

The Integrator

In This Issue...

Chair's Message	2
Graduation Speaker	2
Lytle Lecture	3
Ward Helms	4
PES Scholarships	4
Grad Fellowships	5
Diamond Award	6
UW EE on the Road	6
Class Notes	8



New High-Tech RF and Microwave Teaching Laboratory for UW EE Students

The department is pleased to announce the opening of the new Agilent Technologies RF Laboratory. This new teaching lab was made possible through generous in-kind support from Agilent Technologies. Agilent provided deep discounts on state-of-the-art hardware and software for the lab, which will support the department's curriculum in electromagnetics and wireless technologies. The lab will be named in recognition of the company's support. The department hosted a special event on March 6th to dedicate the lab; the event was attended by Agilent executives, EE faculty, and College of Engineering leadership.

The new Agilent Technologies RF Laboratory will provide students access to the latest bench-top and hand-held instruments for radio frequency (RF) and microwave measurements. The instrumentation focuses on vector network analyzers (VNAs) which are the standard instrumentation

tools for microwave and RF engineering, similar to the role of the oscilloscope and digital multimeter in analog electronics and electrical troubleshooting. The Agilent hardware also includes spectrum analysis capability and flexible signal synthesis for the development and testing of complete RF systems with up to date communication protocols.

"We are thrilled about this partnership with Agilent Technologies," said Judy Ramey, interim Frank & Julie Jungers dean of engineering. "With Agilent's generous support, we are able to enhance and expand our student's educational experience."

"RF and microwave technology has provided society with several breakthrough electrical engineering and communication technologies and is continuing to develop rapidly," said professor and chair Vikram Jandhyala.

Continued on page 5

Message from The Chair

In March, the department celebrated the opening of the new Agilent Technologies RF Lab made possible through the generous in-kind support of Agilent Technologies. This new teaching lab will provide state-of-the-art hardware and software, which will support the department's curriculum in electromagnetics and wireless technologies.

Agilent also helped our department present an interesting joint session for several top electrical engineering program chairs on new hardware-software curriculum development at the ECE Department Heads Meeting in Orlando in April.

I am very pleased to announce that Ted Kummert (BS EE '85), a Venture Partner at Madrona Venture Group will be giving our keynote speech at EE's 2013 graduation ceremony in June. Ted is an accomplished expert in the areas of software platforms, Big Data, Cloud computing with a long and distinguished career at Microsoft where he served as corporate vice president of the Data Platforms Group. He currently serves on our advisory board and has been a past speaker in EE's Leadership Seminar class.

We have also had some recent scholarship and fellowship winners to recognize, with two graduate students receiving 2013 NSF graduate research fellowships, and seven undergraduate students receiving IEEE Power and Energy Society Scholarships. Such achievements of our students also demonstrate the quality of our education and research programs at both the undergraduate and graduate level.

In an effort to strengthen our local, regional, and international partnerships, the EE external relations team headed to San Francisco bay area and Taiwan this winter. In San Francisco we continued with the annual tradition of hosting the ISSCC Conference reception for alumni and friends which attracted 150 people. We also had great meetings at Google and IBM. In Taiwan, many of our alumni have impressive careers in both academia and industry allowing us to lay ground work for future corporate and academic exchanges. Please check out the pictures of our "road trip" on page 6.

Professor Alan S. Willsky of MIT will deliver our 5th Annual Dean Lytle lecture series on May 14th and 15th. As one of UW EE's premiere annual events, the Lytle lecture is an excellent opportunity to hear from world-class leaders in the field as well as reconnect with members of the UW EE community. I encourage you all to attend.

Vikram Jandhyala
Professor and Chair




Ted Kummert to Give 2013 Graduation Speech

This year's graduates will mark the occasion with a ceremony on Friday, June 14 in Kane Hall 130 that includes remarks by distinguished EE alum, Ted Kummert. After more than two decades at Microsoft, Kummert will share a challenge to graduates as they leave the UW and pursue positions in the corporate world and academia.



Kummert's success at Microsoft is marked by leadership in areas including operating systems, consumer online services, enterprise security and application platform. He was instrumental in the development of key enterprise products: SQL Server, SQL Server Parallel Data Warehouse, Windows Azure Data Services and Microsoft's business intelligence and big data offerings. Widely known as the "data chief" of Microsoft, he led the data platform business through a period of significant growth and drove the cloud and big data strategy for the platform. Kummert is currently a venture partner at Madrona Venture Group where he is responsible for identification of new investments and providing strategic counsel and operational advice to Madrona portfolio companies.

A self-identified "diehard Husky," Kummert graduated magna cum laude with his BSEE in 1985. He not only supports athletic teams at the UW, rarely missing a football or basketball game, but also is dedicated to academics through his service on the EE Advisory Board. It was EE Professor Yongmin Kim's class on "Digital Logic" that sparked his interest in computers. Equipped with an education based on a strong technical foundation and problem-solving skills, Kummert has had an amazing professional career. He will share a valuable message to members of the class of 2013—reflecting on their education and where it may lead them! 

Alan S. Willsky to Deliver the 2012-2013 Lytle Lecture Series


Alan S. Willsky, the Edwin Sibley Webster Professor of Electrical Engineering and Computer Science and Director of the Laboratory for Information and Decision Systems at MIT is the speaker for the 5th annual Dean Lytle Electrical Engineering Endowed Lecture Series.

Dr. Willsky was a founder, member of the Board of Directors, and Chief Scientific Consultant of Alphatech, Inc., and has held visiting positions at several institutions in England and France. He has authored more than 200 journal papers and 350 conference papers, as well as two books, including the widely used undergraduate text *Signals and Systems*. Dr. Willsky has received numerous awards, including the 1975 American Automatic Control Council Donald P. Eckman Award, the 1980 IEEE Browder J. Thompson Memorial Award, the 2004 IEEE Donald G. Fink Prize Paper Award,

a number of other best paper awards, and an honorary doctorate from Université de Rennes. Dr. Willsky received the 2009 Technical Achievement Award from the IEEE Signal Processing Society and in 2010 was elected to the National Academy of Engineering.

Dr. Willsky is the leader of MIT's Stochastic Systems Group. His early work on methods for failure detection in dynamic systems is still widely cited and used in practice, and his more recent research on multiresolution methods for large-scale data fusion and assimilation has found application in fields including target tracking, object recognition, oil exploration, oceanographic remote sensing, and groundwater hydrology. Dr. Willsky's present research interests are in problems involving multidimensional and multiresolution estimation and imaging, inference



algorithms for graphical and relational models, statistical image and signal processing, data fusion and estimation for complex systems, image reconstruction, discovery of models for complex interacting phenomena, and computer vision. 

Learning & Inference for Graphical & Hierarchical Models: *A Personal Journey*

(Technical Colloquium)

Tuesday, May 14th, 2013

10:30 - 11:20am

Electrical Engineering Building, Room 105

Building A Career on the Kindness of Others

(For General Audience)

Wednesday, May 15th, 2013

3:30 - 4:20pm

Microsoft Atrium, Paul G. Allen Center

For more details or to watch the live streaming of the talks, visit:

www.ee.washington.edu/news/2013/lytle_lecture.html

WHERE ARE THEY NOW?

A Look at Emeritus Faculty: Ward Helms

Ward Helms received his PhD from UW EE in 1968, and he enjoyed his time so much that he never left. Helms joined the department as a faculty member and taught electronic circuit design for the next 36 years.


During this time he started the departments' integrated circuit program. He also carried out research on electronic circuits, starting with discrete transistor circuits, operational amplifiers, and going through semi-custom IC's to full custom integrated circuits. His EE536 course was the first at the UW to build chips using the MOSIS fabrication service sponsored by NSF.

Over time, Helms' research evolved. It started in experimental upper atmospheric research, probing the D-region with the first VLF radar system in Antarctica, which he designed. The U.S. Board on Geographic Names even named a mountain in Antarctica after Helms because of his significant research. Helms then studied electronic system design and then delved deeper into integrated circuit design. Helms wrote the first automated silicon compiler for switched capacitor filters and continued to work in analog integrated circuit design.

In 1972 Helms had the good fortune of becoming a member of Barney Oliver's CYCLOPS program, the beginning of SETI. Barney Oliver was the HP Vice President for Research and invented the Engineering Calculator starting with the HP-35. In the Cyclops program Helms was able to stay ahead of all 20 young PhD's involved. Helms states that Oliver is the only true genius he has ever met.

Helms says above all else he is a teacher and he said it was inspiring during his long tenure in the department to interact with the many excellent students passing through his classes and research program. He said graduating successful PhD candidates has been the highlight of his career.


"Ward Helms and Don Reynolds convinced me to spend a year in Antarctica working for the UW operating an ionospheric research station," says alumnus Alan Chandler (BSEE '66, MSEE '70, PhD '77). "When I got back Ward encouraged me to use that data for a PhD dissertation. Ward was a great teacher, and we remain very good friends," says Chandler.

Helms and his wife Elizabeth live on Camano Island, Wash. They have three children and seven grandchildren. Helms keeps busy with ham radio, including low earth orbiting communication satellites, bowling, and boating on his 1952 Chris Craft, the KiwiByrd. 

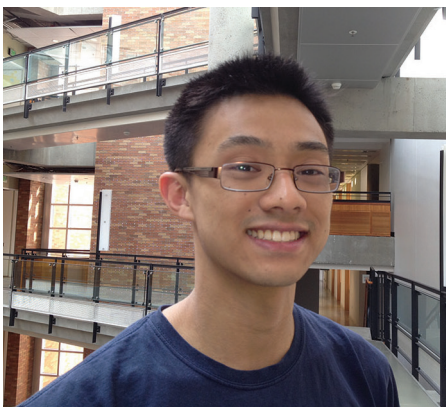
Seven Undergrads Win IEEE PES Scholarships



Seven UW EE undergraduates have been awarded scholarships in the amount of \$2,000 from the IEEE Power and Energy Society (PES). These scholarships recognize undergraduate students who have declared a major in electrical engineering, are high achievers with strong GPAs and distinctive extracurricular commitments, and are committed to exploring the power and energy field.

"I am delighted that the personal and academic qualities of these young people have been recognized by the selection committee," says Close Professor Daniel Kirschen. "They are interested in a career that will benefit not only themselves but also the wider community. Having so many scholarship recipients from UW is also a recognition by industry of the high quality of our the power engineering program." 

Back: Jessica Coleman, Professor Daniel Kirschen, Chair Vikram Jandhyala, Tomas Martinez. Front: Howard Lu, Erin Clement, Melissa Martinsen, Tracy Yuan, Kaiwen Sun.



Top-Notch Graduate Students Receive Prestigious Fellowships

Kevin Huang has been awarded the 2013 NSF Graduate Research Fellowship. This award provides three years of support including an annual stipend, cost-of-education allowance, an international travel allowance, and TeraGrid supercomputer access. Huang works on 3-D non-rigid shape correspondence, and is advised by Professor Howard Chizeck. The motivation lies in providing accurate kinesthetic feedback for haptic rendering based on real-time point cloud data during interaction with a deformable object. This research also has application in dynamic organ modeling for the purposes of robotic surgery.



Erin Sanehira has been selected by NASA to receive the Space Technology Research Fellowship (NSTRF), and the 2013 NSF Graduate Fellowship. Similar to the NSF fellowship, the NSTRF is also a three-year fellowship that covers stipend, tuition and fees, some research expense, and on-site NASA center/R&D lab experience allowance. The goal of the NSTRF is to provide the "Nation with a pipeline of highly skilled researchers and technologists to improve America's technological competitiveness." Sanehira's research uses non-toxic, colloidal quantum dots and plasmonic nanoparticles for photovoltaic applications. By using non-toxic, solution-processable materials, the goal is to fabricate inexpensive, lightweight, and flexible solar cells for unique conformal or large-area applications. She is advised by Professor Lih Lin. **IE**

New Agilent Lab

(Continued from page 1)

"The Agilent Technologies RF Lab will allow our students to gain important hands-on test and design experience that will help prepare them for critical positions in industry."

This hardware laboratory will support several existing courses in the department, which have long been in need of a relevant laboratory component. These courses include EE-361 (Applied Electromagnetics), EE-467 (Antennas: Analysis and Design), EE-480 (Microwave Engineering), and EE-481 (Microwave Electronic Design). New lab courses in communications, wireless systems, and electromagnetic sensing will be developed. State-of-the-art software tools from Agilent complete the lab by allowing students to flexibly manipulate and display acquired measurement data using the VSA software package, and to design complete systems from the component level up using the indus-

try standard computer-aided design (CAD) suite known as "EEsof." Experience with industry standard tools will give students up-to-date education in modern RF and microwave design and a head start for employment opportunities which demand this knowledge and training.

"Agilent is delighted to work with UW EE's faculty to develop a high-quality RF and microwave education for future engineers," said Dan Dunn, general manager of Agilent's handheld and low-cost network analysis division.

One of the more unique features of this laboratory which sets it apart from others is the use of hand-held network analyzers. Modern electronic instrumentation now makes it possible to miniaturize an entire network analyzer into a hand-held form factor. This allows for portabil-

ity and enables some measurement applications that would otherwise be impossible to accomplish. Here, the instrument can be taken directly into the field to measure antenna patterns, signal propagation, coupling effects, and signal transmission issues. The hand-held instruments also enable classroom demonstrations which can then be reproduced by the students. State-of-the-art bench-top instrumentation is also included to support computer-aided design flows which require close coupling of measurements to system planning and layout.


The overall combination of hand-held and bench-top instruments and their associated software provides a well-rounded laboratory capable of supporting many different areas in electrical engineering and providing for future laboratory capability to keep up with the advancements in this technology. **IE**

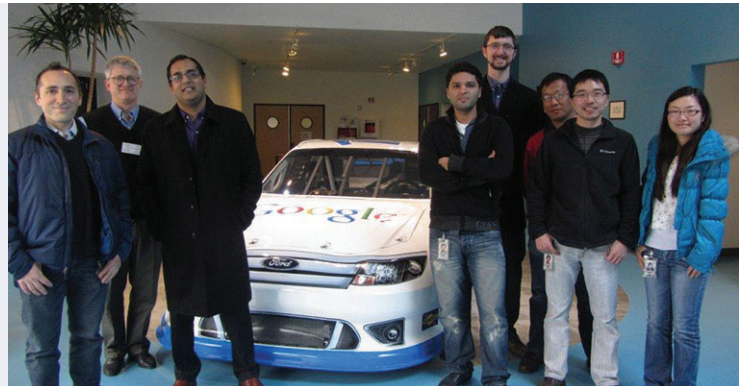
Alumnus Tom Rolander Wins COE's Diamond Award



Tom Rolander (MSEE '76) caught the entrepreneurial bug early and continues today to pursue innovation. For this reason, he will be honored with the College of Engineering's 2013 Diamond Award for Entrepreneurial Excellence. While studying at UW EE, Tom met future collaborator Gary Kildall. He later joined Gary at Digital Research, which created one of the earliest and most influential operating systems, CP/M (control program for microcomputers). This operating system ran on microprocessor chips and helped transition expensive mini-computers to the more affordable personal computers that have since become ubiquitous in businesses and homes. Tom and Gary went on to create other companies together, including KnowledgeSet, producing the first CD-ROM encyclopedia. KnowledgeSet was one of the earliest examples of "multimedia," pushing the boundaries of interactive hardware and software.

In the early 1990s, Tom worked at Sony as a consultant, designing authoring software for the data Discman that used mini-CDs to store books. Though the mini-disc player didn't take off in the market, the technology heavily influenced the hand-held and portable reader devices common today. Tom's other contributions include co-founding the software company PGSoft, later sold to Novell; obtaining a patent for file synchronization; and designing the 2003 Codie award-winning iF-older internet application.

When his father was diagnosed with Alzheimer's in 2005, Tom developed peer-to-peer software to remotely help his mom care for his dad. CrossLoop, the company he founded, has logged more than 12 million downloads and was acquired by AVG. Most recently, Tom has become involved in a different kind of entrepreneurial venture: EcoPIA Farms, an innovative urban indoor farm leading the next generation of agricultural sustainability in California. 



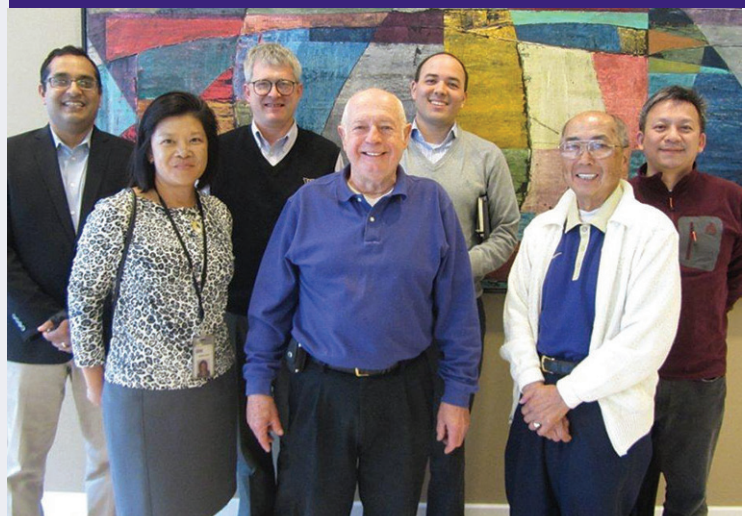
EE affiliate faculty member, Babak Parviz (far left), gathered the UW EE alumni at Google to reconnect with the department on Google's campus in Silicon Valley.



The ISSCC Conference Reception at the Marriott in San Francisco, CA.

Dan Nicholson (MSEE '05), Sean Stauth (MSEE '05), Jeff Walling (MSEE '05, PhD EE '08).

San Francisco, February 2013



EE Advisory board member, Marnie Mar of IBM hosted a gathering for EE alumni in the San Jose area at IBM.

Back Row: Vikram Jandhyala (EE Chair), John Sahr (EE Associate Chair), Kent Kubata (BSEE '02), Ed Chen (BSEE '89, MSEE '92). Front Row: Marnie Mar (BSEE '81, MBA '83), Fred Anderson, PE (BSEE '68), Donald Chinn (BSEE '63).



UW President Michael Young began his Asia tour on the heels of UW EE's visit to Taiwan. A reception inviting all UW alumni in Taiwan was held introducing President Young. Engineering alumni made up a large portion of the audience, clearly reflective of Taiwan's economy. Fifty percent of the country's GDP is related to EE-related technology.

President Kung-Yee Liang (UWAA Taiwan president) and Mrs. Yung-Kuang Kao-Liang, Mahnaz Sherzoi (EE Advancement), UW President Michael Young and Mrs. Marty Young, Jenq-Neng Hwang (EE Associate Chair), Vikram Jandhyala (EE Chair), Wei-Zen Chen (Secretary General of the Executive Yuan, ROC Taiwan).



UW EE visited the headquarters of MiTAC International, which designs, manufactures, sells, and services consumer and enterprise electronics. Located in Hsinchu Science Park, which is known as the "Silicon Valley" of Taiwan, MiTAC is leading globally in the GPS Device market.

From right to left: Robert Ting (President of MiTAC Communications), Mahnaz Sherzoi (EE Advancement), Simon Chiang (President of MiTAC Information Technology), Vikram Jandhyala (EE Chair), Jenq-Neng Hwang (EE Associate Chair), Jesse Chao (Director of Information Services and Research Division of MiTAC).

UW EE On The Road

Taiwan, March 2013



A special evening was hosted by alum, Arthur Chiao (MSEE '80), former UW Taiwan Alumni Association President, who brought together Taiwan's leading industry giants to connect with EE and alumni in Taipei.

Back Row: In-Shek Hsu (President, Nuvoton Technology), Ruei-Beei Wu, PhD (President, III), Fu-Kuei Chung (President, Chunghwa Telecom Data Communication Group), Tai-Ming Parng (CTO, ASUS), Arthur Chiao (Chairman Windbond Electronics, MSEE '80), Ken Sun (General Manager at National Instruments Taiwan, BSEE '00), Howard Wu (Director, Digital Marketing - APAC at HTC, BSEE '00). Front Row: Jenq-Neng Hwang (EE Associate Chair), Leung Tsang (EE Professor & former UW EE Chair), Vikram Jandhyala (EE Chair), Mahnaz Sherzoi (EE Advancement).



UW EE's visit to National Chiao Tung University (NCTU), where many UW EE alumni are leading the way in academic discovery.

Front Row: Mahnaz Sherzoi (EE Advancement), Vikram Jandhyala (EE Chair), Simon Sze (National Endowed Chair Professor, MSEE '60), Jenq-Neng Hwang (EE Associate Chair). Back Row: Cheng-Sheng Huang (Assistant Professor, PhD ME '09), Carrson C. Fung (Assistant Professor), Tai-Yan Kam (Professor, MS Civil '79), Tien-Fu Chen (Professor, MS CSE '90), Hsueh-Ming Hang (Professor), Hsu-Feng Hsiao (Assistant Professor EE PhD '05).



Vikram Jandhyala
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Alumni on the Radar - EE Class Notes

We'd like to hear from you! Check out our Alumni Connections web page to read a complete list of updates from your former classmates, or to provide your own:

www.ee.washington.edu/people/alumni/index.html

Scott D. Wenger, MSEE (PMP) '13

Bellingham, WA – Wenger is working on a big data project for utilities. See www.informationtruck.com.

Pedro Valverde, MSEE (PMP) '13

Poulsbo, WA – Engineering education at the UW has helped Valverde to develop his professional engineering career, and to be hired for very interesting and challenging jobs. He has worked in the USA and in several countries, and he is in the process of managing his own engineering company. Valverde's hobby is to learn and his gratitude goes to the excellent UW teaching staff. His wife says that he is a life-learning nut.

Richard Crouch, BSEE '10

Tewksbury, MA – Upon graduating, Crouch was employed as a design engineer in the Source & Analyzer Product Line at Tektronix for approximately three years. During his time there, he applied his knowledge of signal processing theory that he gained during his UW EE

education to the design and development of calibration algorithms for real-time spectrum analyzers. These algorithms improved performance by compensating for the distortion produced by the analog front end of the spectrum analyzer. Crouch is currently transitioning into his new role as a systems engineer at Raytheon working on missile defense systems.

Kurt Yazici, BSEE '07

Seattle, WA – As a Partner Relations Manager for Zillow, Inc., Yazici has become a top seller in the travel/field sales.

Eddy Ferre, MSEE '03

Bellevue WA – Ferre is a Software Engineer for an aerospace software company in Downtown Seattle. He brought his family back to Seattle after working two years in Europe. Ferre has fond memories of his time at the UW EE, especially as a Teaching Assistant. It helped him improve his presentation and overall professional communication skills. Ferre is married to Deniz, and has two boys, Manu and Marko, five and two, future Huskies, for sure!