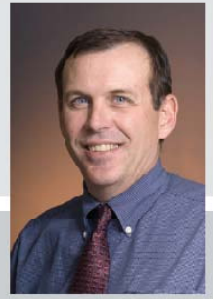


CREATE
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*Donald M. Blackketter, Ph.D.
Professor and Dean
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University of Idaho
College of Engineering

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Dear Idaho Engineering and Computer Science Alumni and Friends,

It is hard to believe the semester is winding down and the holiday season is here. I want to congratulate the 74 bachelorette and graduate students that were conferred degrees last Saturday. I will keep this letter short, but want to highlight a few special people and happenings around the college.

We are very proud of **Eric Wolbrecht, mechanical engineering assistant professor**, who is developing a robotic hand exoskeleton to help stroke patients regain some mobility after suffering from a stroke. "To be working on a project that helps people, where there is a specific need, is a great experience," says Dr. Wolbrecht. This new technology could help stroke patients put on a coat that they may otherwise not be able to do. It's a small change to get some functionality back," he says "but even that small improvement can mean a lot to someone."

Dr. Wolbrecht earned a \$380,000, 5-year grant for the University of Idaho as part of a larger grant from the **National Institutes of Health**. He is working with a professor and doctor at University of California Irvine and a professor with Universitat Politècnica de Catalunya – BarcelonaTech in Spain on a larger scale project to study robotic hand therapy for persons who have suffered a stroke.

As far as Dr. Wolbrecht's participation, he and his team are building 10 tabletop robotic hand devices that will allow participants in the study to use the device for physical therapy in their homes. The tabletop exoskeleton will help patients train with several different motions, like grasp and pinch. The group is looking to use computer games and music to help make the exercises engaging and fun.

Eric says benefits of robotic therapy include repeatability in the delivered therapy, the capacity for large repetition and the ability to measure and track performance. "A robotic hand can do something 1,000 times, but insurance doesn't cover the expense of a physical therapist to do that," says Dr. Wolbrecht. "I don't expect robotics will ever replace a physical therapist, but this will help fill that need for more hours of training." While a robotic hand changes the rehabilitation therapy interaction from personal to machine, Dr. Wolbrecht says the use of such robotic devices will be guided by physical therapists.

The project has three aims: to define the role of correlated sensory motor activity in promoting use-dependent motor plasticity (find out how much we need movement); to identify the effect of training with increased motor output levels on motor recovery (how can the brain be rewired with movement); and to identify the effect of spared brain resources and the quantitative history of movement practice on the reserve capacity for use-dependent motor plasticity (what makes therapy effective).

As part of the grant, Eric is able to fund a doctoral student and has brought on an additional graduate student. Together,

the project requires the development, construction and initial testing of the devices. Once the robotic hand therapy devices are built, they will be sent to UC-Irvine for testing with patients. The patient's ability will be measured before and after training with the robotic exoskeleton. Eric says robotic devices have been used for the last 20 years for rehabilitation, but this study focuses on determining which factors influence functional recovery.

Eric says they are getting into the fine aspects, like what claims can be made about movement and control, and does the device really do more for a patient. With baby boomers aging into the stroke risk age bracket and people living longer the project has the potential to have a large impact on the quality of life of many people.

We are pleased to announce a newly funded two-year **graduate fellowship by Avista Corporation** for a graduate student in power engineering. The graduate student will serve as a mentor to a senior capstone design team over the two semester project. The following year the graduate student will continue to explore and build upon the project results in a Master's thesis.

The **Senior Capstone Design Course** in the College of Engineering is a signature program at the University of Idaho that focuses on teaching students the fundamentals of engineering during their first two years, and then creating opportunities for students to use those fundamentals in the labs while also earning experiences in engineering design. Every UI engineering graduate participates in a senior capstone design course before they head to graduate school or the workforce. This process challenges Idaho engineering graduates to tackle real world issues with the help of industry partners. Before they graduate, innovative teamwork of senior engineering students have the opportunity to apply theoretically and academically acquired knowledge to an engineering problem. Through the senior capstone design course, students are mentored in research, encouraged to brainstorm as a team, and as a result, develop innovative engineering projects.

The support of an industry partner like **Avista** makes this program possible and provides a forum for our students to work on leading research and bring design ideas to the campus and industry. We are grateful to College of Engineering advisory board member **Don Kopczynski, Vice President Operations, Avista Corporation, UI B.S.E.E. '79**, for his support of this scholarship and commitment to the college.

We thank **Avista Corporation** yet again for recently endowing a scholarship in the College of Engineering to honor UI engineering icon, **Wendell Satre**. Wendell graduated from the University of Idaho in 1939, the first in his family to receive a college education. He immediately began his 46-year career with Avista (formerly called Washington Water Power).

Wendell moved through a number of positions in engineering, construction and operations. He served as an operating engineer on the licensing and construction of Cabinet Gorge Dam. When the dam was completed in 1952, he was promoted to superintendent of production, maintenance and construction, and soon after was named manager of construction and maintenance. In 1963, Wendell became executive assistant to the president, executive vice president in 1965 and president in 1971. He went on to be chief executive officer and chairman of the board from 1975 until his retirement in 1985.

A visionary leader, he had a keen eye for issues of the future. In a speech he gave in 1983 on the 25th anniversary of

Avista's Kettle Falls Generating Plant, he reminded the crowd, "The issue today is not a choice between conservation, coal, nuclear, renewable or all other forms of generation, but rather it's the need to use all of them when practical... If we fail to plan and build today, tomorrow could be too late." His statement in the context of renewable energy generation is still true. It took courage to build the first wood waste plant made solely for the purpose of generating electricity. It had never been done before. At the outset, people didn't think it could be done, but Wendell had a vision and saw the potential.

Because of his significant work with Avista and the power industry, Wendell was awarded an **honorary doctor of science degree** from the University in 1978, inducted in the **University's Alumni Hall of Fame**, and honored in 2009 with the **Distinguished Engineering Alumnus Award**.

Wendell passed away on November 19, 2010. In honor of its esteemed leader, Avista Corp. recently made a gift of \$35,000 to the College to establish the **Wendell J. Satre Endowed Scholarship in Electrical Engineering**. This endowed scholarship from Avista shows appreciation for his engineering legacy and it will truly enhance our ability to educate outstanding engineers in the future. The college is truly appreciative to Avista for honoring Wendell in this way. The scholarship is in addition to the current **Avista Scholars Program** in the College of Engineering, which provides four to six awards each year to students studying electrical engineering.

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 several major gifts (contributions at least at \$10,000) this month to the **Think Tank** project, a top priority of the College. We are grateful to College of Engineering advisory board members **Brent Keeth, UI B.S.E.E. '82, M.S. E.E. '96**, (Susie), **Ryne Stoker, UI B.S. Mining E. '90, B.S. Geol.E. '04**, (Anna), **Bill Eisinger, UI B.S.E.E. '75**, (Deborah) and **Terry Precht, UI B.S. Ag.E. '75, M.S. Ag.E. '78**, (Diana) for their commitment to the college.

The **Think Tank**, a state-of-the-art facility, will be housed in the Janssen Engineering Building and have the look and feel of a world-class engineering facility to support student success. The **Think Tank** will be student-centered and delivered via collaboration between experienced undergraduate students, graduate students, faculty and staff to keep students interested and excited about engineering. It will communicate the message to incoming freshman that "We are expecting you!"

It's that time of year when our thoughts turn to holiday giving. Today, the College of Engineering launched the **Engineering Giving Web Site** that provides information on the college's top priorities and fundraising campaigns. The site, located at www.uidaho.edu/engr/give, highlights several donors and volunteers and the areas they support. I encourage you to log on and learn more about giving to the College of Engineering.

Most importantly, during this holiday season I want to sincerely thank you all for your loyalty and support that makes our College of Engineering one of the best in the nation. From our faculty, staff and students, we wish you the very best this holiday season.

Sincerely,
Donald M. Blacketter, 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