

# UW EE CURRENTS

September 1998  
Volume 1, Issue 1

## Inside this Issue

- 1 Message from the Chair
- 2 Chen-Ching Liu Named  
Director of APT Center  
  
Vagners' Aerosonde  
Robotic Airplane  
Completes Historic Flight
- 3 Faculty Announcements

University of Washington  
Dept. of Electrical Engineering  
Box 352500  
Seattle, WA 98195-2500  
<http://www.ee.washington.edu>

## Message from the Chair:

I am pleased to join the Electrical Engineering Department at the University of Washington as its new Chair. The department is in the midst of a period of dramatic growth and positive change. It has moved into its new building, with attached construction for the Computer Science and Engineering Department and additional space for EE now in the final planning stages. Three exciting young faculty members are joining us for the fall quarter. An additional outstanding young professor will move her research to UW when she joins us in January. During the next few years we will be aggressively seeking outstanding professors who can excel in both teaching and research. Our planned growth will bring us from our current level of 39 tenured/tenure track faculty up to 46.

Thanks to the efforts of our faculty and those of my predecessor, Greg Zick, the Electrical Engineering Department at the University of Washington is already well-ranked. Externally funded research in the department rapidly increasing. We are an engine of technological innovation for the Pacific Northwest and the nation. The excellence and contributions of research by our faculty and students is internationally recognized. We are dedicated to maintaining an atmosphere of cooperation that nurtures high-quality research and education, and which develops mature undergraduate and graduate engineers. Our goal is to become one of the very top EE departments in the United States, through the delivery of outstanding and innovative education and the conduct of cutting edge research.

*This Newsletter will appear monthly, in paper and electronic form (the full version on the EE department Intranet, and the main stories on the external website). Please feel free to send information and ideas to the Newsletter editor, Veronica Young at ([veronica@ee.washington.edu](mailto:veronica@ee.washington.edu)).*



**Howard Jay Chizeck** received his B.S. and M.S. degrees from Case Western Reserve University in 1974 and 1976, respectively, and the Sc.D. degree in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology in 1982. From 1981 until 1998 he was a faculty member at Case Western Reserve University in Cleveland Ohio, serving as Chair of the Department of Systems, Control and Industrial Engineering from 1995 until 1998. He becomes the Chair of the Department of Electrical Engineering of the University of Washington in August 1998. Professor Chizeck's research interests include control engineering theory, intelligent systems synthesis, and the application of control engineering to biomedical problems and biologically-inspired robotic systems. His work has primarily been supported by the National Institutes of Health, the National Science Foundation, and the Department of Veterans Affairs. Dr. Chizeck has worked with industry in the assessment and implementation of new technologies, biomedical instrumentation and medical device product development and testing, and the synthesis and evaluation of automation and control systems. He is a senior member of the IEEE, a member of the IEEE Medical Technology Policy Committee and of the International Federation of Automatic Control (IFAC) Technical Committee on Applications of Control to Biomedical Engineering.

## Chen-Ching Liu Named Director of APT Center

Dean Denice Denton has announced the appointment of Chen-Ching Liu, Professor of Electrical Engineering, as Director of the Advanced Power Technologies (APT) Center. The APT Center is a multi-institutional, multi-disciplinary research team formed by the University of Washington, Arizona State University, Iowa State University and Virginia Tech. All four universities have well-recognized power engineering programs. The APT concept expands traditional power engineering to a broader context that involves new technologies/ techniques in the areas of information, signal processing, computer science and economics. The formalized multi-university research and education collaboration is a special feature of the new APT program.

The APT Center was launched in July 1998. A set of industry membership and technology transfer agreements has been established through the effort led by Assistant Provost Don Baldwin. The APT Center at the UW is currently supported by Cegelec ESCA, Mitsubishi Electric, Japan, and ENEL, Italy. The APT team has also been working together on proposals to NSF, EPRI, DoD and industry.

Dr. Liu has taught at the UW Department of Electrical Engineering since 1983. He received his BSEE in 1976 and his MSEE degree in 1978 from National Taiwan University. He received his Ph.D from the University of California, Berkeley in 1983. Other faculty members of the APT team include Mohamed El-Sharkawi, Mark Damborg, Rich Christie, Peter Lauritzen, Sinclair Yee, H.P. Yee, Ming-Ting Sun, Jeng-Neng Hwang, Steven Tanimoto (CS&E) and Jacques Lawarree (Economics).

## Vagners' Robotic Airplane Completes Historic Flight

With an assist from Latvia's lady luck, the third time was the charm for an Aerosonde miniature robotic airplane and its developers in their bid to complete the first trans-Atlantic crossing by an autonomous aircraft.

After two Aerosondes launched on August 17th failed to reach their destinations, a third plane, named Laima after the Latvian goddess of good fortune, successfully completed the 2,000 mile, 26-hour flight on Friday, August 21. The plane landed at about 1:40 p.m. (5:40 a.m. PDT) in a grass field on South Uist of the Outer Hebrides Islands of Scotland after taking off from Bell Island, Newfoundland, at 6:29 a.m. (1:59 a.m. PDT) Thursday. In addition to being the first trans-Atlantic flight by an unmanned airplane, the 29-pound aircraft becomes the smallest aircraft of any kind to cross the Atlantic.

"The third time was the charm, and apparently we needed Laima," added Juris Vagners, UW professor of Aeronautics and Astronautics, and adjunct professor of Electrical Engineering. Vagners was unable to join the field crews for the trans-Atlantic mission but named what turned out to be the record-setting plane in honor of his Latvian heritage. "Of course, we didn't intend to get so wet before we succeeded, but the important point is that we did succeed and achieved a significant milestone in development of the aircraft."

The University of Washington team has been working on the development of the Aerosonde with Environmental Systems and Services of Melbourne, Australia, and The Insitu Group, a Bingen, Washington based aerospace research and development firm. The trans-Atlantic crossing project was sponsored by The Boeing Co., Conic Division, L-3 Communications, and the U.S. Office of Naval Research.

Vagners' teaching interests include dynamics, classical control systems, analysis and synthesis, and optimal control and estimation. His research interests are in the application of unconventional control techniques, i.e., artificial neural networks, fuzzy logic and evolutionary programming, to control systems design.

## Kim's Imaging Advance Improves Prostate Cancer Treatment

For the estimated 140,000 U.S. men diagnosed annually with localized prostate cancer, radioactive seed implantation is fast becoming a preferred alternative to standard treatments involving removal of the prostate gland or external-beam radiation therapy. Unfortunately, many patients have had to endure expensive and time-consuming medical imaging tests to determine whether they are eligible for the new treatment.

That assessment can now be made in minutes rather than days, and at a fraction of the cost, using a new ultrasound imaging technology developed by Yongmin Kim, professor of Electrical Engineering and Sayan Pathak, a graduate student in Bioengineering at the University of Washington and Dr. Peter Grimm, executive director of the Seattle Prostate Institute. The technology also will help surgeons to more accurately place the radioactive seeds according to the treatment plan in a significant number of cases, the researchers say.

"If you can help doctors and patients, while saving time and money, it not only is a dream come true for the researchers but also benefits the entire medical establishment," adds Kim, a leading expert in medical imaging and director of the UW Image Computing Systems Laboratory. "Our technology addresses a problem faced by thousands of patients, and we expect it to be readily embraced for clinical use."

## New Faculty

The Electrical Engineering department is fortunate to have four new assistant professors joining us this year. They are:

**Dr. Hui Liu** joined the EE Department as an Assistant Professor in July 1998. He earned his doctorate in Electrical & Computer Engineering from University of Texas at Austin in 1995. Prior to joining UW, Dr. Liu was an Assistant Professor at the University of Virginia.



He conducts research in personal communication systems, channel equalization and coding as well as other aspects of multiple access information theory. He is also involved in experimental studies of microwave propagation channels, antenna array signal processing, and fast algorithm development and DSP implementation. Hui Liu specializes in telecommunications, especially personal wireless services.

**C. -J. (Richard) Shi** joined UW's EE Department as an Assistant Professor in July 1998. He received his Ph.D. in Computer Science from University of Waterloo in 1994. Before coming to Seattle, Richard was an Assistant

Professor in Electrical & Computer Science at University of Iowa.



His research interests include CAD for mixed-signal design methodology for wireless communications, and wireless VLSI's with emphasis on language-driven modeling, co-simulation, synthesis and testing.

**Dr. Karl F. Bohringer** will start as an Assistant Professor in Electrical Engineering in October 1998. He received his Ph.D. in Computer Science from Cornell University in 1997.



Prior to joining the University of Washington, he was with the IEOB Department and Berkeley Sensor and Actuator Center at UC Berkeley. Karl's research interests include microelectromechanical systems (MEMS), micro self-assembly and hybrid MEMS, as well as distributed and massively parallel sensing, actuation and computation. He is also interested in smart surfaces and smart materials, and in micro-robotics. His work has involved new devices and algorithms for automated parts handling. This research introduced computational methods, geometric

modeling, and physical reasoning to hardware design and control.

**Denise M. Wilson** will be starting as an Assistant Professor at University of Washington's Department of Electrical Engineering in January 1999.



She earned her Ph.D. in Electrical Engineering from Georgia Institute of Technology in 1995. She comes to UW from University of Kentucky, where she has taught since 1996. Denise's areas of specialty include electronic design and microelectronics. In particular, she is interested in systems having many, many sensors and/or actuators in multiple locations.

## Emeritus Faculty

*Two EE faculty have recently been appointed Emeritus Professors.*

**Akira Ishimaru** first came to UW EE as a Ph.D. student in 1954. During this time, he also served as an acting instructor. He became an assistant Professor after receiving his Ph.D. in 1958. Dr. Ishimaru has conducted studies in many areas of antennas and propagation including pattern synthesis, unequally spaced arrays, leaky waves, periodic structures, anisotropic media, and waves in random media. His career in electrical engineering has been full of achievement, such as authoring *Wave Propagation and Scattering in Random* (continued on page 4)



(continued from page 3)

*Media (Academic Press)* which was translated into Russian and Chinese, and being the founding editor of the journal, *Waves in Random Media*, a publication of the Institute of Physics in the United Kingdom. He was elected to the National Academy of Engineering in 1996 and in 1998 was awarded the Distinguished Achievement Award from the IEEE Geoscience and Remote Sensing Society.

**James Meditch** joined the department in July of 1977 as Chair, a position he held for eight years. He also served as Associate Dean for Academic Affairs of the College of Engineering from 1987-90. Dr. Meditch's research interests include digital communication networks, switching and traffic theory, broadband ISDN, and multimedia communications.

## Faculty Appointments

### Visiting faculty for Autumn Quarter:

HyunWook Park, Vis. Associate Prof.  
Robert Arthern, Vis. Scientist  
Dan Benson, Vis. Scientist  
Youcef Bourai, Vis. Scientist  
Yukio Chiba, Vis. Scientist  
Kwang Ho Kim, Vis. Scientist  
Katsuhiro Ono, Vis. Scientist  
Ahmed Al-Naamany, Vis. Scholar  
Oddvar Hallingstad, Vis. Scholar  
Hidetoshi Miyao, Vis. Scholar  
Jae-Chan Namkung, Vis. Scholar  
Jean Peccoud, Vis. Scholar  
Koichi Shimizu, Vis. Scholar  
Sheng-De Wang, Vis. Scientist  
Taihong Yi, Vis. Scholar

### New Appointments:

Tsz K.Chan, Research Associate  
Jiri Homola, Research Associate  
Stuart Maclean, Research Associate

## Promotions:

**Blake Hannaford** - Full Professor  
**Deidre Meldrum** - Associate Professor  
**Daniel Dailey** - Associate Research Prof.  
**Jim Peckol**, Sr. Full-Time Lecturer  
**H.P. Yee**, Sr. Full-Time Lecturer

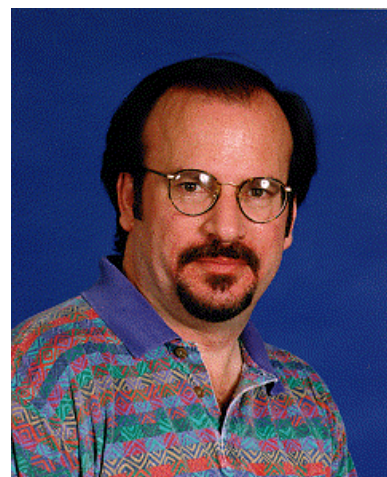
## New Associate Chairs

Howard Chizeck has announced the appointment of two Associate Chairs: **Mohamed El-Sharkawi** and **Les Atlas**.

Mohamed El-Sharkawi will serve as Associate Chair of Academics and Curriculum. He was first appointed Associate Chair by Greg Zick in 1996. He also serves as Chair of the department's ABET 2000 committee and served as the Graduate Program Coordinator from 1993-96.



Les Atlas will serve as Associate Chair in charge of Research. Professor Atlas joined the department in 1984. Professor Atlas is the director of the Interactive Systems Design Lab. Les has served as director of technology transfer for a Department of Defense multi-university research initiative as well as acting as General Chair of the 1998 IEEE Acoustics Speech and Processing Conference, which brought 2,000 people to Seattle in May of this year.



## Mariners' Beat White Sox 3-2 At UW EE First Annual Baseball Excursion

Twenty-five assorted faculty, staff, students, and family members attended Electrical Engineering's First Annual Baseball Excursion on Sunday, August 23<sup>rd</sup>. The EE crowd witnessed Ken Griffey Jr.'s 43<sup>rd</sup> home run at this winning game and saw the name "UW Electrical Engineering" in lights on Diamondvision, the Kingdome's large video screen. Stay tuned for information on next year's baseball event.

## Bartel's Distinguished Lecturer For Fall 1998 Announced

Dr. Curt Carlson, Ph.D., will visit the UW on September 28 & 29 to give three talks in the first fall quarter 1998 presentation of the Bartels' Distinguished Lecturer Series.

Dr. Carlson is the Executive Vice President for Ventures and Licensing of the Sarnoff Corporation. In his capacity as head of Ventures and Licensing, Dr. Carlson has helped Sarnoff found over ten new companies. They include Sensor, a security access company based on iris identification; SRTC, a video server company; SARIF, the first polysilicon display company in the U.S.; SDC, a cable-data modem company; PVT, a television broadcast products company; Secure Products, a product authentication company; Delsys, a pharmaceutical drug equipment company; Orchid, a combinatorial chemistry and genomics drug discovery company; Rivit, a company that creates remotely readable electronic tags; Songbird, a disposable hearing aid company; and VideoBrush, a consumer video software company.

Dr. Carlson's first talk will occur on Sept. 28 at 4:30pm as part of EE500B's weekly seminar on Image Computing. The topic will be "Entrepreneurial R&D and the Sarnoff Way." The location for this event is Guggenheim 217

On September 29, Dr. Carlson will speak at 1:30pm on "Pyramid-Based Computer Vision" in EE/CSE 403 and at 4:30pm will be in EE/CSE Room 125, talking about "The Future of Digital Video."

## Funding Opportunities

The following are two of the many new notices of funding opportunities, received by the department. These and other announcements are available from Joles Tahara in Room 253G. An updated list and, when possible, announcement text will also be available on the department Intranet.

- Royalty Research Fund Scholar program: Supports faculty release time for one quarter in conjunction with support of a meritorious research proposal. Proposals are invited with budgets in the low five figures. Proposals are due Monday, September 28, 1998. Awards will be announced Friday, January 15, 1999.

- The Burroughs Wellcome Fund as announced the 1999 New Investigator Awards in the Pharmacological or Toxicological Sciences. The goal of these awards is to foster the development of outstanding researchers early in their careers. The awards will provide \$210,000 over three years. The Fund will accept only one nomination from the UW for each of these programs. Nominations should be sent to Dr. Alvin Kwiram by Friday, September 11, 1998.

## Graduate Students Run Their Own Seminar: EE 592

This Fall Quarter marks the first outing of a new class, EE 592, titled "Graduate Research Survey." This class aims to introduce new EE graduate students to the faculty and vice versa.

This class is unique because it is organized and run by EE graduate students, through the EE graduate student association (GSA). The coordinator for this Fall is Salvador Ruiz Correa (sruiz@ee.washington.edu)

Each Friday at 2:30, faculty from EE and related departments speak with an emphasis on their research projects.

### Chair's Open Office Hours

- *Staff* Tuesday 10-11 am
- *Faculty* Thursday 3-4 pm
- *Students* Friday 1-2 pm

**Drop In! Room 253A**

## This Month's Events

**September 7**  
**Labor Day**

HOLIDAY.

**September 21**  
**9:00a, EE/CSE Room 003**  
**TA Orientation**

**September 22**  
**1-4:00pm EE/CSE Room 125**  
**Undergraduate Orientation**

**September 23**  
**8:00am, Skansonia Ferryboat**  
**2505 N. Northlake Way**  
**EE Faculty/Staff Retreat**

This day is an opportunity for faculty and staff to examine how we can work together to make UW Electrical Engineering one of the top-rated EE departments in the nation.

**September 25**  
**9:00am, EE/CSE Room 125**  
**Grad Student Orientation**

EE's new crop of graduate students will have an opportunity to acquaint themselves with the policies & people of Electrical Engineering at UW.

**September 25**  
**10:00am-Noon, EE/CSE Rm 203**  
**EE Faculty/Staff Photo Shoot**

**September 28**

## Coming Soon:

**Espresso stand**

Stay tuned for details!