleasure to highlight a College of Engineering student who leads an innovative social effort on campus. **Tim Tate** and his fellow graduate students, **Damian Ball** and **Brandon Morton** designed and built the first **Tower Light Show** that turned out to be a highlight of the 2010 Homecoming festivities. It takes a team effort to pull off an event like this, and Tim, Damian, and Brandon had a lot of help behind the scenes. When all was said and done, 25 people spent nearly 200 hours planning and executing one of the most unique displays of Vandal Pride. Installing the lights and connecting all the cables and wires in the Theophilus Tower took 15 computer science students more than seven hours the day of the show. With a laptop and microcontroller on each floor connecting to spotlights in each room, the team had a lot of moving parts to coordinate. Take a look at this great light show by viewing the video at:

www.uidaho.edu/engr/cs/newsevents/events/towerlights.

It is always my honor to share with you the important role our donors and friends play in our successes, allowing the College of Engineering to continually expand our commitment to student success. I am excited to announce a \$390,000.00 contribution to the **Endowed Chair in Chemical and Materials Engineering** campaign that will provide unrestricted funds for a named chair in chemical and materials engineering. This remarkable gift is made possible by **Deena Henkins, a 1967 chemical engineering graduate**, through a bequest. Deena says, "The education I received at the College of Engineering, department of chemical engineering allowed me to have a successful career and I would like to contribute to that opportunity for other students." We are extremely grateful to Deena for this significant gift that brings us closer to our \$2 million goal.

We are proud to announce that **Tim Haener, P.E., Executive Vice President, J-U-B Engineers, Inc, UI BSCE '89 graduate**, and MS graduate in Environmental Engineering, California State University, Long Beach, will chair the \$1 million **Endowed Chair for Civil Engineering Campaign**. Originally from Grangeville, Idaho, Tim has over 20 years total experience working in the areas of infrastructure master planning, financing and program implementation. He is also active as the Government Affairs Committee Chairman for the American Council of Engineering Companies – Idaho (ACEC-Idaho) and is active on the National ACEC Management Practices and Risk Management Committees. Tim has served on the University of Idaho Civil Engineering Advisory Board for the last six years, two serving as its chairman. Tim is a licensed Professional Engineer in Idaho, Utah and Washington. Founded in 1954, J-U-B is the largest Idaho-based civil engineering firm with over 330 employees in 15 offices in five states. We are grateful to Tim for taking on this important leadership roll.

At the annual **2010 American Institute of Chemical Engineers (AIChE) Conference** held in Salt Lake City, Utah on November 7-12 **Chemical Engineering Assistant Professor Supathorn Phongikaroon, Ph.D.**'s two nuclear engineering graduate students competed in the **2010 Nuclear Engineering Division (NED) Outstanding Paper and Presentation Awards**. Several graduate students from different universities working in the area of nuclear engineering science and technology were invited to compete. **Michael Shaltry** is the winner of the **2010 NED Outstanding Student Paper Award** and his winning paper, titled "Kinetic Study of Ion Exchange Between Multivalent Cations and Zeolite-4A in a Molten Salt," will be invited for a publication in a peer-reviewed journal. His project is supported by INL. **Ammon Williams** is the winner of the **2010 NED Outstanding Student Presentation Award**. His talk was titled the "Modeling of Zone Freezing for Pyrochemical Process Waste Minimization." His project is supported by the Center for Advanced Energy Studies (**CAES**). The winner in each category (paper and presentation) received a \$500 scholarship sponsored by the AIChE organization and Energy Solutions. In addition, the top three paper finalists received travel reimbursements by the NED up to \$700 as well as to cover conference registration costs by the AIChE organization. Both students are pursuing M.S. degrees in nuclear engineering and Michael will be graduating this December. Well-deserved congratulations to Dr. Phongikaroon (Supy), Michael and Ammon!

The University of Idaho celebrated the **2010 Innovation Awards** on Friday, November 12, in a public reception in the Idaho Commons. The awards are given annually to those who have and are engaged with innovation that can impact society through technology commercialization. The awards recognize those individuals who have moved technologies from their research labs into the marketplace via licenses or have been issued U.S. patents during FY2010.

The University of Idaho also recognized individuals who have completed steps along the process to patenting a technology. These recognitions included 22 disclosures of discovery and 10 patent applications from July 2009 through June 2010. The annual awards also recognized companies that have licensed University of Idaho technologies.

Three professors and a graduate student have teamed up with **TerraFusion**, a soil stabilization industry leader, to export a University patent-protected process that uses bacteria to solidify soil, stabilize existing foundations in earthquake risk soils, and facilitate rudimentary road-building to the rest of the world at a low cost.

The Idaho team includes **Barbara Williams, associate professor of biological and agricultural engineering; Ronald Crawford, professor emeritus and former director of the Environmental Biotechnology Institute; and Thomas Weaver, former civil engineering professor and current scientist with the U.S. Nuclear Regulatory Commission; and Malcolm Burbank, microbiology molecular biology and biochemistry doctoral student.**

Funded by the National Science Foundation, the research led to the new technology that centers on building up indigenous bacteria. Malcolm explains that a food source and urea solution, added to bacteria already indigenous to the soil, will help create an evenly distributed area that is strengthened as the bacteria build bridges between soil particles – rather than pumping in bacteria which might not thrive in a new environment, or might clog up around the injection point. The Idaho team is the only group working on soil stability with indigenous bacteria and have proved their theories both in the lab and in the field with every soil type they have tested – seven in all.

During an earthquake, the cemented particles in treated soil would keep the soil from liquefying under buildings. Dr. Williams says recent earthquakes in Haiti, especially, and Chile show that stable foundations will save lives and clean-up recovery costs. "The most rewarding part of this technology is the potential to save lives and improve post- earthquake

conditions,” says Dr. Williams. She adds the technology is great because it is low cost and easy, especially when it is pumped into wells and directed around already built buildings to stabilize the foundation. “You can pre-treat soil before you build on it, but it is very difficult to do after the building is put up,” says Malcolm. “Thomas (Weaver) wanted to develop an easier way to stabilize existing buildings in the U.S.”

TerraFusion is looking to take the idea one step further to create roads in rural and inaccessible areas. In the application of building a road, the solution is sprayed on the surface. And since the materials are relatively inexpensive and easy to transport and mix up, TerraFusion is looking to expand into Third World countries and remote areas where officials struggle with whether or not a needed road is cost prohibitive. “We see this as an extremely productive relationship for both parties,” said **TerraFusion CEO Omri Dahan**. “While this helps TerraFusion expand both its R&D efforts and its market reach beyond road construction, the University gets to see its hard work, experience and knowledge capital brought to life in real applications.”

A big thank you goes to the **Endowed Chair of Chemical and Materials Engineering Campaign Chairman Bill Thomson** for all his efforts to help us reach out to Houston area alumni for the reception at the Houston **Museum of Natural Science, Wiess Energy Hall** this month. I want to personally thank **Bob Furgason, UI BS ChE '56, MS ChE'58, '06 honorary doctorate and Emeritus Dean UI COE** for hosting us in Corpus Christi. Bob was president of Texas A & M University-Corpus Christi for fourteen years and was the first executive director of the Harte Research Institute. I also enjoyed visiting with **Charles Sievert UI ChE '69, President, Chemical Data; Robert Harrell UI ChE '64 retired Shell Oil executive; Gary Freiburger, UI ChE '81 General Manager, Sweeney Refinery, ConocoPhillips** and **Bill Davis UI BSME '73 Chevron Phillips Chemical Plant Consultant** and thank them for taking time out of their busy schedules to visit. Thank you to 50 fellow Vandals for attending the event, it was great visiting with you all!

The 2010 **University of Idaho Alumni Association Awards for Excellence** will be presented on Friday, December 10, 2010 in the SUB Ballroom to 40 undergraduate senior level students and 15 graduate and law students who have achieved outstanding academic success, demonstrated career and professional preparation; campus and community leadership, or to be a leader in the classroom, laboratory, campus and community. Congratulations to five engineering students and their inspirational faculty mentors: **Jamin Ankney**, civil engineering student and **Professor Erik Coats; Kevin Ramus**, electrical and computer engineering student and **Professor David Atkinson; Alec Davis Bowman**, mechanical engineering and mathematics student and **Professor Alton Campbell; Bridget Teresa Wimer**, electrical and computer engineering student and **Professor Joe Law**; and **Michelle Ann Machinal**, chemical engineering student and engineering mentor **PK Northcutt**.

You are cordially invited to join over 100 first-semester and second-semester engineering seniors (mechanical engineering, electrical and computer engineering, biological and agricultural engineering, and computer science) at our annual **Snapshot Day, Friday, December 3rd**. **Snapshot** is a midyear celebration of the College of Engineering's 2010-11 senior design projects, and is the first chance for the public to see projects designed for NASA, Schweitzer Engineering Laboratory, the Office of Naval Research, Idaho National Lab, Power Engineers and other government agencies, non-profit organizations and regional industries at our open house in the Gauss Johnson Building on campus any time between 8:30 and 10:30 a.m. For more information please visit: <http://www.uidaho.edu/engr/expo/snapshot> . Below is a list of ongoing senior design projects and sponsors. Six design teams will be completing their final semester and will be doing technical presentations in sessions that run from 10:30-12:15 in the SUB Gold/Silver

Rooms. Please RSVP to mryba@uidaho.edu if you would like to have a directory of project locations as well as a schedule for the technical presentations. We will have copies waiting for you on Friday morning.

As an added Snapshot Day feature, ME 223 (sophomore design), ME 301 (solid modeling), and ME 425 (mechanical design synthesis) will have displays on a variety of interesting course projects. This will take place in the Gauss Johnson entry-way.

SECOND SEMESTER PROJECTS & SPONSORS (finishing fall 2010)

Regenerative Scooter, Greg Donohoe

Hybrid Formula Car, NIATT

Mars Exploration Vehicle, CAES

Harley Engine Control Unit, Biketronics

Flywheel Energy Storage for Lunar Colonization, NASA

Document Searching Tool, Idaho SBOE

FIRST SEMESTER PROJECTS & SPONSORS (finishing May 2011)

Hybrid Range Extender, MRCl

Tensegrity Unit, NASA

Timber Grading Platform, CNR

Aerospace Materials Engraving, Boeing

Hybrid Formula Car, NIATT

Fluid Chiller and Control System, INTEL

Visualization of Fault Locations, Idaho Power

Microprocessor Development System, Richard Wall

AESD Auxiliary DC Microgrid, US Navy

Solar Energy Recovery Unit, Palouse Clearwater Environmental Institute

Hull Adherence Test Fixture, Miller Coors

Clean Snowmobile Muffler, NIATT

Clean Snowmobile Exhaust Gas Trap, NIATT

Electrorefiner Cadmium Removal System, INL

It is with deep sadness that I share with you the loss of **College of Engineering member, George Gordon Hespelt**, who passed away on November 16, 2010 at the age of 80. George received his Bachelor's Degree in electrical engineering in 1953 at UI and a Master's Degree from Oregon State University in 1957. George taught at the University of Idaho for nearly 50 years in the department of electrical and computer. In lieu of flowers, donations in honor of George Hespelt in electrical and computer engineering may be made.

Friend and benefactor Melva Hoffman passed away November 2, 2010 at Good Samaritan Village after a short battle with cancer. She was 89. She is preceded in death by husband Dwight Hoffman. Dwight was a professor at the University of Idaho from 1944 to 1976 and served as an associate dean of the College of Engineering and as chairman of the Chemical Engineering Department. For over 60 years Melva made her home in Moscow. She will be dearly missed by her family and many friends. She will also be remembered in the College of Engineering for her great generosity and caring of students and faculty. Donations in her memory may be made to the Dwight & Melva Hoffman Chemical Engineering Scholarship Endowment.

UI '39 electrical engineering alumnus, business and civic leader, Wendell Satre, passed away Friday, November 19 at the age of 92. Wendell is the former chairman and president of Washington Water Power (WWP) (Avista). He was the firm's 2nd president, starting from a transmission clerk in 1940. Wendell served in the U.S. Navy during World War II, then returned to Spokane and resumed his WWP career. In 1965 he became executive vice president in 1965, before earning top post, president of WWP in 1971 and president and chairman in 1975. He was president and chairman of the Board in 1981 until he retired in 1985. Overall, Wendell served WWP for 46 years. Throughout his career he served as

president and board chairman of various companies including president and board chairman of Consolidated Electronics, Inc. from 1994 to 1997, Key Tronic Corporation from 1991 to 2006 and chairman of the Output Technology Corporation from 1993 to 2007. Wendell was founding chairman of the board of Itron from 1977 to 1987. Wendell has held executive positions in close to 40 civic and community organizations in the Northwest and received an **Honorary Doctor of Science Degree from the University of Idaho** in 1978, to follow with the **University of Idaho Alumni Hall of Fame Award** and **Distinguished Engineering Alumnus Award**. Wendell was honored by the College of Engineering in 2009 for his lasting contributions to the field of engineering, to the College of Engineering and to the University of Idaho. Wendell leaves his wife, Jessie, of 69 years in Spokane, four children, and many grandchildren and great grandchildren.

On December 8 at the Spokane Convention Center, Scott Wood, Dean, College of Science and I look forward to visiting with alumni at an early evening reception at the **Northwest Mining Association's (NWMA) Annual Meeting**.

One of the true joys of the holiday season is a chance to say thank you. Your loyalty and support make our College of Engineering one of the best in the nation. Thanks to you, we are truly an Engine of Innovation. We couldn't do it without you. From our faculty, staff and students, we wish you the very best this holiday season.

Sincerely,



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Dean, College of Engineering

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Biological and Agricultural Engineering, Chemical Engineering, Civil Engineering, Computer Science, Electrical and Computer Engineering, Materials Science Engineering and Mechanical Engineering. Additional graduate degrees: Nuclear Engineering, Geological Engineering, Environmental Engineering and Engineering Management