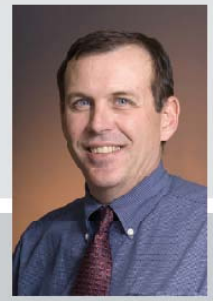


CREATE
INTEGRATE
ADVANCE

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



University of Idaho
College of Engineering

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Dear Idaho Engineering and Computer Science Alumni and Friends,

The vision of the College of Engineering at the University of Idaho is to be an engine of innovation that integrates student-centered academics, relevant research, and meaningful outreach that advances Idaho and beyond. To address many of the extraordinary challenges facing the world today, the College of Engineering is working to create, integrate, and advance areas of multidisciplinary research to provide solutions. This requires us to establish ways to foster research and create new opportunities for research relationships and projects with the private sector.

Thanks in large part to the efforts of **Vice President of Research Dr. Jack McIver** the University of Idaho Board of Regents this month approved the university's proposal to establish an applied research entity known as the **Laboratory of Applied Science and Research, or LASR**. The lab will be located at the University of Idaho Research Park in Post Falls. LASR will be a non-profit entity affiliated with the University of Idaho, but with a separate, independent administration. Its autonomy will allow flexibility in pursuing projects that are typically hard to achieve in a university setting. "Our faculty and students will be at the ground level in new applied research, and they will be working in new jobs created by the entity," says Dr. McIver.

The creation and operation of LASR is intended to be financially neutral to the university, meaning LASR will fund its own operations from research grant and contract revenue. It will be a joint effort between the University of Idaho and the surrounding community. Its separate board of directors will give LASR more flexibility to work with external businesses and the ability to work with the intellectual property of other institutions. Our College of Engineering Advisory Board played a significant role in promoting and supporting the LASR entity.

The University of Idaho's current Post Falls Research Park has seen success; one example is the **Center for Advanced Microelectronics and Biomedical Research, or CAMBR**, whose UI engineers have produced many unique, powerful computer processing chips for NASA space missions during the past decade.

Another announcement this month that creates new research opportunities in the State of Idaho is the plan for a new **Center for Energy Efficiency Research** supervised by the Idaho Falls-based **Center for Advanced Energy Studies** (a 2-yr. partnership between the three state universities and the Idaho National Laboratory), which could play a leading role for Idaho in national efforts to scale back energy consumption. **Idaho Power** is an enthusiastic supporter of the idea, and so is Gov. C.L. "Butch" Otter. The center would be entirely financed by private companies, who would then have a say in the research conducted.

There are only three similar university-based centers that exist in the country, all in California. The California programs are all advancing in different areas: researchers at the University of California-Davis are creating a zero net energy village; a Stanford University team is focused on smart grid technology and how to change power users' behavior; and

the University of California-Santa Barbara has produced advances in LED lighting. All three programs have raised money from corporations ranging from Wal-Mart to Goldman Sachs.

Many details remain undecided, including the location and scale of the center. **Harold Blackman, director of the Center for Advanced Energy Studies**, said industry-backing has worked well for other initiatives at CAES, like a program to study how to derive energy from wastewater that has drawn about \$500,000 in contributions, including from the city of Meridian.

Clinton Jeffery, associate professor of computer science, in the College of Engineering is at the forefront of the evolutionary process of language which continues to evolve at the hands of computer programmers.

"Computer programs are written using languages that both the human and computer must understand," says Dr. Jeffery. "Most programming languages cater to the computer, but gradually they are becoming easier and more powerful for the humans that use them." Dr. Jeffery develops the **Unicon** language with a cross-institutional team hosted on an open source software site called SourceForge.net.

"For the Unicon programming language, I took the best language that I could find – Icon, from the University of Arizona – found some friends who could help, and made it better," he says. Unicon was initially developed by Jeffery in collaboration with **Shamim Mohamed**, then a senior software engineer at Logitech, in California's Silicon Valley, and **Federico Balbi**, an undergraduate research assistant. Unicon's subsequent contributors include many current and former students, government and industry sponsors, and volunteers from the Internet.

"Unicon is particularly useful when programmer time is in short supply and when inventing new kinds of programs, particularly those with complex algorithms, text processing or graphics needs," says Dr. Jeffery. A very high level, goal-directed, object-oriented, general purpose applications language, Unicon is available free of charge and has users around the globe. Its primary customers include the U.S. National Library of Medicine and AT&T Research.

Free, open source is an ideal way to foster multi-institutional collaboration and promote the programming ideas that the Unicon language embodies Dr. Jeffery notes. One advantage of the language is that it facilitates new graphical applications. "Invention of new kinds of visualizations is one of the areas where I have used Unicon," Dr. Jeffery says. "Specifically, visualizing the behavior of programs while they are running, in order to understand or debug them."

Combined with networking, visualizations and other 3D graphics can become powerful educational tools for tasks such as distance education. "We are currently building a program in Unicon called **CVE**, or **Collaborative Virtual Environment**, that combines a multi-user 3D world with a set of tools for computer science education," Dr. Jeffery says. "Compared with building education applications in an existing framework, such as Second Life, CVE allows us to integrate custom functionality that would be difficult to build elsewhere."

Unicon Version 12 will be released later this fall. Dr. Jeffery and **computer science doctoral student Jafar Al Gharaibeh** worked this past summer to add concurrency to the language. Concurrency allows several computations to be executed simultaneously, and with the potential to interact. "Modern computers have many processor cores, and programming languages have to make it easier for humans to use these many cores, or programmers won't be able to keep up," says Dr. Jeffery.

We are grateful to **AT&T** for their continued support of research on the topic of **Implement Algorithms for Rapid Availability Analysis** under the direction of **Professor Clinton Jeffery** in the department of computer science. Dr. Jeffery investigates algorithms for rapid availability analysis while providing quality learning opportunities and experiences to the computer science students.

Engineering honor student Ashley Vincent, a **civil engineering junior**, was one of five U.S. students selected for the **Fulbright Summer Institute** at the **Newcastle University International Summer School** for five weeks last summer. According to Ashley, it was more than a study abroad experience; it was the Fulbright sponsorship that drew her to the program. This is the first year the U.S. /U.K. Fulbright Commission hosted a program for U.S. scholars to study in the U.K. Ashley experienced an exciting academic program at a top ranked University and explored the culture, heritage and history of the UK.

A big thank you goes to **Think Tank Campaign Chairman Ron Olson** for all his efforts including MC'ing the **Museum of Flight** engineering alumni reception earlier this month in Seattle and to **Clinton Woo, Superintendent, Advanced Developmental Composites and Fabrication, Boeing, Bruce Bouton, UI BS ECE '85, Technical Fellow, Advanced Systems, Integrated Defense System, Boeing** and **Valerie Jensen, UI BS ECE '85, Senior Manager, Engineering, Boeing** who helped reach out to engineering alumni who currently are Boeing engineers. Thank you fellow Vandals for attending the event, it was great visiting with you all!

Houston area alumni, please save the date to join us at the **College of Engineering Reception, Thursday, November 18, 2010** from 6:00 to 9:00 p.m. at the **Houston Museum of Natural Science, Weiss Energy Hall** at 5555 Hermann Park Drive in Houston, Texas. Weiss Energy Hall will be open for touring until 10:30 p.m. Museum admission and parking at the museum garage (located on corner of Caroline Street and Hermann Park Drive) are complimentary. Please RSVP by Friday, November 12th by contacting Jeff Pilcher at (208) 885-7978 or email jpilcher@uidaho.edu. A special thank you goes to **ChemE and Materials Engineering Endowed Chair Campaign Chairman Bill Thomson**, UI, Ph.D. '69, for assisting with the event and personally reaching out and contacting Texas alumni.

I look forward to seeing many of you in Houston, or on campus for a football game this fall. If you are planning to attend an upcoming home game, please call Mary Lee Ryba at 208-885-6774 or email mryba@uidaho.edu and we will make reservations for you at the President's Pre-Game event.

Sincerely,



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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