It’s about great people doing great work

“This is why I’m in computer engineering!” shouted junior Young-Mi Shin, while working at one of the modern design benches in the Allen Center’s computer engineering laboratory. She had just turned on the current to her complex circuit project and it worked on the first try — after weeks of design, simulation tests, and construction.

Prof. Gaetano Borriello happened to be standing nearby, and Shin’s excitement confirmed once again how the spacious, well-equipped lab is energizing undergraduate learning. “Students can work much more efficiently, and for the first time in 10 years, all students can use the lab at the same time,” Borriello said. Seniors working on capstone course projects have their own dedicated lab bench and don’t have to break down their work every night. The lab even has space for sophomores taking their first computer engineering course. “Experiential learning works so much better than just classroom lecture, so it’s a huge advantage to start the hands-on lab experiences at the sophomore level,” Borriello said.

By all accounts, the Allen Center is exceeding expectations for supporting research and teaching. For Prof. Hank Levy, faculty coordinator for Allen Center design and construction, CSE’s new home merits a 4.0. “We put a lot of thought into how to stimulate interaction and creativity throughout the building,” Levy said. “It’s terrific to see the whiteboards covered with diagrams and equations, and students and faculty conferring in the breakout areas and over coffee in the atrium.”

See the action inside the Allen Center on pages 6-7.

These folks - along with a set of part-timers, work-study students, and others I’m sure I’ve forgotten - are the incredible, fantastic, truly extraordinary, and often unsung keystone of UW Computer Science & Engineering: our staff.

The staff is an intimate part of our success, helping us lead in our missions of education, research and service in computing. I’ll come back to specific staff contributions in a moment.

As you know, we moved into the loveliest building imaginable, the Paul G. Allen Center for Computer Science & Engineering, in September 2003. What’s remarkable is that we actually work here now! Instead of imagining what the “new building” will be like, and instead of planning and moving in, we’re planning lectures in our offices, we’re debating ideas and putting together cool systems in our research labs, we’re hiding away in nooks and crannies, we’re discussing results from colloquia in the breakout areas, we’re hanging out in the Atrium drinking coffee with colleagues and friends. And more. The Allen Center has turned out to work even better than had been planned, which reminds me once again to pass on the highest possible praise to the architect (LMN), the general contractor (Mortenson), and Hank Levy, Ed Lazowska and all the rest of the UW and CSE folks who worked to make this a building where people are taking our education and research programs to the next level. And I can’t pass up the opportunity to once again thank Paul Allen and the rest of truly generous donors who made this facility possible.

But what about the staff? At the highest level, the staff comprises three groups - the administrative staff, the advising staff, and the technical staff. We have 46 permanent staff members, plus a set of part-timers. They are funded from a mixture of state and grant budgets. There are several particularly notable characteristics of our staff. The first is that they share in our goal of making UW CSE even better at our educational and research missions; that is, the staff is as dedicated as the faculty in making CSE a terrific place for educating people and for producing great and influential ideas. The second is that they are exceedingly smart and effective at their jobs. Furthermore, they are creative, continually looking for ways to achieve our missions more effectively. Finally, they make CSE a fun place to work! Not only does this make the staff themselves more effective, but it makes the students and faculty more effective as well.

Although I’m necessarily omitting some key people, and I apologize for that, let me mention a few specific staff achievements:

◆ Several CSE staff have received the College of Engineering Outstanding Staff member award: Jan Sanislo (2000, technical staff), Jenny Seller (2000 honorable mention, undergraduate advising, now departed), Chris Cunnington (1998, administrator), Erik Lundberg (1996, director of the lab/technical staff), Nancy Johnson Burr (1995, technical staff), Mark Murray (1994, technical staff). Many others have been nominated, and I expect more winners from CSE in the next few years.

◆ The move to the Allen Center from lovely Sieg Hall was essentially flawless. People were able to leave Sieg before their move and to start working their very first day in the Allen Center. Only two moving boxes were misplaced, and both were found soon. Computing and communications worked seamlessly. There were odds and ends of problems, but far fewer than anybody ever imagined was possible. Indeed, someone outside of CSE said that “they have never experienced such a smooth move-over of such a large department competed so successfully.” Heather Dolan
AnHai Doan Wins 2003 ACM Doctoral Dissertation Award

2002 UW CSE Ph.D. alum AnHai Doan, now an Assistant Professor of Computer Science at the University of Illinois, was named the recipient of the 2003 ACM Doctoral Dissertation Award, which recognizes the top doctoral dissertation in the nation in computer science and computer engineering. CSE professor Venkatesan Guruswami won the award in 2002, and CSE alums William Chan and Mike Ernst won honorable mention in 2000.

Fran Berman profiled in Business Week’s “Women of Tech”

Fran Berman, UW CSE Ph.D. alum and currently director of UC-San Diego’s Supercomputing Center, was profiled in Business Week’s May 12 issue as one of the top 6 “Women of Tech”. The article dubs Fran “the reigning teraflop queen”, noting that she is the only woman in charge of a supercomputing facility in the world, running an organization of 400, and she clearly loves it. “For a lot of us, it’s like working at a Toys ‘R’ Us for scientists.”

Ed Lazowska named to American Academy of Arts & Sciences

UW CSE professor Ed Lazowska is one of 5 University of Washington faculty among 178 new Fellows elected to the American Academy of Arts & Sciences. The Academy was founded in 1780 “to cultivate every art and science which may tend to advance the interest, honor, dignity, and happiness of a free independent, and virtuous people.”

UW team takes top honors in Venture Capital Competition

Emer Dooley, cross-appointed between CSE and the Business School, coached a team of 5 students to first place in the Western Division of the National Venture Capital Investment Competition. The UW also won the “entrepreneur’s choice” award, which was given to the team the judges said they would most like to work with. It was the first time in the history of the competition that a team has won both first prize and the entrepreneur’s choice award.

we want to hear from you!

Have news you’d like to share with the CSE community? Have comments or suggestions for future issues of MSB?

Let us know! Email the editors at: msb@cs.washington.edu and be sure to visit us online at: www.cs.washington.edu

David Notkin
Bradley Professor and Chair
"it’s a humanoid...."

“The CSE Neural Systems Group is pleased to announce the arrival of the latest addition to the department’s family.” So began a recent email from CSE professor Rajesh Rao to the department, announcing the arrival of a Fujitsu HOAP-2, a miniature humanoid robot.

Research in the Neural Systems Lab focuses on understanding the brain using computational models and simulations, and applying this knowledge to the task of building intelligent robotic systems and brain-computer interfaces (BCIs). The research utilizes data and techniques from a variety of fields, ranging from neuroscience and psychology to machine learning and statistics.

Current efforts in the lab are directed at: (1) understanding probabilistic information processing and learning in the brain, (2) building biologically-inspired robots that can learn from experience and through imitation, and (3) developing interfaces for controlling computers and robots using brain- and muscle-related signals.

There is growing evidence from psychological and neurobiological studies that the brain utilizes probabilistic principles for computation and learning. How such principles are actually implemented in neural circuitry remains a mystery. Recent work in the Neural Systems Lab has demonstrated that a standard model of neural circuitry known as the integrate-and-fire model can implement a powerful probabilistic algorithm for Bayesian inference in a “hidden Markov model.” Furthermore, the outputs of model neurons in computer simulations of the probabilistic model were found to be remarkably similar to neural responses recorded in the brains of monkeys. This work is being pursued in collaboration with the lab of neurophysiologist Michael Shadlen (co-director, UW Neurobiology and Behavior Program).

The theoretical models being developed in the lab are helping guide the construction of brain-computer interfaces (BCIs). Researchers in the lab are developing probabilistic algorithms for inferring the underlying brain states (such as intention to move) from electrical recordings of brain activity such as EEG from the scalp or ECoG from the cortical surface of human patients before surgery. The goal is to use these signals to directly control computers and robotic devices. An immediate application is in helping improve the quality of life for paralyzed and locked-in patients by allowing them to control artificial limbs, wheelchairs, or pointers on a computer screen directly through brain activity. In the long term, this research may offer the means to augment the normal human body and the mind with radically new mechanical, mnemonic, and computational capabilities.

The Neural Systems Lab has a state-of-the-art EEG/EMG acquisition system (from BioSemi, Amsterdam) for non-invasive BCI experiments using EEG signals from the scalp.
and EMG signals from muscles. The work on ECoG signals involves a collaboration with neurosurgeon Jeff Ojemann at UW Medical Center and Harborview Hospital.

A second application area being investigated is neurally-inspired robotics. Hence, the excitement over the recent acquisition of the HOAP-2. The goal is to develop robots that can learn by watching humans and other robots in much the same way as infants and adults learn by watching the actions of others.

Again, the underlying computational framework is probabilistic and utilizes Bayesian techniques for inferring actions from observations and for learning. The ability to program robots through demonstration will allow people without significant computer experience to easily program and use these robots, potentially leading to new applications in areas ranging from routine household maintenance and patient care to search and rescue in life-threatening situations such as fires and other disasters.

Work in this area has recently been focused on a simple but important form of robotic imitation: gaze following. Gaze following is a crucial component of language acquisition in infants: to learn words, a first step is to determine what the speaker is looking at, a problem solved by the human infant by about 1 year of age. Being able to follow the gaze of humans will similarly enhance the ability of robots to communicate and interact with humans. The gaze-following robot in the lab is currently being used in an application where the robot attempts to identify salient objects on a table that a human subject ("the teacher") has turned to look at. In the coming months, researchers in the lab are planning to study more complex forms of imitation in the humanoid robot, including imitation of limb and body movements, imitation of actions on objects, and eventually, imitation based on inferring the goal of the "teacher."

Work with the HOAP-2 is being done in collaboration with developmental psychologist Andrew Meltzoff (co-director, UW Institute for Learning and Brain Sciences).

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Photo credits include Mary Levin, Dan Lamont, Sandy Marvinney, Ed Lazowska, and Katherine Ready.

former Vice President Al Gore stopped by to chat with CSE alums at Google. He had plenty of folks to see, since over 20 CSE alumni currently work for the company. Pictured above are 7 of our grad alumni at Google. L-R: Corin Anderson, Jeff Dean, Neal Cardwell, Pablo Cohn, Shun-Tak Leung, Dmitriy Portnov, and Greg Badros.

...our alumni are everywhere

MSB 

Former Vice President Al Gore stopped by to pick up his own G-Mail account. CSE Alum Siobhan Quinn (2003), was happy to set it up for him. Thanks go out to the coworker who grabbed a picture cell phone and snapped this quick photo op with Al, Siobhan, and her puppy Seamus.

...you’ll find...
“... at the end of the day it's the excitement, intelligence, and innovation of the men and women in this organization that make it what it is.” Paul G. Allen

Art in the Allen Center

The Allen Center showcases works by prominent painters and photographers who have studied or taught at the UW. Meeting rooms, offices, and hallways display the works of the following artists:

- Chuck Close
- Imogen Cunningham
- Joe Max Emminger
- Karen Ganz
- Fay Jones
- Robert Jones
- Jacob Lawrence
- Norman Lundin
- James Martin
- Alden Mason
- Stephen McClelland
- George Tsutakawa
- Art Wolfe
Art in the Allen Center

The Allen Center in Action

The Allen Center showcases works by prominent painters and photographers who have studied or taught at the UW.

Meeting rooms, offices, and hallways display the works of the following artists:

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- Fay Jones
- Robert Jones
- Jacob Lawrence
- Norman Lundin
- James Martin
- Alden Mason
- Stephen McClelland
- George Tsurutaka
- Art Wolfe

Never too young to explore computer science!

Hundreds of young students from K–12 tried hands-on computer activities at the spring College of Engineering Open House.

The Microsoft Atrium is a busy crossroads for study and creativity.
A fast track for undergrads

“We want every smart kid to give computer science a try to see how cool it really can be,” says Kirk Glerum (B.S. ’83). Glerum and his wife Melissa, who earned a computer science degree at Brown, want those “tries” to start just as soon as a freshman sets foot on the UW campus. They have created an endowed scholarship fund so that CSE can recruit the brightest Washington State students right out of high school. The Glerum Family Endowed Scholarship in Computer Science & Engineering allows CSE to compete with other universities that are offering attractive scholarships to stellar students with financial need. And, four years later, these students just might follow in the Glerums’ footsteps to embark on successful careers at Microsoft or other high-tech companies in our region.

Competing for top grad students

Every year, CSE competes with Stanford, Berkeley, MIT, and other top programs to attract the finest graduate students in the nation and the world. Fellowships are a key recruiting tool — they allow incoming students the flexibility to explore various research opportunities before committing to a specific direction. One who understands this first-year challenge is Dave Weil, who earned his M.S. here in 1977 and became a software developer at Boeing and then Microsoft, where he worked 17 years in development and program management. Dave and his wife Marsha, also a UW grad, have established the Weil Family Endowed Fellowship in Computer Science & Engineering.

Retaining stellar faculty at the UW

Superb mid-career faculty are particularly vulnerable to “raiding” by other top computer science programs. Avoiding this “brain drain” is a critical priority for CSE. One key tool is to recognize and reward outstanding faculty through endowed Career Development Professorships. An endowed position provides discretionary “venture” funds that support unfettered creativity and entrepreneurial ideas; it also carries recognition among colleagues. CSE alumnus John Torode (Ph.D. ’72, M.S. ’71), a founder of several IT companies including Digital Systems, Digital Microsystems, Ioline Corporation, and IC Designs, Inc., knows the importance of retaining creative talent. To bolster CSE’s success in doing so, he and his wife, Patti, have established The Torode Family Endowed Career Development Professorship in Computer Science & Engineering.

“I’m delighted to have the opportunity to ‘give back’ to UW CSE. Endowed support for students and faculty will help fulfill the promise of that magnificent new building.”

John Torode (Ph.D. ’72, M.S. ’71)
‘opportunity knocks’ for those with alzheimer’s

A hand-held device that can precisely pinpoint a person’s location, track the user’s movements and give directions could mean freedom for many seniors whose navigational abilities are failing. And it could bring greater peace of mind to family members overwhelmed by the demands of caring for an elderly parent.

Opportunity Knocks is the latest version of a navigational device being developed under CSE’s Assisted Cognition Project, headed up by professor Henry Kautz.

It consists of a next-generation cellular phone that captures the user’s location via a Global Positioning System (GPS) beacon, then sends that information via a high-speed phone network to a computer server. The program on the server uses the location information, along with other variables such as mode of transportation, real-time bus location information (available in Seattle) and user’s predicted destination, to decide whether the user is on course.

If a user gets off course, or misses an opportunity -- like not getting off at the right bus stop or not walking toward his or her parked car -- the telephone is prompted to make a door-knocking sound to get the person’s attention and suggest a course of action.

“This is an active, not a passive, device, and is much different than something like MapQuest”, says Don Patterson, CSE grad student working on the project. “Users don’t specify a location and use just one click to select a destination, yet the phone can use real-time information to get them where they want to go.”

Recently, Patterson traveled to Capital Hill in Washington D.C. to demonstrate the device as part of a technology demo sponsored by the Center for Aging Services Technologies. He was among 15 researchers from around the country showing inventions and products that can address the healthcare needs of 76 million baby boomers as they approach old age.

Opportunity Knocks is just one of a number of projects being undertaken by CSE’s Assisted Cognition group, which is chipping away at the complex issues involved in creating an artificial intelligence (AI) caretaker. The stakes, according to the team, are high.

In the last 50 years, Alzheimer’s disease has grown from relative obscurity to become a defining characteristic of industrialized society. In 1950, at the most 200,000 people in the United States suffered from the ailment. That number now stands at 4 million, according to the National Institute on Aging. By 2050, barring a cure, the number of U.S. sufferers is expected to reach 15 million, out of a projected worldwide total of 80 million.

As the need for assistance increases, artificial intelligence caretakers could give patients more independence, save family members from emotional burnout, and free adult caregivers to return to the workforce.

And while the computing sophistication needed to build a comprehensive artificial intelligence caretaker is probably still 20 to 30 years away, the time to begin is now, says Kautz. “The question is whether we can build systems that are smart enough, flexible enough and reliable enough to replace human caregivers. I’m confident that we can, but it will be an incremental process.”
Steve Gribble and David Wetherall win Sloan Fellowships
CSE faculty members Steve Gribble and David Wetherall have been named winners of 2004 Sloan Research Fellowships. The Sloan Research Fellowship program recognizes the nation’s most outstanding young faculty members in the sciences. Gribble and Wetherall are CSE’s 11th and 12th Sloan recipients. Three CSE adjunct faculty are also winners of Sloan Awards.

UW releases NSF-sponsored ‘Fluency with Information Technology’ online course
CSE Professor Larry Snyder literally wrote the book on “Fluency with Information Technology”, chairing the National Research Council study committee that issued a landmark report, devising a curriculum based on the report’s findings, writing a textbook to support that curriculum, and working with UW Extension to develop BeneFIT, an online self-paced version of the course for motivated people to upgrade their computer and information technology knowledge.

Seems like only yesterday....
But it was 10 years ago that CSE grad student Brian Pinkerton started working on WebCrawler in his spare time. In April 1994, WebCrawler first went live, and by November, it had already served its 1 millionth query! This, in the days when web pages were counted in the thousands, and not the 10’s of millions. WebCrawler, after being acquired first by AOL, then Excite, is currently spinning it’s services out of InfoSpace.

CSE Undergraduates Eliana Hecter and Jonathan Su win 2004 Goldwater Scholarships
Eliana Hecter and Jonathan Su were recent recipients of 2004 Goldwater Foundation Scholarships, designed to foster and encourage outstanding students to pursue careers in the fields of mathematics, the natural sciences, and engineering. The Goldwater Scholarship is the premier undergraduate award in these fields. Of the 310 scholarships awarded nationally in the 2004 competition, 12 went to students in computer science.

Zoran Popović wins major SIGGRAPH honor
CSE professor Zoran Popović has won the SIGGRAPH Significant New Researcher Award for 2004. SIGGRAPH is the premier conference in the area of graphics research. The Significant New Researcher Award is awarded annually to a researcher who has made a recent significant contribution to the field of computer graphics and is new to the field. The intent is to recognize people who, though early in their careers, have already made notable contributions. This award comes as no surprise to us, however, since Zoran has already had 12 papers accepted to SIGGRAPH, including 9 since his arrival at the University of Washington, making him among the most prolific of young graphics researchers.

frightening faculty

talk about scary!!!
Continuing what has now become a Halloween tradition in the department, CSE grad student Harlan Hile employs the fine art of pumpkin-carving to immortalize Hank Levy and Ed Lazowska (see page 3 of MSB 14.1 for images of David Notkin’s pumpkin).
CSE/IRS make excellent showing at UbiComp
CSE professor Gaetano Borriello reports that of the 26 papers accepted to this year’s Ubiquitous Computing Conference, 6 are from UW CSE, Intel Research Seattle, or both. Authors include students from CSE, EE, and the iSchool, at both the graduate and undergraduate level. UbiComp is the premier conference in the emerging field of ubiquitous computing.

“Hamlet” takes the sting out of travel
One of CSE professor Oren Etzioni’s recent software ventures, Hamlet, is getting the attention of the major airlines in a major way, not to mention coverage in Wired, Business Week, and the NBC Nightly News. While airfare prices seem to rise and fall in a seemingly random fashion on a daily basis, these prices are in fact governed by algorithms designed by the airlines to maximize their profits. Hamlet works by studying past trends in pricing and finding the patterns, which are then used to predict future price variations. While airlines and travel agents seem wary of his findings, Etzioni is confident that Hamlet will prove itself. In a recent test run where historical pricing data was fed into Hamlet for two cross-country routes, 607 simulated passengers saved an average of 6.3% (or $283,904!) on those routes over a 41 day period. Why call it “Hamlet”? Why, because the real question here is “to buy, or not to buy.”

James Hewitt
1974-2003

James Hewitt, Windows systems architect for UW CSE, was killed in a motorcycle accident on August 9, 2003.

James had been involved in tech support positions since he was in high school, working directly or as a contractor for UW, the Pacific Science Center, Microsoft, Attachmate, Providence Medical Center, Boeing, and finally, CSE. He was also the founder of Techwolf Networks, an enterprise technology consulting firm.

He was an avid traveler, making trips to France, Italy, Brazil, and New Zealand (twice!) in the last few years. Among his favorite pastimes were running, scuba diving, riding his motorcycle, flying (he had earned his license earlier in the year), and perfecting the ultimate cheesecake recipe. He is greatly missed by everyone who knew him.

A scholarship fund in his name has been created, and contributions can be sent to:

James Hewitt Scholarship Fund
Computer Science & Engineering
University of Washington
Box 352350
Seattle, WA 98195-2350

Checks should be made payable to “University of Washington.”

alumni services updates

In the coming weeks you’ll see several changes in CSE alumni services. Listed here are the highlights:

◆ We’ve moved from hosting our own CSE student resume database to one hosted by Aftercollege.com. If you’re a CSE alum and you’re looking for work, this is a great opportunity to get your resume back in front of our Industrial Affiliates.

◆ Likewise, we’ll no longer be hosting our own CSE alumni database, but using Aftercollege.com’s services. One nice advantage to the new tool is the hidden email drop it provides, leaving no opportunity for spammers to access your address.

◆ We have two fairly new email lists for alumni, ‘cse-alums’, for all department alumni, and ‘cse-alums-pugetsound’, for those alumni still living in the Seattle area. These lists are moderated for membership and content, so no fear of spam here, either. We hope that our alumni will use these lists to keep in touch with each other, and we’ll be sending occasional announcements out to them as well.

Check it all out at www.cs.washington.edu/alumni/
white house recognizes women’s mentoring efforts

On May 6, President George W. Bush presented the Computing Research Association’s Committee on the Status of Women in Computing Research (CRA-W) with the 2004 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM) for “significant achievements in mentoring women across educational levels.”

CRA-W was one of only eight institutional winners of the annual award, given to those organizations identified as “exemplars” and leaders in the national effort to more fully develop the nation’s human resources in science, mathematics and engineering.

The award cites CRA-W’s work providing “hands-on research experiences, mentoring, role models and information exchange to women pursuing careers in the field.” CRA-W programs seek to increase the number of women involved in computer science and engineering, increase the degree of success they experience, and provide a forum for addressing problems that often fall disproportionately within women’s domain.

CSE Ph.D. alumna have consistently been leaders of CRA-W: Current co-chair for 2003-06 is Carla Ellis, Ph.D. 1979, now on the faculty at Duke University; Anne Condon, Ph.D. 1987, was co-chair from 2000-03, and is currently on the faculty at the University of British Columbia; and Fran Berman, Ph.D. 1979 was co-chair from 1994-97 and is currently heading up UCSD’s supercomputing center.

Also receiving a PAESMEM on May 6 was UW Dean of Engineering Denice Denton, one of only nine individual scholars to receive the award this year, in recognition of her role as a national leader in engineering education.

When Denton came to the UW in 1996, she became the first woman in the nation to lead an engineering college at a major research university. During her tenure at the UW, she has been instrumental in establishing and promoting multiple programs that seek to take engineering to segments of the population that traditionally don’t see themselves as having a chance to pursue science-related careers.

Denton said the recognition the award brings to her work is exciting and gratifying, but that it remains secondary to the real payoff. “The wonderful thing is seeing the folks that I’ve mentored over the years progress and be successful. The real thrill for me is watching them grow and thrive and contribute and become leaders in engineering and science.”

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