UW EE Currents

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Professor Shi receives Double "Best Paper" Awards

Professor Richard Shi has been honored by the IEEE twice this spring. His paper, "*Nonlinear Analog DC Fault Simulation by One-Step Relaxation,*" by M.W. Tian and C.J. R. Shi tied for "Best Paper" at the 17th IEEE VLSI Test Symposium, April 25-26, 1999. This is the premiere VLSI test conference, and each year, fewer than 33% of submitted papers are selected for the conference. He also recently learned that his paper, "*Area Optimization of VLSI Power/Ground Networks Via Sequence of Linear Programmings,*" was selected as a "Best Paper" for the 36th IEEE/ACM Design Automation Conference, which will be held June 21-25, 1999. The DAC conference is attended by over 10,000 design engineers and researchers and is the premiere Electronic Design Automation and Silicon solution event. Congratulations are certainly due to Richard for his outstanding work.

Autumn Blanchard

EE Computing Gets New Funding Servers Upgraded

In April, the College of Engineering (COE) approved funding an Electrical Engineering initiative to upgrade two of the Department's main computer network servers, that provide electronic mail and student file services. The proposal, worth about $24,000, was authored by Sekar Thiagarajan and Wayne Jackson, professional staff in EE Computing, with the assistance of Ernesto Cains, EE Technical Services Manager. The gift also includes the purchase of some custom computer furniture to efficiently utilize space in the new Electrical Engineering building.

"The adequate processing of e-mail is a very significant issue in the Department," said Wayne Jackson, a veteran Network and Systems Engineer in EE. "Since 1992, the volume of e-mail processed by Department computers has grown to over 25,000 messages per day, outstripping the

capabilities of the old Hewlett-Packard server operating at a speed of only 50 MegaHertz. The speedy processing and delivery of e-mail is vital to the instructional and research missions of the Department, and the new 360 MegaHertz HP server will provide the added capacity needed now and for growth."

Commenting on the other new server, another 360 MegaHertz HP which will control access to student computer files, Jackson said, "Just seven years ago, an undergrad student could graduate from the Department and never use the 5 megabyte (MB) space quota allocated to him or her; now, one VLSI class may assign projects requiring 100MB of disk space per student." This server will provide access to the new RAID hard disk array recently funded by an award from the UW Student Technology Fee management committee, reported in the following article.
Sekar Thiagarajan and Wayne Jackson

Student Technology Fee Proposal Funded

The department has received a large number of requests from students to increase the departmental disk quota above 25MB, as this is proving to be insufficient. Some of the EE course work demands a higher space limit. As a result, the students were experiencing extreme hardship in working within the available limits.

Petition forms were also placed in all of the student labs in EE/CSE and EEB buildings for the students to express their concerns on the computing end. Sekar Thiagarajan wrote a successful proposal to the Student Technology Fee Committee for $30,000 to provide the following solutions:
1. a high performance 125GB RAID system to increase students' disk storage space
2. a tape library backup unit to provide backup solutions for the above RAID system, and
3. a modest amount of memory to boost the performance of the unix system which will house the raid system.

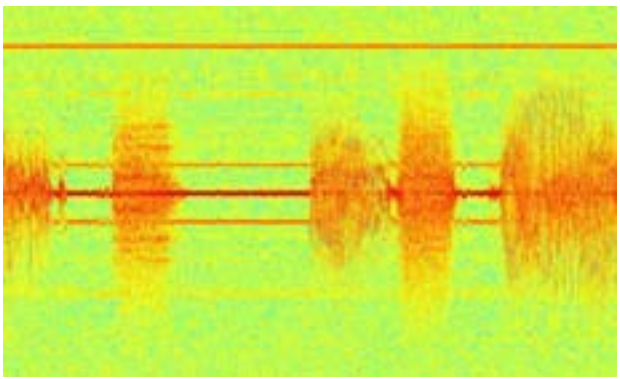
The Student Technology Committee approved full funding for the requested amount. The STF proposal will help to increase the student's quota from 25MB to at least 75MB on a base level.

The RAID system and the backup unit will be housed in one of the two HP9000/C360 servers that the College of Engineering approved funding.
Sekar Thiagarajan and Wayne Jackson

Super Computer Created From "Cluster"

Professor John Sahr's Radar Remote Sensing Group has just added a new computing facility to support their passive VHF radar. A cluster of four 450 MHz Pentium computers has been coupled with 100 MBit ethernet, each with 256 MBytes of RAM. One of the computers serves as a gateway to the outside world; it has 36 GBytes of hard disk space, while the other computers have no hard disk at all. (These computers were given to the University by Intel.)

These computers are operated as a "Beowulf Cluster" built on the Linux (unix) operating system. The concept of linking Linux computers began in 1994 at NASA, and has spread widely (see http://www.beowulf.org). This approach generates "small supercomputer" performance with very low cost. At NASA Goddard Space Flight Center there are several Beowulf clusters of 50 to 256 CPUs, for example.



Spectrogram of raw radar data from 99.9 mHz

The "orca" cluster in EE will process the raw data from the passive radar. The cluster will be expanded to 8 CPUS in the summer of 1999, and will then be able to perform approximately 1 billion floating point operations per second (1 GFlop). Professor Sahr's group hopes to use the experience with this machine to prepare to build and operate a much larger cluster of 64 to 256 CPUs in the next few years.

On a related note, the spectrogram shown above was submitted to the Engineering Student Art Competition by Prof. Sahr's student, Dawn Gidner, who received an "Honorable Mention" for her presentation. Science and Art can coexist. Congratulations Dawn!
Prof. John Sahr

EEIC Event An "Energetic" Success!!

Nearly 80 undergraduate and graduate students, as well as energy industry leaders from throughout Washington, attended the Annual Open House sponsored by the Electric Energy Industrial Consortium (EEIC) and the Advanced Power Technologies Center (APT) on February 23, 1999.

The upper basement atrium of our new building was filled to capacity as students and industry leaders got to know each other. Participants talked with Energy Poster contestants about their entries, scooped up door prizes (hats, T-shirts, calculators, stress squeeze balls, mouse pads, books and book store gift certificates) AND ate pizza in a relaxed atmosphere.

Eleven graduate students presented posters illustrating a variety of energy related issues ranging from cutting edge technology and research to vegetation maintenance. First place winners of expense paid trips to the IEEE Summer Meeting in Edmonton plus $150 were Juhwan Jung and Sungkwan Joo for "Generalized Alarm Analysis Module (GAAM)." Second place and $100 was awarded to energy economics student Karl Seeley for his "Analysis of Electricity Market Rules and Their Effects on Strategic Behavior in a Non-Congestive Grid."

Featured industry presentations included:

- "High Technology in the Power Industry" by Dr. David Sun of ESCA.
- "TransaXions and the Internet: e-Commerce for Energy" presented by Dr. Adam Yeh, of Energy TransaXions, ConneXt in Bellevue.

A discussion of the future of the industry and those who work in it was presented by Dr. Max Emrick of Tacoma Public Utilities.
Dena Petersen

HollEEwood Squares Tops Off E-Week at UW

The EE Department hosted the first annual HollEEwood Squares Game on April 16, 1999 to celebrate "Engineers Week" or "E-Week" at UW. The week of April 12-16 saw events such as Ultimate Frisbee competitions, T-Shirt Sales and other games.

If you've ever been in the new Electrical Engineering building atrium, you know that it will make your nose bleed to look down from the 4th Mezzanine Floor apertures. But the 9 openings made perfect "Squares" for a version of the popular TV game. Nine stalwart EE faculty and staff volunteered to be square celebrities and Howard Chizeck was the master of ceremonies, as students attending the weekly Friday social hour were contestants in the game, based loosely on the TV version.

EE staff and faculty crafted questions based on engineering facts, electrical engineering history, and EE

Dept. and Seattle trivia and submitted them to the Chair, who assembled a secret committee to come up with gag answers, designed to confuse the contestants.

Pairs of contestants played "tic tac toe" on this array, trying to determine if Bob Marks really knew what he was talking about, as he assured them that Ernesto Cains really was a seal wrestler in Florida, or Eve Riskin was positive that the Romans really used electric eels to cure headaches, and Ward Helms was adamant that James Clerk Maxwell really could be associated with the Maxwell House coffee company. Speculations that

the concrete beams down the middle of the stairwell atrium were $50,000 works of art were laid to rest forever.

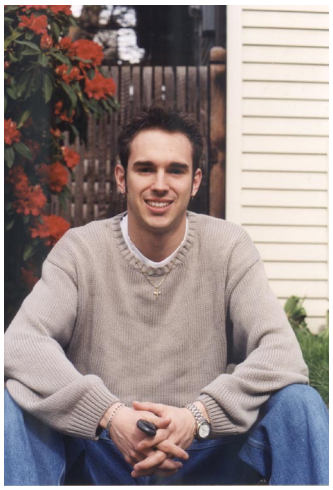
After each pair of students battled for Xs and Os, the winners had prizes of candy and toys hurled at them from the lower left hand square. It was a creative first attempt at utilizing the openings in the new building atrium, and the event was enjoyed by all. Questions for next year's game will be gratefully accepted!
Autumn Blanchard

EE Circuits Archive Most Popular Web Site

It's no surprise to Jerry Russell that the EE Circuits Archive (http://www.ee.washington.edu/pg_circuits.html) gets more hits than any other page on the departmental website. When Jerry was a student, he set up the website on weber, the main UW student web server. As soon as the site was discovered by the outside world, Jerry began to receive many e-mail messages from students all over the world asking questions about the circuits and the archive. While the archive was on weber, it was one of the most popular pages. As happens with all students, Jerry eventually graduated, going on to a career as a Product Engineer with Lattice Semiconductor. Since his access to weber was ending, he asked if he could transfer the site to the EE departmental server.
Since then, the archive has been give a Best of Campus award and has appeared in several magazines as a top electrical engineering site. Unfortunately, Jerry has had less time for the site of late. Professor Ward Helms as agreed to become the faculty advisor for the site, and with help from Prof. Jim Peckol and Prof. Jonny Andersen, he hopes to reinvigorate the site and renew its growth. Prior to this decision, the departmental webmaster, Autumn Blanchard, had received offers from students from as far away as New Zealand eager to manage the site. She still receives routine requests for circuits from around the world.
Stephen Graham and Autumn Blanchard

Undergraduate Scholarships Awarded

The department is proud to recognize two undergraduate students who received prestigious scholarships this year. Matt Leptich received a scholarship from the Electrical Industry Scholarship Foundation (EISF), which is run through the Electric League of the Pacific Northwest. This very generous scholarship covers tuition for Matt's junior and senior years. Every year, this organization names a scholarship in honor of one of their members. This year, the scholarship was in the name of Beryl Ash and he designated that it should go to a student studying EE at the UW. The department nominated several outstanding students, and the EISF awarded it to Matt after conducting personal interviews. Matt entered the department this past Autumn quarter as a transfer student from Shoreline Community College. Since entering the department, Matt has made the Dean's List every quarter.



Kristen Mendenhall received this year's Intel Foundation Women in Science and Engineering Scholarship. This is a very competitive scholarship that targets students early in their engineering studies. Generally, only one scholarship is awarded at participating universities; this year, the quality of applicants was so strong that Intel awarded two scholarships at the UW and Kristen was one of the students selected! Another generous scholarship, this award pays for Kristen's tuition,

offers her the opportunity to intern at an Intel site, and pairs her with a professional mentor from Intel. Kristen entered the department under our early admission process this past Autumn quarter and is currently a sophomore. Kristen has also made the Dean's List every quarter since beginning at the UW.

Matt and Kristen are two examples of the strength of EE undergraduates. Congratulations Kristen and Matt! This quarter, the department will be awarding College of Engineering and departmental scholarships for the 1999-2000 academic year to more strong students.
Helene Obradovich

EE Graduate Recruitment Day

The 1999 Graduate Recruitment Day was held on April 2 and was a rousing success! Every year the EE department invites a group of "hot" prospective graduate students to visit our campus and see for themselves what a terrific department we have, get a chance to meet faculty, tour labs and talk with current graduate students about what really goes into getting a good education at UW. This year we had 28 students from all over the US come for Recruitment Day, which was planned and implemented by Prof. Robert Marks, II, Rachel Rutledge and Steve Graham.

The agenda for the day started with a welcome by our chair, Prof. Howard Chizeck and an introduction to the day's events by the Graduate Program Coordinator, Prof. Robert Marks, II. Welcome packets were given to the recruits, and they were then regaled with current research presentations from Professors Sahr, Hwang, Böhringer, Dailey and Marks. After a break of coffee and scones, the faculty and staff left the students in the hands of the EE Graduate Student Association for a panel discussion about life at UW. They were then taken in small groups for lunch at various restaurants in the University District with a strategic tour through campus and the gorgeous cherry trees in blossom. Many thanks to the GSA volunteers who hosted the lunches: Gorkem Kuterdem, Agnieszka Miguel, Garet Nenninger, Leo Lam, Mike Dougherty, Pam Neal, Nancy Taiyab and George York.
In the afternoon the prospective students were then treated to tours of many of our EE labs, including: ISDL, Micro-Fabrication, Biorobotics, Intelligent Systems/Vision Research, Information Processing, Image Computing Systems, EM, Applied Physics, CIA, Genomation, Radar Remote Sensing, VLSI-CAD, DTRRL, Distributed Microsystems and Sensor Research. Thanks also to all the faculty and graduate students who gave tours or made themselves available for questions. The recruits were also invited to meet with individual professors to discuss RA opportunities at this time.

Finally, at the end of the day, Advising was co-host for the weekly EE Social Hour and supplied pizza & beverages, allowing the visitors to mingle with our wonderful and diverse group of EE graduate students. Then they were on their own to explore Seattle for the weekend.

We had many positive comments from the recruited students about how well they were treated by our department and how useful the Recruitment Day was for them. One student said, "I got a much clearer, broader, and more positive impression of the EE department and UW from the Friday, April 2, events. The trip really impressed me with an excellent opinion of the EE department and UW. I truly admire the breadth of the EE department's research, and was surprised to see how so many aspects of their research can have such interesting practical applications." Another stated, "...I wanted to thank you for a very informative graduate visitation this past weekend. The professors, post-docs, and grad students were very engaging and open. Although I'm primarily interested in E&M,

I was surprised and excited by the diverse, interdisciplinary nature of many of the research groups—especially those which cross pollinate with bioengineering and medicine (i.e. MEMS, genome project, etc...). The graduate students represented their department very well and were helpful with questions concerning research, funding, Seattle, etc." In all, we had 19 of these hot recruits say "YES" to the EE department at UW.
Rachel Rutledge

Who's Who in Graduate Advising

Rachel Rutledge: Rachel has been Acting Graduate Academic Advisor since January of this year. She has an MA in Counseling from Purdue University. Rachel's duties include counseling and advising all of the Graduate students in the MSEE and Ph.D. programs in Electrical Engineering. This includes helping our many international students with visa requirements, helping all students with financial support such as RA and TA positions and co-ops, dealing with changing curriculum requirements, and ensuring students fulfill requirements for exams, thesis and dissertation presentations. She works as liaison between the students and the Graduate School, acting as Advisor to the GSA and helping students deal with personal issues of family, work, and even political and economic upheaval of home countries. Rachel also is involved in organizing and implementing recruitment of future graduate students from top universities around the US. As Graduate Advisor, she also deals with working students who are participating in the Televised Instruction in Engineering. Rachel greatly enjoys the diversity of the EE graduate program students and hopes her efforts are useful in their pursuit of a quality education.

Stephen Graham: Can be found staring at his computer screen at the rear desk in the Advising reception area. He's worked for the department since January 1990 and as the Graduate Program Assistant since February 1997. His main duties include graduate admissions, setting up the time schedule and handling the paperwork for current students. Stephen can answer most of your questions on the graduate and undergraduate programs. Since he's been with the department for several years, he's also a good source for general departmental information.
As an undergraduate, he studied physics and 20th century world history and then went on to do graduate work in Southeast Asian history. He enjoys dealing with applicants from Outer Mongolia and Kirghizstan and figuring out the answers to the oddest of questions.

GSA Elects New Officers

The Graduate Student Association (GSA) is the graduate student government of the Department of Electrical Engineering. The GSA has been instrumental in representing the graduate student body. The GSA has provided input to the faculty on a range of issues, such as changes to the PhD qualifying exam made last spring.

Notable projects of the GSA have included organizing the Electrical Engineering Research Survey Seminar, which is now EE 592. The department's Friday Social Hour also had its genesis with the GSA, originally serving as a post-seminar social, and the GSA continues to plan and organize the socials. And have you every wondered how graduate students ended up with such snazzy mailboxes? You guessed it; the first graduate student mailbox was a filing cabinet requested by the GSA to serve as a home for mail folders several years ago.

The Electrical Engineering graduate students have

elected new Graduate Student Association officers for 1999-2000. The officers are:

Chair: Garet Nenninger (ggn@u.washington.edu)
Vice Chair: Agnieszka Miguel (amiguel@isdl.ee.washington.edu)

The new Graduate and Professional Student Senate (GPSS) Senators are:

Sadiq Sharik (ssadiq@u.washington.edu)
Gorkem Kuterdem (kuterdem@u.washington.edu)

In addition, Sadiq Shaik will be coordinator for the Electrical Engineering Research Survey Seminar, EE 592.

The newly-elected GSA officers look forward to working with the faculty and staff to achieve the best possible communications and teamwork between students, faculty, and staff.
Garet Nenninger

Innovation Leads to Success

Professor Marty Afromowitz attended a workshop last month, put on by the National Collegiate Inventors and Innovators Alliance (NCIIA), and found it very interesting. Here are some of his musings on the conference. Ed.

What does it take to come up with inventive solutions to important problems? Is there a technique to it that we can learn (or teach)? Is our Department of Electrical Engineering the right place to pursue these questions?

Most people think that engineers are inventive-after all, we are always trying to solve some problem or other. Successful engineers are always innovative. But it usually takes some sophistication, some leap of understanding, before an engineering student comprehends the big difference between solving a problem by applying a known equation or method to a familiar situation, and posing a question that no one had ever asked before and answering it in a manner that no one had ever anticipated. The former is "turning the crank." The latter is the essence of innovation.

Could you imagine patenting more than 500 inventions during your professional career? That's about one a month for more than 40 years! A fellow by the name of Jerome Lemelson did just that. Many of his inventions were very successful. His patents contributed to the development of machine vision, the VCR, camcorder, fax machine and cordless telephone. Some patents were, shall we say, "ahead of their time". The ice skate blade coated with a diamond film, is an example. It was claimed to reduce wear and the need for sharpening the blade. Oh well, you can't win 'em all.

Lemelson felt that the innovation skills that he had practiced in his career could be taught and developed in young people, and in the latter part of his life, he devoted a great deal of his energy and his wealth to creating an organization for doing that, the National Collegiate Inventors and Innovators Alliance (NCIIA). I attended this conference last month. The other attendees were primarily from smaller colleges. Many of these schools, typically private engineering or liberal arts colleges, with larger institutional commitments to innovative teaching than to cutting-edge research, have adopted the tools that have been proposed by Lemelson to "teach innovation." Predictably, the larger, more established engineering schools have not yet incorporated these ideas in their curricula. They may, in fact, not even be the best tools. But they are a start.

The tools are based upon the formation of student teams that solve problems collectively during the course of their college years. Students also take fairly standard classes that include the usual topics, but a very heavy emphasis is placed on these team projects undertaken by mutual agreement, with the faculty serving as facilitators and advisors. Teams start their work as innovators even before they have taken many courses in their major.

For example, in the ECS department at the Rose-Hulman Institute of Technology in Terre Haute, IN, sophomore teams design websites for community, charitable or other nonprofit organizations (the Boy Scouts, local hospitals or museums). This exercise teaches the students how to listen to the "customer," so that they can provide the solution that best meets the customer's needs. After they take their first courses in circuits and electronics, for example, EE students work on teams with ME or physics students and design interactive educational displays, perhaps for the same museums, and as you might expect, they have a

lot of fun doing it. During the senior year, the student teams may interact with local business leaders, take courses in intellectual property (patent) law, learn what's involved in starting a small company, and continue to innovate by seeking solutions to problems presented to them by local manufacturers, for example. Many teams stay together after graduation, and inventions have been patented, and new companies have been started as a result.

I am happy to see that our department has begun to offer a weekly seminar on intellectual property. This is a small but important start in the right direction. Our students ought to know something about patents. One of the most important assets of most technologically-based companies is their intellectual property. Our students should learn something about entrepreneurship as well. I recommend you check out the courses that are available in the School of Business Administration. However, it will take more energy, a great deal of faculty commitment, and consistent and focused student demand for our department to implement an integrated course of study that strives to teach innovation as well as we now teach electrical engineering.

If you're interested, I recommend that you surf over to the NCIIA website at http://hamp.hampshire.edu/nciia/, and see what the future of engineering education might look like.
Prof. Marty Afromowitz

Marks Co-Chair of CIFEr Conference

Electrical engineers are frequent recruitment targets of the field of finance. Computational intelligence (i.e. neural networks, evolutionary computation and fuzzy systems) is used by most brokerage houses in their endless quest to extract clearer, deeper and more accurate insight into market behavior. Optimal control parallels both derivatives pricing and basic portfolio theory. The stochastic differential equation describing Brownian motion (i.e. random walk) is the foundation of modeling options prices. The solution, dubbed the Black-Scholes equation, earned the originators a Nobel prize in economics in 1998. Practitioners in these and related areas are often referred to as "financial engineers."

The only international conference whose stated purpose is to bring together electrical engineers, financial engineers, and computer scientists is the IEEE/IAFE Conference on Computational Intelligence in Financial Engineering - CIFEr for short. The fifth CIFEr conference took place March 28-30, 1999 and was held this year, as it has been every year, in Manhattan. The venue encourages participation of Wall Street practitioners. CIFEr is sponsored by the IEEE Neural Networks Council and the International Association of Financial Engineers (IAFE). IAFE boasts a number of Nobel laureates on its Board of Directors.

I served as General Co-Chair of CIFEr this year, having worked with CIFEr before–serving as the Program Co-Chair of the first meeting five years ago with Andrew Lo from MIT's Sloan School of Business. All CIFEr conference positions are Co-Chaired by representatives from both the finance and engineering community. The Co-Chair this year with Marks was Jack Marshall, President of both the IAFE and Marshall-Tucker Associates.
Prof. Robert J. Marks II

Congratulations!

Professor Hui Liu and Qin Cai had a baby boy, Ronan Liu, born March 10. He weighed 7 pounds and 15 ounces.

Hal (Harold) Evensen has accepted a faculty position at Univ. of Wisconsin, Platteville, effective August 1999. We will miss him.

And to our Winter Quarter Graduates!

MSEE

Hsiao-ding Chen
Patrick Chen
Tracy Cui
Kevin Hilman
Chris Hivick
Andrew Houck
Heng Huang
Angellica Huynh
Nuttorn Jangkrajarng
Jun Liu
Frank Metting
Hiroki Mizosoe
Avni Rambhia
Jung-hoon Rhew
Dou-chung Su
Pradeep Trivedi
Wan-chen Tsai
Scott Walker
Willis Wu
Ming Ye

PhD

Ming-chieh Huang
Craig Jensen

UW IEEE Student Chapter News

Governing Officers:
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The Long Road to EE

Being the Co-Vice President of the UW Student Branch of IEEE, the vision that I have is to help the IEEE UW chapter with the growth of new members and to make our chapter recognized both locally and nationally. As your Seattle Section Regional Representative I want to incorporate local businesses with our chapter's members as a means of learning and networking.

My interest in electronics started during high school when I took several electrical courses (residential wiring, digital, and reactance) and worked as an aid for the instructor. I joined the Navy a year after dropping out of high school and trained to become an Aviation Electrician. I worked mainly on the EA-6B aircraft at Whidbey Island. I was placed on accelerated advancement by the commanding officer because of my top grades in training. During my four and a half years of service I completed my GED and started taking college courses because I knew that I wanted to become an Electrical Engineer. After the military I went to Everett Community College full time to earn a transfer degree for the UW. At the UW, I struggled with a few math courses and was denied admission to the EE department. I decided to transfer to Seattle Pacific University and after three-quarters of classes I reapplied to the UW and was accepted for spring of 1999. My electrical engineering interests include electric vehicles (maybe electric motorcycles), controls and robotics. For this summer I will be working as an intern at the Fluke Corporation in Everett.
Jeff Kittle:

Review: Anderson Consulting Resume Seminar

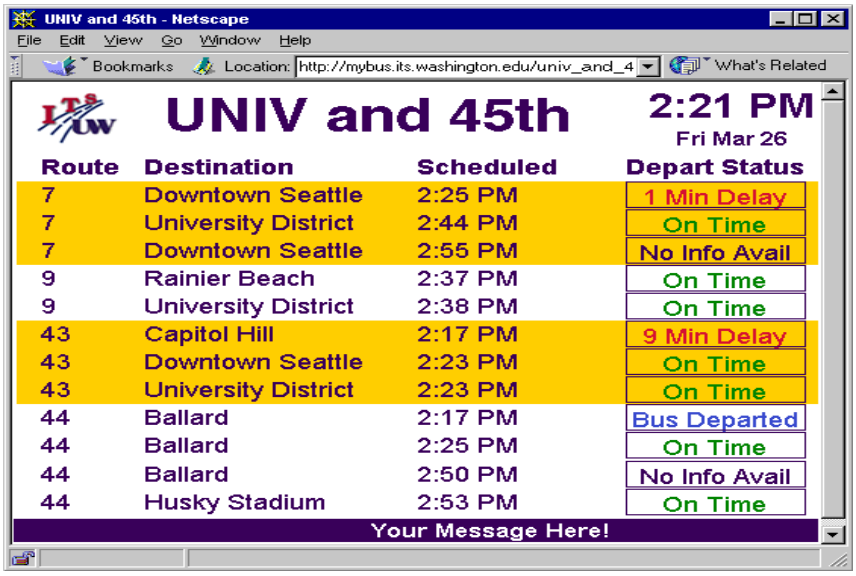
Resume writing is a very important skill. It is your first line of contact to a potential employer. There are many books out there on the topic and the subject is even taught in courses such as Engineering 333. In order to gain the best understanding of what employers are looking for in a resume, a potential employer is the most informative instructor on the subject. The seminar sponsored by Andersen Consulting did just that. The employees from Andersen, who put on the seminar, are professional recruiters so their shared insight on the subject carried a lot of weight. They provided clear guidelines for creating a successful resume. Guidelines alone are sterile and would be as much help as reading a textbook on the subject. However, each guideline they provided was supplemented by their "insider information". This information was especially useful because people looking for recruits on a daily basis supplied it. They provided a very high degree of practical insight into what employers are looking for in a resume. As an extra treat, Andersen Consulting also hosted lunch by providing free Subway sandwiches and beverages for those in attendance.
By Jonathan Jantz

May/June Student Chapter IEEE Events:

Last week of May -Company tour or EE Laboratory tour
June 4 - Annual Barbecue with HKN

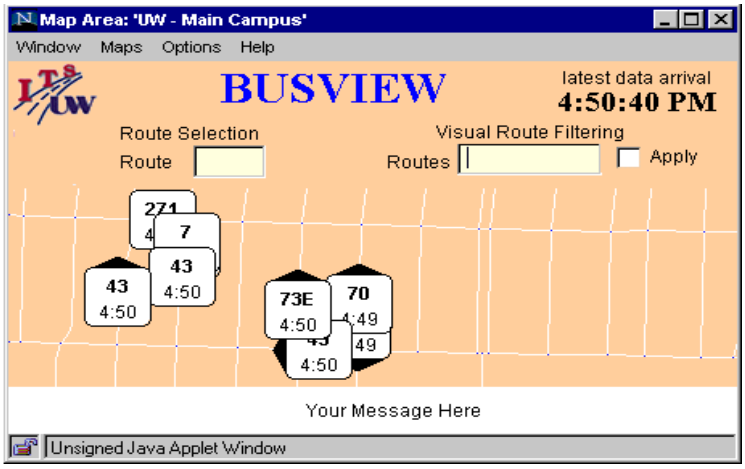
MYBUS Helping People Travel Smarter

People who ride the bus have one question uppermost in their mind: Where's my bus? Professor Daniel J. Dailey's research efforts have been directed towards finding ways to make this question a great deal less stressful for travelers. His research group has produced two applets for the WWW that allow people to stay at their home or office until the last moment, knowing that their bus has not passed them by.



Window shows MyBus Schedule as it appears on the We, showing bus times.

The first application, MyBus, shows estimated arrival and departure times for bus routes. "We chose to utilize a display format that people were already familiar with," says Dr. Dailey. "Specifically, the type of display that travelers see in airports for flight information." The original project, Transit Watch, was developed to run at transit centers as part of a model deployment initiative funded in part by the USDOT, WSDOT, and private companies. The new offshoot, MyBus, runs as a Java applet and right now has four display locations available. More sites are planned for the future. The applet can be accessed at <http://www.its.washington.edu/mybus/>.



BusView Window shown in Real-Time–actual location of your bus on a street grid map.

The second application, Busview, started as a program for the X-windows environment. "People who used the program really liked the concept, but our first version was experimental and limited in area of coverage. Further funding allowed us to create a new Java version that is more robust. Users had many suggestions about what features they would like to see, and, when possible, we've tried to incorporate those ideas into the new applet," says Dr. Dailey. Busview now runs on the WWW and allows users to track their bus in real time on a map. Newer features include a cookie that remembers favorite display maps and the ability to set alarms along a bus route. Area coverage has expanded from only a few, selected Seattle sites to include the whole of King County. The Busview applet can be launched from <http://busview.its.washington.edu/>.

Research results have shown that the most stressful aspect of travel is the uncertainty of whether a bus/train/plane has already departed. So, although neither application can make the buses run faster, avoid trouble zones, or be less crowded, they can alleviate the stress that comes with that nagging question, Where is my bus???

If you'd like to know more about the ITS Research Program, contact Dr. Dailey at:dan@ee.washington.edu or see http://www.its.washington.edu.

Prof. Dan Dailey

Professor Peter Lauritzen and Robert Pinter Retire

Professor Peter Lauritzen was inducted as an "Emeritus Professor" at the 1999 EE Spring Fling on May 23, 1999 at the Woodmark Hotel on Lake Washington. Emeritus Professor Rubens Sigelmann agreed to head up the "roast" of Professor Lauritzen, but to his dismay discovered that Pete has "absolutely no faults whatsoever." Rubens, Pete's daughter and other EE members spent a funny 45 minutes remembering Pete's total lack of faults and congratulating him on his induction to an elite group of emeritus faculty after 33.3 years at EE.

Professor Bob Pinter was also put in the limelight for his induction, but he seems to be dragging his feet to retire after 35 years, as evidenced by his entry on *Cybernetics*, which was recently published in the Wiley Encyclopedia of Electrical and Electronics Engineering, Volume 4, Edited by John G. Webster; and his paper with T.C. Folsom on *Primitive Features by Steering, Quadrature and Scale* was recently published in the "Pattern Analysis and Machine Intelligence" journal. We hope that both Pete and Bob enjoy this first summer of retirement!

Autumn Blanchard

Educational Excellence through Cutting Edge Research

The above phrase is our new department motto—a "mini-mission statement." Our departmental goals are to conduct research that has major influence on the theory and practice of Electrical Engineering, as well as society as a whole. We aim to be leaders in what we do. This research will be well integrated with our undergraduate and graduate curricular offerings. Our position is that outstanding education in electrical engineering is inseparable from outstanding research.

Our faculty search this year has been extremely successful. We will have as many as 8 superb new faculty members join us during the next academic year (5 have already signed!). This list includes at least 2 recent winners of the NSF CAREER award (this brings our departmental total of career/PYI winners to 12), one ONR Young Investigator award winner, at least one new IEEE Fellow (bringing our departmental total to 14), and at least two winners of outstanding teaching awards at their current universities. These new faculty will be bringing a total of 10-20 graduate students with them, and approximately $3 million in transferred research grants and contracts. I want to publicly thank the Faculty Search Committee, all of the faculty who participated in the interview process, and most especially the staff who supported the search—your efforts were outstanding!

During the summer we will be doing a lot of space rearrangement to get ready for our new arrivals, and in anticipation of the destruction of our old building (late 2000), which is the first step in completing the second phase of our new building.

Congratulations to all our graduates, and thanks to everyone for all of your efforts this academic year. A good summer to all!

Howard Chizeck

Goodbye

We are sad to report that Rosemary Coleman, our External Relations Officer has accepted a postion with the American Heart Association. Her energy and ideas will be missed.

Technician David Murphy will also be leaving us as he pursues greater challenges when he joins Data I/O in Redmond in one week. Dave has been a source of unending cheer, hard work and a true spirit of teamwork and friendship in this department. He will be missed more than we can say. *Ed.*