

The Integrator

UNIVERSITY OF WASHINGTON
COLLEGE of ENGINEERING
A Community of Innovators

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Grainger Power Energy Program Receives Endowment

In 1999, the Grainger Foundation entered into partnership with the University of Washington to provide merit-based Grainger Fellowships and Scholarships to power engineering students. Over the past five years, the Foundation has provided a total of \$500,000, which has helped support 30 undergraduate students, and 13 graduate students through scholarships and fellowships.

In 2005, the Foundation generously gave an endowment of \$1,000,000, which was further increased by \$350,000 through the UW Matching Initiative. The new endowment will allow the Program to continue to attract the best students in the U.S. and increase national visibility.

“The new endowment will provide critical and permanent resources for the UW,” said Grainger Program Director, Professor Chen-Ching Liu. “This is an important recognition of our accomplishments in recruiting and mentoring the brightest talents in power engineering. Without the leadership from Mr. Grainger and Mr. Flory of the Grainger Foundation, this program would not have been possible.”

On May 19th 2005, family, friends and associates gathered at the annual Grainger Recognition Dinner to celebrate the



Acting Dean, Mani Soma presents Lee Flory of the Grainger Foundation with a plaque at the Grainger Recognition Dinner. Right: Professor Chen-Ching Liu.

expansion of the Program and recognize the new awardees. Eric Carlson, Nathan Chang, Liyang Chen, Benjamin Long, Justin Reed, and Julian Shirland are this year's Grainger Undergraduate Scholars, and Alanson Sample and Benjamin Long are this year's Grainger Graduate Fellows. J

A Century of Innovators...See Page 3

Centennial Celebration

April 29, 2006

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Message from the Chair

Electrical Engineering at the University of Washington began one hundred years ago, as a response to the technological possibilities associated with electric power and communications. As that century unfolded, opportunities grew, and our Department grew too.



Professor and Chair David J. Allstot

Occasionally, the growth resulted in new Engineering Departments; Aeronautics and Astronautics, Computer Science and Engineering and Bioengineering were created entirely or predominantly from Electrical Engineering.

As we begin our second century, we face brand new challenges which nevertheless mimic those from a century ago. There is an electrical engineering revolution being waged in biochemistry and microsensors systems. Likewise, we see tremendous demand for ever more wireless data

bandwidth, ever lower power consumption, ever smaller devices, and ever more multifunction, highly integrated and highly distributed systems against the backdrop of physical limits in Silicon technology.

The technologies embraced by electrical engineers have always had a strong impact on society: electric power, basic telecommunication services, television and radio broadcasting. Recent advances have profoundly changed the way humans interact with each other, with business, and with their societies, and acceptance speed of the technology has been bracing. The World Wide Web went from curiosity to juggernaut in a decade; gene sequencing and genetic testing was once extraordinarily rare, expensive and slow. Now genetic testing is almost routine, and several organisms have had their genome completely sequenced.

Our Department's students, staff and faculty will provide continued leadership in developing these and other marvelous technologies for our second century of Electrical Engineering at the UW. *J*

Department Highlights and Upcoming Events

Department Highlights

- *Department Size:* 54 faculty, 45 staff, 275 graduate students, 470 undergraduates
- *National Ranking:* Graduate and undergraduate programs ranked top 20 by *US News and World Report*
- *Number of IEEE Fellows:* 23
- *Percentage of women in Electrical Engineering:* Undergrads (13.5%), Grads (20%) and Faculty (16.5%)

Upcoming Events

- *2005-2006 Colloquium Series:* <http://www.ee.washington.edu/research/colloquium/>
- *Engineering Open House:* 4/28/06-4/29/06
- *Department Centennial:* 4/29/06

A Century of Innovators: 1906-2006

*Electrical Engineering Centennial Celebration
Saturday, April 29, 2006*

By Professors Les Atlas and John Sahr, Centennial Co-Chairs

UW Electrical Engineering will celebrate 100 years this coming spring. It's quite a milestone, and a time of reflection for all of us. But what was it like 100 years ago at the University of Washington?

For a prospective student in the spring of 1906, a career in electrical engineering was just as captivating then as it is now. Only five years previous, Guglielmo Marconi at St. John's, Newfoundland received a wireless signal from Cornwall, England consisting of the Morse code letter "S." The magic of electrical motors, lighting, and the exciting future of radio communications undoubtedly inspired our first class of electrical engineers.

Fifty years later, the miniaturization of electronics took off, and two of our very own students foresaw this impact. The late Dr.



Victor Grinich (Masters degree in 1950) became one of the founders of Fairchild Semiconductor, which set the stage for modern integrated circuits. Dr. Simon Sze (Masters degree in 1960) went on to co-invent nonvolatile semiconductor memories, which are in virtually all computing devices used today when combined with other integrated circuitry.

What are today's students inspired by? While traditional areas such as energy transmission, electronics and computing are still rich with opportunity, new areas such as genomics, nanotechnology, voice interfaces, and self-assembling molecular electronics are emerging, which are well represented by the diverse students and faculty at the University of Washington Electrical Engineering Department.



When electricity was a new phenomenon, plaques such as these hung on the wall.


*Left: Irene Peden and Austin Eastman.
Spec. Coll, UW23467z.*



*The first UW EE field trip in 1905.
UW Libraries, Spec. Coll, UW23463z.*

We are excited to celebrate our rich history by welcoming our UW Electrical Engineering alumni, faculty, students and national research supporters to campus. Our Centennial Celebration will be held Saturday April 29, 2006 and we hope you will join us. Here's a brief overview of what is in store:

- Friday afternoon check in and early registration in our hospital-ity room, AE 108 of the Electrical Engineering Building
- Luncheon at 12:00pm on April 29th to kick off the Centennial Celebration
- Building tours of the technology, equipment and collaboration in EE research and instructional labs
- Internationally renowned keynote speaker (more to follow in future correspondence)
- Opportunities to meet our award-winning faculty and learn about the cutting edge research projects they lead
- Reconnect with your classmates, friends and faculty

We hope you will join us on Saturday, April 29, 2006. Watch your mail for more information about this celebration. 

Alumni Mentoring Network

Upon graduating from UW EE, many Alumni have gained invaluable experiences in business, industry, government and academia. To provide a venue for Alumni to share these lessons with the new generation of engineers, the department is forming an Alumni Mentoring Network.

Through this program, an Alumnus will be paired with a group of four students in the same field. Each pairing will keep in contact over email, and will meet in person at the Centennial Celebration.

The Alumni Mentoring Network will teach students life lessons that cannot be taught in the limited class hours. The experiences together will have positive impacts on students' career paths, and will potentially result in long lasting friendships.

If you are interested in participating in the Alumni Mentoring Network, please contact Professor Babak Parviz at:
babak@ee.washington.edu.

When Was UW EE Established?

By Professor Rich Christie

The birth of Electrical Engineering at the University of Washington was a long-drawn out process with several important milestones, giving rise to some uncertainty in the exact date of our Centennial:

- 1895 The first course with an Electrical Engineering topic (electrical machinery) was taught by the Chair of the Physics Department

- 1897/98 UW catalog contained the first EE curriculum and graduation requirements (five years to a BS), under auspices of the College of Engineering

- 1897 The first professor of Physics and Electrical Engineering was hired

- 1902 The first BSEE was awarded to Steven Rowell



Dr. Carl E. Magnusson, the Department's first chair.

However, the formal establishment of the Electrical Engineering Department occurred in the academic year of 1905-06 when Carl E. Magnusson, Professor of Electrical Engineering, was appointed as its first chair. Thus, the 2005-2006 academic year marks the 100th year of operation and therefore, our Centennial. ∫

Boeing Sponsors Centennial Scholarships

In honor of the Centennial, The Boeing Company has graciously sponsored two undergraduate scholarships for our department this academic year. The award recipients are Diana Cheng and Biying Ye—you can read more about them below.

Diana Cheng is currently a junior in the undergraduate program specializing in Communications and Electromagnetics. During the 2004-2005 school year, she worked in the Sensors Energy and Automation Laboratory to detect moisture in paper pulp using fringing electric fields. She has also interned at Hewlett Packard the last two summers. Diana plans to venture out into industry after graduating.

Biying Ye is also a junior in the department and is very interested in Robotics. She has had to take the last year off of school to work and save money for tuition, so this scholarship will help her return to school without a financial burden. ∫



Assistant Professor Brian Otis

Alumni Spotlight: Assistant Professor Brian Otis

Returning to old stomping grounds

UW EE's newest faculty member, Assistant Professor Brian Otis has returned to his old stomping grounds, but how did he find himself back in the very department where his academic career began?

In 1995, Otis came to UW from Vancouver, Washington to pursue his undergraduate degree in EE. Before that, his family lived in Missoula, Montana, which probably influenced his leisure activities - skiing, biking, and hiking. During his time at UW, he was impacted in many ways by the faculty here: Eve Riskin as a mentor, John Sahr as an inspiring teacher, and Bruce Darling who provided crucial circuits intuition. In addition, he performed research with Speech and Hearing Sciences Professor Kelly Tremblay. This

unique combination of faculty talents led him to an interest in the plasticity of the human brain and how it learns to differentiate between sounds.

Otis then obtained his M.S. and Ph.D from Berkeley, where his research interests evolved into low-power radio design for sensor networks. This combination of electronics, biological, and MEMS experiences led him to an interest in wireless sensing for bioelectronics.

To Otis, UW is a very exciting place to be as a young professor because of the opportunities in cross-disciplinary work within all these fields. With a new facility and many new, young faces amongst the EE faculty, he looks forward to furthering his academic career in the same place where it all started. ∫

We'd like to hear from you! Let us know what you've been up to since your days as an EE student by emailing: lallan@ee.washington.edu.

Poovendran Goes to White House – Receives PECASE Award

On June 13th 2005, Professor Radha Poovendran received the Presidential Early Career Award in Science and Engineering (PECASE) from President George Bush. The Office of Science Technology Policy annually hosts this event to acknowledge researchers who have made exceptional contributions in science and technology at early stages of their careers.

The Presidential Award is the U.S. Government's highest honor given to scientists and engineers, and recommendations are made by participating agencies.

Poovendran was nominated by the Information Assurance Program of the Army Research Office for his accomplishments in applied cryptography in resource-constrained wireless networks, entropy techniques for multi-user security, discovering novel distributed key generation algorithms, cross-layer design techniques, developing defense against attacks using geometric



The 58 PECASE award winners of 2004.

random graphs, and routing and security using complexity theory. "I would like to acknowledge the contributions of past and present students of the Network Security Laboratory. This award reflects the quality of our students as well as the importance of wireless security research performed in the department and at UW," said Poovendran. ∫

Share Your Ideas and Memories

The Department of Electrical Engineering fosters a culture of innovation through research, education and leadership. Through *The Integrator*, our goal is to provide you with a sampling of our community's great achievements in these areas.



If you have story ideas that you would like to see in *The Integrator*, please contact the Publications Manager, Laura Haas at: lallan@ee.washington.edu.

Similarly, the Centennial Committee is collecting historical photos, mementos and stories for the upcoming event. Please feel free to send any memories or photos that remind you of the days when you were a student, staff or faculty member. [J](#)

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