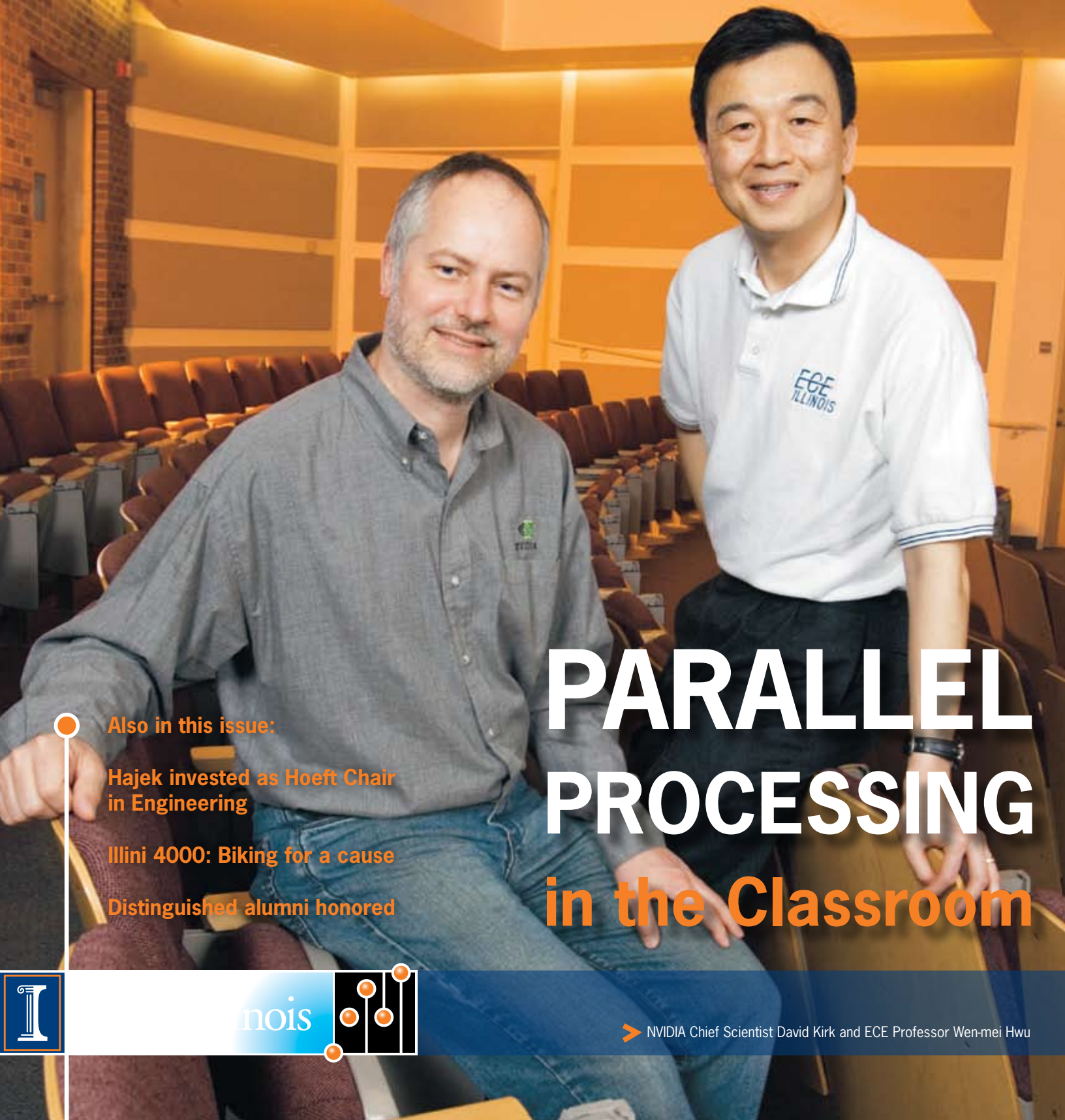


RESONANCE

NEWS FOR ECE ILLINOIS ALUMNI AND FRIENDS

SUMMER 2007



PARALLEL PROCESSING in the Classroom

Also in this issue:

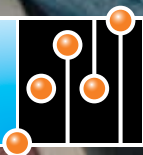
Hajek invested as Hoeft Chair
in Engineering

Illini 4000: Biking for a cause

Distinguished alumni honored



Illinois



> NVIDIA Chief Scientist David Kirk and ECE Professor Wen-mei Hwu

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Showcasing ECE

Letter from the Department Head



Dear Friend,

In this issue of *Resonance*, we highlight several research developments that I think you will find interesting. These projects reflect the innovative nature of the work our faculty and students perform daily. They also illustrate the range of topics in which ECE Illinois has an interest. We'll tell you about a new technique for enhancing the quality of blurry images used for medical diagnosis, new instrumentation for predicting space weather, and much more.

Beyond the most recent research news, keep reading for an update on the student-built ION satellite, one student's unique summer plan to raise money for cancer research, and our new Alumni Leaders feature.

I hope you like the new look to this magazine. Many of you were kind enough to participate in a survey measuring perceptions of ECE Illinois last summer. Your opinions provided valuable information to our External Relations staff. One message that came through loud and clear is your belief that stronger marketing of the department is needed. So, we've stepped up our efforts to tell the ECE Illinois story, and keeping you, our alumni and friends, in the know is an important part of our commitment to communications. This new magazine and an updated Web site at www.ece.uiuc.edu are two improvements already in place.

Thank you for your feedback, and please continue to be in touch with us.

Best Regards,

Richard E. Blahut
 Henry Magnuski Endowed Professor of Electrical and Computer Engineering
 Department Head



DON'T MISS AN ISSUE!

Resonance is the best way to stay up-to-date on ECE Illinois department and alumni news. Alumni who join the University of Illinois Alumni Association (UIAA) automatically receive this magazine. If you're not already a member of the UIAA, visit the Alumni section of the ECE Web site at www.ece.uiuc.edu/alumni.

ECE NEWS BRIEFS

BARDEEN AMONG FIRST IEC HALL INDUCTEES Last October, the Illinois Engineering Council, a federation of 12 engineering societies that strives to represent the profession and acts on matters of general interest, inducted its first Hall of Fame class. The initial inductees included John Bardeen. Bardeen was a member of the ECE faculty from 1951 to 1991. He co-invented the transistor while working at Bell Labs, an accomplishment for which he earned the 1956 Nobel Prize in Physics. While at Illinois, he developed the BCS theory of superconductivity along with two students. Bardeen was again honored with the 1972 Nobel Prize in Physics.

The 2006 class of inductees also included Henry Magnuski. Magnuski was a communications pioneer, playing a pivotal role in the development of the “Walkie-Talkie” while at Motorola. The Henry Magnuski Electrical and Computer Engineering professorship in ECE, which was established by his son Henry S. “Hank” Magnuski (BSEE ’65) and his wife, Cynthia, is named in his honor. Richard Blahut, ECE department head, currently holds the professorship.



BOOK CHRONICLES VON FOERSTER AND THE BIOLOGICAL COMPUTER LAB Austrian scholars Albert Müller and Karl Müller (no relation) have done their part to distill and preserve an ECE Illinois legacy. The professors at the University of Vienna have published a collection of essays about former ECE Professor Heinz von Foerster and his Biological Computer

Laboratory (BCL), where pioneering cybernetics research thrived from 1958 until 1976.

The collection—titled *An Unfinished Revolution? Heinz von Foerster and the Biological Computer Laboratory, 1958–1976*, and published by the Viennese house Edition Echoraum—brings together memories, appreciations, and critical appraisals by former students and colleagues of von Foerster.

ECE STUDENTS AMONG FINALISTS FOR FIRST LEMELSON-ILLINOIS STUDENT PRIZE ECE graduate students Behzad Sharif and Shao Liu were among the eight finalists for the University’s inaugural Lemelson-Illinois Student Prize. Administered by the Technology Entrepreneur Center (TEC), the \$30,000 prize was created through a partnership with the Lemelson-MIT Program.

Michael Callahan, a graduate student in Industrial and Enterprise Systems Engineering, was the inaugural recipient for developing

a device that turns unspoken thoughts into spoken words and a “mind-controlled” wheelchair. Callahan’s advisors include ECE Professor and TEC Director Andrew Singer.



A NEW FACE IN CYBERSPACE

Earlier this year, ECE unveiled a new Web site designed to be the department’s window to the world. The site incorporates an updated design, improved navigation, and better organized information. There is an enhanced section for alumni

and a new section for prospective students. Visitors will note that the homepage is frequently updated to share news about faculty, student, and alumni achievements.

Other enhancements include an “expert search” tool, which makes it easy to find faculty with specific expertise, an online donations tool, a complete personnel directory, and a special section for corporate partners.

The Web address remains www.ece.uiuc.edu. Bookmark it today!



BISHOP NAMED ASSOCIATE HEAD

In October, ECE Professor Stephen G. Bishop (left) became the department’s associate head for administrative and instructional affairs. In this role, Bishop’s responsibilities include oversight of faculty teaching assignments, appointment of graduate student teaching assistants, and managing the ABET accreditation process. Bishop

had previously served in other administrative positions on campus, including as director of the Micro and Nanotechnology Laboratory and associate vice president for technology and economic development.



Bishop replaced N. Narayana Rao (left), the Edward C. Jordan Professor of Electrical and Computer Engineering, who had served in the role since 1987. Rao’s accomplishments include bringing distinction to the department via ABET accreditation and forging relationships with universities in India. Rao has resumed his career of academic teaching, research, and service. ●

New instrumentation helps scientists better predict space weather

By James E. Kloeppel, U of I News Bureau

New instrumentation and observing techniques being developed by ECE researchers are helping scientists better understand and predict space weather.

Space weather can be caused by giant solar flares and coronal mass ejections from the sun, and can adversely affect life on Earth. Tremendous blasts of radiation may threaten astronauts, disrupt satellite communication and navigation systems, and knock out power grids on Earth. Near Earth's magnetic equator, however, space weather can have dramatic effects even during quiet solar conditions.

"These storms are among the most explosive events that occur in the ionosphere and are an important component of ongoing space weather research," said ECE Professor Jonathan Makela.

"A better understanding of the physical processes responsible for these storms could improve our ability to forecast space weather," Makela said, "and lead to better techniques to mitigate its effects."

The ionosphere extends from approximately 100 kilometers to more than 1,000 kilometers above Earth's surface. In this region of the atmosphere, solar radiation can strip the outer electrons from atoms and molecules of gas. After sunset, the electrons recombine and give off light, called airglow. Space weather events at the magnetic equator appear as depletions in the airglow. As signals at radio wavelengths pass through these turbulent regions, they scintillate—much like the twinkling of starlight at optical wavelengths.

Unlike aurora, which can be seen with the naked eye, airglow near the magnetic equator is visible only in photographs

taken through narrow-band filters with exposure times of a minute or two.

In August 2006, Makela installed a narrow-field ionospheric airglow imager at Cerro Tololo Inter-American Observatory, located east of La Serena, Chile. The imager looks north, parallel to Earth's magnetic field and toward the magnetic equator. Two GPS scintillation monitors were also installed at the site and are used to study ionospheric instabilities at a smaller size scale.

"The GPS monitors allow us to perform simple interferometric calculations and derive drift velocities of the perturbations that cause the scintillations," Makela said. "By measuring power fluctuations in the GPS signals, we can also correlate the scintillation patterns with the airglow images."

Makela is also attempting to correlate his airglow images with radar backscatter observations made with the Jicamarca radar system near Lima, Peru.

"In this way, we can study the relative roles of the equatorial and local regions of the ionosphere in the production of scintillation-causing perturbations," Makela said. "This could then help us better predict space weather, prepare further safeguards on Earth and in space, and plan more robust communication and navigation schemes during space weather events."

Makela described the instrumentation and early results, based on overlapping data from the imager, GPS receivers, and Jicamarca radar, at the American Geophysical Union meeting in San Francisco in December.

Makela's work in Chile is in collaboration with electrical and computer engineering

professors Paul Kintner at Cornell University and Brent Ledvina at the Virginia Polytechnic Institute and State University. Illinois graduate student Ethan Miller is also working on the project.

The National Science Foundation and the U.S. Naval Research Laboratory funded the research. ●



➤ ECE Professor Jonathan Makela has created new instrumentation to better understand and predict space weather. Photo by L. Brian Stauffer, U of I News Bureau

WANT TO KNOW MORE?

To hear ECE Professor Jonathan Makela discuss his research in an interview on The Weather Channel, visit the ECE Web site at www.ece.uiuc.edu. In the News section, select *Resonance*.

Novel **computed imaging** technique uses blurry images to enhance view

By James E. Kloeppel, U of I News Bureau

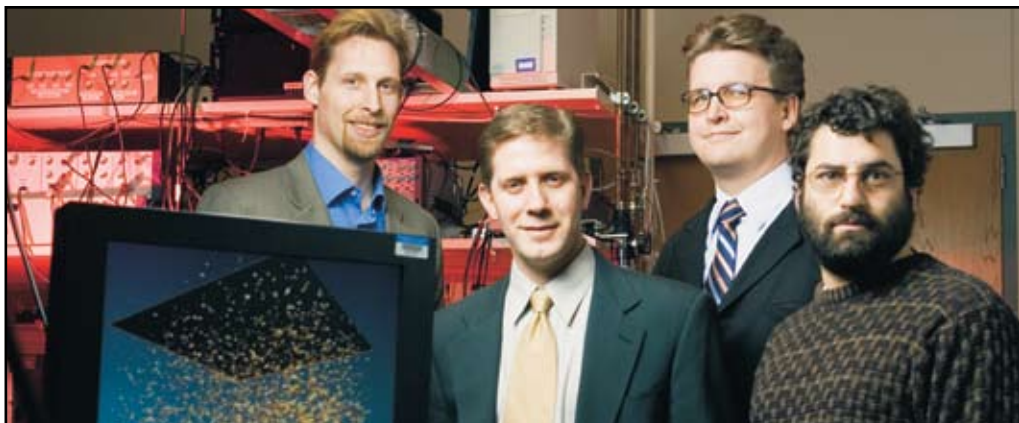
ECE Illinois researchers have developed a novel computational image-forming technique for optical microscopy that can produce crisp, three-dimensional images from blurry, out-of-focus data.

Called Interferometric Synthetic Aperture Microscopy, ISAM can do for optical microscopy what magnetic resonance imaging did for nuclear magnetic resonance, and what computed tomography did for X-ray imaging, the scientists say.

“ISAM can perform high-speed, micron-scale, cross-sectional imaging without the need for time-consuming processing, sectioning, and staining of resected tissue,” said ECE Professor Stephen Boppart, who is also a bioengineering and medicine professor at Illinois, and a corresponding author of a paper accepted for publication in the journal *Nature Physics*.

Developed by postdoctoral research associate and lead author Tyler Ralston, research scientist Daniel Marks, ECE Professor P. Scott Carney, and Boppart, the imaging technique utilizes a broad-spectrum light source and a spectral interferometer to obtain high-resolution, reconstructed images from the optical signals based on an understanding of the physics of light scattering within the sample.

“ISAM has the potential to broadly impact real-time, three-dimensional microscopy and analysis in the fields of cell and tumor biology, as well as in clinical diagnosis, where imaging is preferable to biopsy,” said Boppart, who is also a physician and founding director



➤ ECE researchers Tyler Ralston, Stephen Boppart, P. Scott Carney, and Daniel Marks with an image illustrating a new computational image-forming technique called ISAM.

of the Mills Breast Cancer Institute at Carle Foundation Hospital in Urbana.

While other methods of three-dimensional optical microscopy require the instrument’s focal plane to be scanned through the region of interest, ISAM works by utilizing light from the out-of-focus image planes, Ralston explained. “Although most of the image planes are blurry, ISAM descrambles the light to produce a fully focused, three-dimensional image.”

ISAM effectively extends the region of the image that is in focus by using information that was discarded in the past.

“We have demonstrated that the discarded information can be computationally reconstructed to quickly create the desired image,” Marks said. “We are now applying the technique to various microscopy methods used in biological imaging.”

In their paper, the researchers demonstrate the usefulness of computed image reconstruction on both phantom tissue and excised human breast tumor tissue.

“ISAM can assist doctors by providing faster diagnostic information and facilitating the further development of image-guided surgery,” Boppart said. “Using ISAM, it may be possible to perform micron-scale imaging over large volumes of tissue rather than resecting large volumes of tissue.”

The versatile imaging technique can be applied to existing hardware with only minor modifications.

In addition to previously mentioned affiliations, Boppart, Carney, Marks, and Ralston are affiliated with the Beckman Institute for Advanced Science and Technology. Boppart also is affiliated with the Micro and Nanotechnology Laboratory and the Institute for Genomic Biology; Carney also is affiliated with the Coordinated Science Laboratory.

The National Institutes of Health, National Science Foundation, and the Beckman Institute funded the work. ●

Hajek invested as Hoelt Chair in Engineering

By Tom Moone

On October 4, an investiture ceremony was held for ECE Professor Bruce Hajek, who was named a Leonard C. and Mary Lou Hoelt Chair in Engineering.

“Bruce can truly be described as a genius,” said ECE Professor Dilip Sarwate in his comments introducing Hajek. Sarwate added that Hajek is often sought out by other ECE faculty members to get his input on research questions and called Hajek “an example of the very best of our faculty.”

College of Engineering Dean Ilesanmi Adesida agreed, saying, “We ride on the wings of faculty like Professor Bruce Hajek.”

An ECE faculty member since 1979, Hajek has been involved in research in the area of modeling, analysis, and optimization of the physical process of communication. Much of his work has focused on quantifying the effects of randomness, helping to give coherence to the field of communication networking, which otherwise appears chaotic.

Hajek has also been actively involved in IEEE, serving as an associate editor for the *IEEE Transactions on Information Theory*, as editor-in-chief of the same publication, and as president of the IEEE Information Theory Society.

Hajek’s association with Illinois has been a long one. He received his bachelor’s degree in mathematics and his master’s in electrical engineering from this campus. He went on to receive his PhD in electrical engineering from the University of California, Berkeley, in 1979, the same year that he returned to Illinois as a faculty member.

Hajek was a winner of the USA Mathematical Olympiad in 1973. He has received the Eckman Award of the American Automatic Control Council, National Science Foundation Presidential Young Investigator Award, Outstanding Paper Award from the IEEE Control Systems Society, COMCON Award for contributions to the theory of communication, Guggenheim Fellowship, IEEE Millennium Medal, and IEEE Koji Kobayashi Computers and Communications Award. Hajek is a member of the Center for Advanced Study and a Founder Professor of Engineering.

He is a fellow of the IEEE and was elected to membership in the National Academy of Engineering in 1999 for his contributions to stochastic systems, communication networks, and controls.

When he spoke at the investiture, Hajek thanked and praised those who spoke at the event and many of the ECE colleagues with whom he had worked over the years. He also ended by sharing with the audience some simple advice that had served him well during his years as a researcher: “Reinvent yourself as necessary...Don’t hold grudges or burn bridges...Look for broadening challenges...Take risks...Keep a balanced perspective.”

The Leonard C. and Mary Lou Hoelt Endowed Chair in Engineering was established in 1997 through the generosity of Leonard C. Hoelt (B.S. Management ’47) and his wife, Mary Lou. Leonard Hoelt began his career in 1946 in the treasury department with Caterpillar Tractor Company in Peoria, Illinois. In 1954, he joined Ziegler Inc.,



ECE Professor Bruce Hajek was invested as the Leonard C. and Mary Lou Hoelt Chair in Engineering in October.

in Minneapolis, which distributes Caterpillar construction equipment. He served in a variety of roles at Ziegler, including president, CEO, and chairman. The couple has also made generous gifts to establish and endow the Hoelt Technology and Management Program, a cross-disciplinary minor in the College of Engineering and the College of Business, as well as an endowed chair in the College of Business. ●

NEW FACULTY

ECE WELCOMES FOUR NEW FACULTY MEMBERS



By Tom Moone

During the 2006–2007 academic year, ECE welcomed four new faculty members (pictured left to right). Their specialties cover the gamut of the department's expertise.

Assistant Professor **TODD COLEMAN** did his PhD work at MIT on the topic of solving distributed data compression and wireless interference management problems in communications. He then took a year-long postdoctoral position in a vastly different field: computational neuroscience.

At Illinois, Coleman's research will focus on the areas of information theory, communications, wireless communications, and signal processing. He is particularly interested in continuing the work he has done on reliable communication that has low complexity and is provably good. He also wants to continue his research in the computational neuroscience area, examining how neurons represent dynamic sensory information and understanding how to verify this appropriately with statistical measures.

Coleman's decision to come to Illinois was not a difficult one. His PhD adviser, Muriel Medard, had started her career at Illinois. Coleman said he first became acquainted with Illinois through the collaborations Medard still maintains with Illinois faculty.

For Assistant Professor **RAKESH KUMAR**, Illinois has what he calls "the wow factor." Having grown up in India and received his PhD from the University of California, San Diego, Kumar was somewhat hesitant about moving to a place that has cold winters. However, the stature that Illinois has in the engineering field tipped the move in ECE's favor.

Kumar's research focuses on computer architecture. "My research interests are processor architecture and programming models for future architectures," said Kumar.

One project he is working on encompasses what he calls "amoebic computing." He hopes to create a framework whereby processors can use reconfigurable logic to create new kinds of cores to adapt to a given application. "In some sense, it is evolutionary computing," said Kumar.

Assistant Professor **XIULING LI** is no stranger to ECE and Champaign-Urbana. She moved to Illinois in 1994 after receiving her PhD from the University of California, Los Angeles, and worked as a postdoctoral research fellow at the California Institute of Technology for a year. At Illinois, she was a postdoc and then a research assistant professor before joining a local start-up company, EpiWorks, Inc. Now she is back on campus doing research on semiconductor materials and devices.

"The goal is to develop next generation devices," she said. "The approach we are going to use is to go small, to the nano scale."

One project that Li will be working on is three-dimensional devices. Conventional semiconductor devices are designed in a two-dimensional, planar fashion. Li wants to grow and fabricate devices that are rolled up into micro and nanotubes. "By doing that, the surface area per unit volume will be increased," she said. "That potentially could have applications in chemical and biological sensing."

Assistant Professor **ERIC POP** arrived in mid-March from Stanford University, where he spent the last 16 months as a visiting researcher for the Intel Corporation after completing his PhD and postdoctoral work.

Pop's research interests lie in three major areas: power and thermal issues in integrated circuits, solid state memory devices, and carbon nanotubes for electronic and thermal applications. "Underlying all this," said Pop, "is that I'm generally also very interested in the fundamentals of electrical and thermal transport in nanoscale electronics."

Pop has some ideas for new classes for the department, including courses on fundamental energy transfer processes in solid state semiconductors and in solid-state memory devices.

Among the things that attracted Pop to Illinois were the research stature of the department and the collegiality among the faculty he met. "Everybody I've met has been outstandingly supportive," he said. ●

NVIDIA and Illinois bring **parallel processing** to the classroom

By Brad Petersen



> NVIDIA Chief Scientist David Kirk and ECE Professor Wen-mei Hwu participate in a discussion during ECE 498.

Computer engineering and computer science students got a special education last semester as part of a pioneering new class taught by David Kirk, chief scientist at graphics-processing industry leader NVIDIA, and ECE Professor Wen-mei Hwu. Students in the class learned how parallel processing works and how to write programs that take advantage of it—an important skill, as parallel processors are becoming standard equipment in most computers.

“We want to help students tap into the massive computing power of these processors to allow them to do work that was too computationally expensive to do before,” Hwu says. “We also want to help them design future massively parallel processors and programming tools.”

In parallel processing, multiple processors are employed simultaneously, or in

parallel, to attack a problem, each one processing a portion of the data. More processors equal greater speed.

“For example, a high-resolution MRI 3D image that used to take 10 hours to reconstruct now can take only about six minutes,” Hwu notes. “This makes it cost-effective to use MRI for real-time diagnosis. We want to make sure that our students are the ones that take advantage of these opportunities to revolutionize their own fields with these new capabilities.”

But using parallel processing also means a different approach for the programmer. “It’s a different way of thinking to, in your mind, lay out a problem into thousands of pieces rather than laying out a problem simply as a recipe sequence of a single path,” Kirk explained.

A GROWING NEED That’s where ECE 498: Programming Massively Parallel Processors comes in. This unique class teaches students to understand how parallel processing works and how to write programs that take advantage of the increased processing power. Although parallel processing is not a new concept, the availability of chips made by companies like NVIDIA is making the technology ubiquitous.

“Historically, people talk about Moore’s Law...microprocessors getting faster every year...” Kirk said. “You could write a program and, a year and a half later, you’d get a new processor and your program runs twice as fast, and it’s just free. It’s automatic. But a few years ago, the free lunch ended. Technology reached a point where we can’t just make processors faster, we have to add more of them. So this is a big change.”

This change represents a problem for everyone because most universities are not teaching students how to use parallel processors.

“Traditionally, computer science and computer engineering education has not really addressed parallel processing as an important part of programming. It’s a graduate course and it’s an elective. It’s not required for graduation,” Kirk said. “Going forward with multi-core processors and highly parallel GPUs [graphics processing units], everybody needs to know how to program massively parallel processors because it’s all there is. There won’t be any single core processors any more.”

Kirk brought NVIDIA's GeForce 8800 processor to campus with him, and it was the main technology he and Hwu used in ECE 498. To call it an impressive teaching tool would be an understatement.

The GeForce 8800 is new to the marketplace. Unlike graphics processors of the past, NVIDIA's processor has the ability to do more than just process graphics. In fact, the company coined the term GPU in 2000 for its processor in order to differentiate it from the VGA controller, which is considered a peripheral. The GPU represents another processor in the system.

"Computing in PCs has followed a pretty consistent architectural pattern. There's the CPU, which is for general purpose computing, and there's a GPU for the graphics part of the computing, for making the pictures," Kirk explained. "The modern GPU has technology designed purely for computing, not simply for graphics. We recognized that the computational power and the parallel nature of the architecture in the GPU made it suitable to more tasks than just 3D graphics."

NVIDIA alone has delivered more than half a million of the new parallel processors, helping to move the technology into the mainstream.

"Applications that are developed for this technology have potentially a very large footprint," Kirk said. "If we train people in this skill, there can be these machines at every university in the world, at every research lab in world and, in fact, on every desktop. It could be pervasive."

A KEY ADDITION TO THE CURRICULUM

Last year, Kirk made numerous visits to top engineering universities across the country stressing the importance of teaching students to work with massively parallel processors. His pleas for incorporating the technology into the curriculum were heard, and then he got a fairly standard response.

"Many of the schools said, 'Well, you know, you can't just change the curriculum,'" Kirk

recalled. "'We can't just have some industry person come tell us to change our courses. Changing the core of what we teach, that takes years.'"

When he came to Illinois to meet with Richard Blahut, ECE's department head, and Hwu, the AMD Jerry Sanders Chair of Electrical and Computer Engineering, the response was both different and unexpected.

"When I visited Illinois and met with [Dick] and Wen-mei, I got the most receptive response to this proposal and also a challenge. Dick said, 'Well, if this is so important to you, why don't you teach

"It's a different way of thinking to, in your mind, lay out a problem into thousands of pieces rather than laying out a problem simply as a recipe sequence of a single path."

it?'" Kirk recalled. "In retrospect, it's sort of surprising that nobody else said it. But here, the opportunity was presented not only inviting me to come in and be part of it, but Wen-mei agreeing to contribute his time, which has really been a great collaboration."

Kirk said the University not only agreed to offer the course right away, but also made a commitment to help expand the course to other universities.

Most of the students in the first class of ECE 498 were graduate students. Kirk says his goals are for the class to eventually become a core, required class in the curriculum, not just at Illinois, but everywhere. He said that all computer science and computer engineering students should be required to learn about parallel processors early in their undergraduate education so they can use the knowledge during their studies.

"Both Wen-mei and I believe that parallel programming is a basic skill, not an advanced skill, and so it should be taught early," Kirk said.

Since the end of this semester, Kirk and Hwu have been working to refine the class lectures and notes in order to make them available for other universities.

"Teaching the class was really a lot of fun. The students are clearly knowledgeable and smart and ask a lot of good questions," Kirk said. "You can really tell that they're excited about the class and they're really thinking about it. They're course collaborators as much as students."

For students, the end of each semester in ECE 498 will include a group project and an opportunity to display what they've learned.

"The students will propose and execute a project in groups of three or four people. They will pick some significant and interesting task that has interest for them and refactor it and recompose it to expose the parallelism," Kirk said. "They'll write massively parallel programs that execute their task, and they can run it on the GeForce 8800. And hopefully they can demonstrate the large amount of speed-up from running it on a single CPU."

NVIDIA Corporation (Nasdaq: NVDA) is the worldwide leader in programmable graphics processor technologies. The company creates innovative, industry-changing products for computing, consumer electronics, and mobile devices. Its customers include PC, game console, and cell phone makers. ●

FACULTY NEWS

JENNIFER T. BERNHARD became a member of the advisory board of the Department of Electrical and Computer Engineering at Duke University in February. Bernhard also was nominated president-elect for the IEEE Antennas and Propagation Society for 2007 in November. She will serve as president of the Society in 2008.

STEPHEN A. BOPPART was named the first director of the Mills Breast Cancer Institute in December. The Institute will open in Spring 2008 on the Carle Clinic and Carle Foundation Hospital campus in Urbana.

ANDREAS CANGELLARIS and his students, George Manetas and Vassilis Kourkoulos, received the "Best in Session" award at the 2006 Semiconductor Research Corporation Student Symposium for their paper "Electrodynamic Modeling of Substrate Noise Coupling and its Application to the Assessment of the Frequency Range of Validity of RC Models."



WENG CHO CHEW, Y. T. Lo Chair in Electrical and Computer Engineering, received the 2006 IBM Faculty Award in recognition of his achievements.

KOETTER APPOINTED HEAD OF GERMAN RESEARCH INSTITUTE



ECE Professor Ralf Koetter has left Illinois to become head of the Institute for Communications Engineering at the Technical University of Munich. The Institute employs about 40 staff and students whose work concentrates on the areas of coding, multimedia, optical communication, and the use of communication and information theory in genetics.

"The academic system is reinventing itself here, and the opportunity to contribute to this change was too good to turn down," said Koetter of the return to his native Germany. "I will miss Illinois and my much-admired colleagues," he added. "I love the place, and no other university in the U.S. tempted me at all!"

Koetter is an expert in theoretical and practical coding theory. He earned his PhD from Linköping University, Sweden, in 1996. He joined the ECE faculty in 1999 and has since won an NSF CAREER Award, IBM Partnership Award, IEEE Information Theory Society Award, and Xerox Award for Faculty Research. He is a member of the board of governors of the IEEE Information Theory Society. ○

MINH N. DO received a 2007 Xerox Award for Faculty Research from the College of Engineering. In addition, Do and graduate student Yue Lu received a "Most Innovative Paper" award sponsored by NTT DoCoMo USA, a subsidiary of NTT DoCoMo, the leading mobile communications company in Japan, for their ICIP 2006 paper.

J. GARY EDEN was named the Fulbright-Israel Chair in the Natural Sciences and Engineering for 2007–2008. Additionally, Eden was appointed editor-in-chief of the international review journal *Progress in Quantum Electronics* in February.



THOMAS S. HUANG, William L. Everitt Distinguished Endowed Professor in Electrical Engineering, and students Charlie Dagli and Shyam Rajaram received the Best Paper Award at the ACM International Conference on Content-Based Image and Video Retrieval 2006 in July.

The paper was titled "Leveraging Active Learning for Relevance Feedback Using an Information-Theoretic Diversity Measure." Huang, Dagli, and Rajaram also received the Best Student Paper Award in Pattern Recognition and Basic Technologies at the International Conference of Pattern Recognition.

SETH A. HUTCHINSON was elected an IEEE Fellow "for contributions to visual servo control and robot motion planning" in November.

WEN-MEI HWU, AMD Jerry Sanders Chair of Electrical and Computer Engineering, was awarded the 2006 ISCA Influential Paper Award by the 2006 International Symposium on Computer Architecture.

P. R. KUMAR, Franklin W. Woeltge Professor in Electrical and Computer Engineering, received the 2006 IEEE Control Systems Award for his contributions to adaptive control, manufacturing systems, and wireless communications.

DANIEL LIBERZON received the Donald P. Eckman Award "for contributions to the theories of switched systems and nonlinear control, and their application to control design under limited information." The Eckman Award is given annually by the American Automatic Control Council and recognizes the accomplishments of an outstanding young engineer in the field of automatic control. Liberzon also received a 2007 Xerox Award for Faculty Research from the College of Engineering



MICHAEL C. LOUI was named executive editor of *College Teaching*, one of the oldest interdisciplinary journals for scholarly papers on teaching and learning at the college and university level, in September.



PIERRE MOULIN and his student Negar Kiyavash received the Best Student Paper Award in the category of "Multimedia Signal Processing" at the ICASSP 2006 Conference. The title of the paper was "On Optimal Collusion Strategies for Fingerprinting."

WILLIAM O'BRIEN, Donald Biggar Willett Professor in Engineering, received the William J. Fry Memorial Lecture award from the American Institute of Ultrasound in Medicine.

N. NARAYANA RAO, Edward C. Jordan Professor of Electrical and Computer Engineering, was appointed Distinguished AMRITA Professor of Engineering by AMRITA University, India, in October.



JOSE SCHUTT-AINE was elected an IEEE Fellow "for contributions to modeling and simulation of distributed circuits with applications to signal integrity" in November.

GREGORY L. TIMP was named a 2006 Fellow of the American Physical Society for his pioneering work in nanodevices and transport in February.

VENUGOPAL V. VEERAVALLI and Jean-Francois Chamberland, one of Veeravalli's former PhD students and current assistant professor at Texas A&M University, received a 2006 Young Author Best Paper Award from the IEEE Signal Processing Society. Their paper was titled "Decentralized Detection in Sensor Networks."



BENJAMIN W. WAH, Franklin W. Woeltge Professor in Electrical and Computer Engineering, received the IEEE Computer Society Richard E. Merwin Distinguished Service Award in November. ●

ECE PROFESSOR, TWO ALUMNI NAMED TO NAE

By Rick Kubetz, College of Engineering

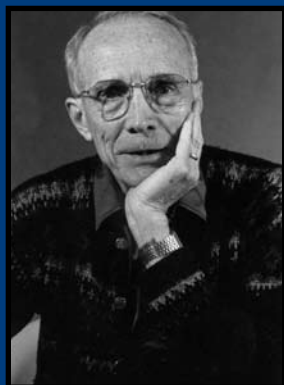


P. R. Kumar and distinguished alumni Walter Jeremiah (Jerry) Sanders III and Sergio Verdú were among the 64 engineers elected to the National Academy of Engineering (NAE) this year. NAE membership is among the highest professional distinctions in engineering.

Kumar, the Franklin W. Woeltge Professor of Electrical and Computer Engineering, was recognized by the NAE "for contributions to adaptive control, manufacturing systems, and wireless networks." Kumar, who is also a research professor at the Coordinated Science Laboratory, is an expert in the field of systems, studying their modeling, design, and analysis. His current research interests are in wireless networks, semiconductor wafer fab operations, learning, and financial economics. He is the co-author of the book *Stochastic Systems: Estimation, Identification, and Adaptive Control* (1986).

Walter Jeremiah (Jerry) Sanders III (BSEE '58), retired chairman and co-founder of Advanced Micro Devices Inc., was recognized "for leadership in product development and manufacturing in the semiconductor industry." Sanders is a major supporter of ECE and the College of Engineering. The Annual W.J. "Jerry" Sanders Creative Design Competition challenges student teams to construct robots to complete a specified task. The final face-off competition is a highlight of the College of Engineering Open House each spring.

Sergio Verdú (MSEE '82, PhD '84), a professor of electrical engineering at Princeton University, was cited "for contributions to multi-user communications and information theory." His research interests are in information theory, data compression and transmission, and signal processing. ○



GEORGE ANNER REMEMBRANCES SOUGHT

ECE Professor George Anner is credited with helping to develop ECE 444: Theory and Fabrication of Integrated Circuit Devices (known as ECE 344 prior to 2005) in the late 1960s and early 1970s. Anner, who passed away in 2004, served as the laboratory director from 1968–1982.

For many reminiscing alumni, Professor Anner and the "Fab Lab" bring back fond memories of a unique class that provided an excellent opportunity to learn about semiconductors.

If you consider yourself part of this group, we want to hear from you. We're compiling an article for the next issue of *Resonance* and are looking for stories, comments, or anecdotes relating to Anner and ECE 444. To share a comment, visit www.ece.uiuc.edu/anner.

Today, the ECE 444 "Fab Lab" is recognized as one of the best undergraduate instructional facilities in the country and remains a staple of the ECE curriculum. ○

Illini 4000: Biking for a cause

By Tom Moone

ECE senior Anish Thakkar and 25 fellow University students will ride their bicycles from New York City to San Diego this summer. But this is not just a ride for the sake of adventure. Thakkar and his fellow riders are part of Illini 4000, an organization whose goal is to raise \$100,000 for cancer research and cancer programs.

Illini 4000 was founded by Thakkar and his friend Jonathan Schlesinger, an undergraduate in LAS. The funds raised by the ride will support two organizations. Ninety percent of the funds will go to the American Cancer Society, the largest source of private, nonprofit, non-government funds for cancer research in the U.S.

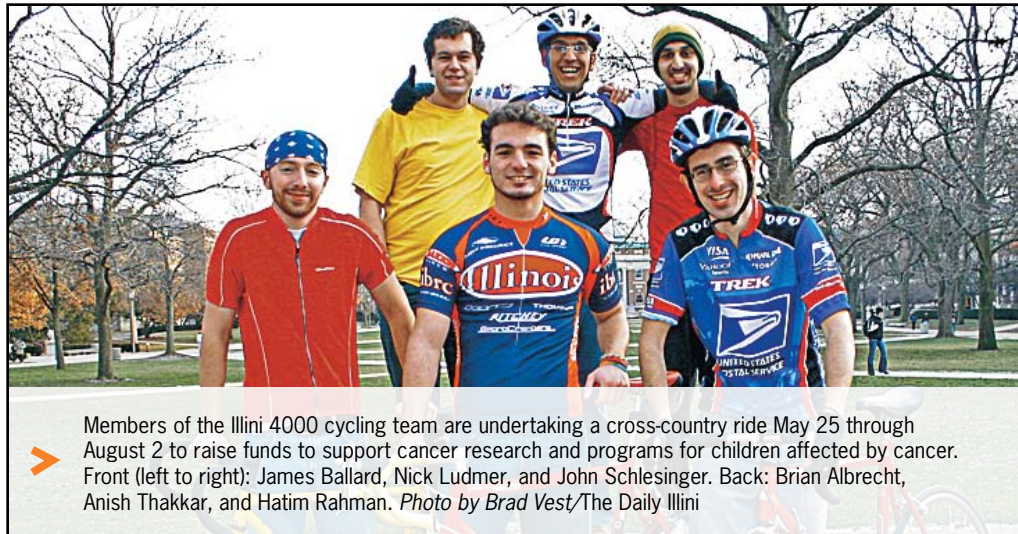
The remaining 10 percent will support Camp Kesem at the University of Illinois. Camp Kesem, a national organization of camps, will enable children who now have or have had a parent with cancer to participate in a summer camp run by college students where they can also interact with peers facing similar challenges.

Thakkar and his teammates will be stopping by hospitals, visiting with children undergoing cancer treatments, and creating a pen pal program among children across the country undergoing cancer treatments.

There is even a Chicago-to-Champaign ride allowing the general public to get involved. The ride is scheduled for the weekend of June 9 and 10, and it will include lodging in the Kankakee area.

Summing up his plans for the summer, Thakkar said, "As college students, we're at a place in our lives where we can afford to have an adventure. We can afford to take time aside to do something that's unique. When we can do that to help other people, it's a good thing."

You can find out more about Illini 4000 and make a pledge or donation at www.illini4000.org.



➤ Members of the Illini 4000 cycling team are undertaking a cross-country ride May 25 through August 2 to raise funds to support cancer research and programs for children affected by cancer. Front (left to right): James Ballard, Nick Ludmer, and John Schlesinger. Back: Brian Albrecht, Anish Thakkar, and Hatim Rahman. *Photo by Brad Vest/The Daily Illini*

STUDENT-BUILT SATELLITE LOST IN ROCKET CRASH By Tom Moone

In Kazakhstan on July 26, 2006, a Russian Dnepr rocket carrying 18 satellites into space failed in its launch attempt. One of the satellites onboard was the Illinois Observing Nanosatellite (ION), the Illinois contribution to the CubeSat program.

"There are well-known risks in the launch of satellites, and there always will be," said ECE Professor Gary Swenson, who had been one of the faculty members overseeing the CubeSat project at Illinois. "Our ION and the other CubeSats had the misfortune to be manifested on a failed rocket."

ECE graduate student Purvesh Thakker and ECE alumnus Mike Dabrowski (MSEE '05) were in Kazakhstan representing Illinois when the launch failed.

The Illinois satellite included a photometer that would have been used to take atmospheric measurements and send the results down to

student researchers. "Our satellite was by far the most complex of the CubeSats," said Swenson.

Roughly 125 students have taken part in the ION project since it began in 2001. A number of participants in the project have used this experience as a stepping stone to a career in the aerospace industry.

Though this particular launch was unsuccessful, Illinois students can still take part in similar projects. "For the past year and a half, we have been working on the second generation satellite, ION2," said Swenson. "Our students will be able to communicate to the system with the antennas on Everitt Lab."

For more information on the CubeSat project at Illinois, visit <http://courses.ece.uiuc.edu/cubesat>.

ECE congratulates its PhD recipients

STUDENT	ADVISOR	DISSERTATION
OCTOBER 2005		
Briassouli, Alexia	Ahuja, N.	Fusion of Frequency and Spatial Domain Information for Motion Analysis
Chan, Richard T.	Feng, M.	Three-Port Modulation of Indium Gallium Phosphide/Gallium Arsenide Transistor Lasers
Chen, Mike	Meyn, S.	Modeling and Control of Complex Stochastic Networks, with Applications to Manufacturing Systems and Electric Power Transmission
Dunn, Eric Alan	Jin, J.	A Higher-Order Finite Element-Boundary Integral Method for Electromagnetic Scattering and Radiation from Bodies of Revolution
Eryilmaz, Atilla	Srikant, R.	Efficient and Fair Scheduling for Wireless Networks
Gao, Rong	Schutt-Aine, J.	Black Box Modeling of Passive Systems by Rational Function Approximation
Hafez, Walid M.	Feng, M.	Submicron Scaling of Indium Phosphide/Indium Gallium Arsenide Heterojunction Bipolar Transistors Toward Terahertz Bandwidths
He, Qiurong	Feng, M.	High-Speed SiGe BiCMOs and InP DHBT Receiver Ics for Optical and Wireless Communications
Heng, Jiunn Benjamin	Timp, G.	Detecting DNA Using Silicon Nanopores and 20–40nm Gate-Length RFNMOSFET
Imer, Orhan Cagri	Basar, M.T.	Optimal Estimation and Control Under Communication Network Constraints
Jiang, Yibo	Singer, A.	An Information Theoretic Study on Linear Dispersion Codes and Low-Density Parity-Check
Kathawala, Gulzar A.	Ravaioli, U.	Monte Carlo Simulation of Nanostructures: Semiconductor Devices to Ion Channels
Kim, Seiyon	Adesida, I.	Development of Iridium-Based Gate Structure for InAlAs/InGaAs/InP Enhancement-Mode and Depletion-Mode High Electron Mobility Transistors
Kline, Jeffrey Scot	Tucker, J.	Silicon Nanoelectronic Devices Fabricated by Ultra-High Vacuum, Scanning Tunneling Microscope Nanolithography
Lai, Jie-Wei	Feng, M.	Large Signal HBT Model and Integrated Circuit Design Using 300-GHZ INP HBT Technology
Liang, Yingbin	Veeravalli, V.	Multiuser Communications with Relaying and User Cooperation
Mossoba, Joseph T.	Krein, P.	Modeling and Control of Multiphase DC-DC Converters with Linkages to Hybrid Control
Musunuri, Surya Kiran	Chapman, P.	Development of Monolithic DC-DC Converters
Nam, Yoonkey	Wheeler, B.	Engineering Principles to Design and Analyze Patterned Neuronal Cultures Using Multielectrode Arrays
Nelson, Jill Karen	Singer, A.	Mitigating the Effects of Intersymbol Interference: Algorithms and Analysis
Raftery, James J.	Coleman, J.	Vertical Cavity Surface-Emitting Lasers Operating with Multiple Photonic Crystal Defect Cavities
Sias, John W.	Hwu, W.	A Systematic Approach to Delivering Instruction-Level Parallelism in Epic Systems
Tang, Jing	Swenson, G.	Studies of Atmospheric Gravity Waves in the Mesopause Region Using Airglow Imaging
Wang, Xuefeng	Liu, C.	Microelectromechanical and Microfluidic Systems for Scanning Probe Lithography
Xu, Chenyang	Boppert, S.	Spectroscopic Optical Coherence Tomography: Mechanisms, Methodology, and Applications
Zhang, Shenghui	Bernhard, J.	A Pattern Reconfigurable Microstrip Parasitic Array: Theory, Design, and Applications
Zhang, Xiaofeng	Webb, A.	Simultaneous Integrated Functional Magnetic Resonance Imaging and Optical Tomography in the Near Infrared Spectrum (SINFONIS) for Studying Hemodynamic and Neuronal Responses in the Human Brain
Zhou, Jianping	Do, M.	Multidimensional Multirate Systems: Characterization, Design, and Applications
DECEMBER 2005		
Basile, Claudio	Iyer, R.	Intrusion and Fault Tolerance: For Wireline and Wireless Networks
Fahs, Brian M.	Patel, S.	Dynamic Optimization in Hardware
Hafez, Jennifer M.	Eden, J.	Modulation Technique for Magneto-Optic Imaging of Weak Magnetic Fields with Rare-Earth Iron Garnet Films
Ihm, Jae-Yong	Cangellaris, A.	Comprehensive Electromagnetic Approach for Modeling of On-Chip Power Grid Switching
Jana, Soumya	Moulin, P.	Unified Structural View of Multiterminal Source
Lai, Liyang	Patel, J.	New Techniques for Logic Built-In Self-Test
Yang, Xue	Vaidya, N.	Efficient Packet Scheduling in Wireless Multihop Networks
Zhang, Zhenhua	Cheng, K.	Indium Phosphide Based Indium Arsenide Quantum Dot Infrared Photodetectors
MAY 2006		
Alpcan, Tansu	Basar, M.T.	Noncooperative Games for Control of Networked Systems
Balog, Robert S.	Krein, P.	Autonomous Local Control in Distributed DC Power Systems
Cheng, Xu	Overbye, T.	Electricity Market Pricing, Risk Hedging, and Modeling
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Grasso, Daniel M.	Choquette, K.	Output Characteristics and High-Speed Modulation of Composite-Resonator Vertical-Cavity Lasers
Kim, Jungho	Chuang, S.	Optical and Electrical Properties of Novel Quantum Dot Lasers and Amplifiers
Lerttamrab, Maytee	Chuang, S.	Design and Characterization of Quantum-Cascade Lasers
Plarre, Kurt Herman	Kumar, P.	Problems in Sensor Networks: Inference, Localization, and Motion Estimation
Ryu, Kee Suk	Liu, C.	Components and Technology Development for Personal Diagnostics Laboratory
Sachs, Daniel Grobe	Jones, D.	A New Framework for Hierarchical Cross-Layer Adaptation
Sethi, Amit	Huang, T.	Interaction Between Modules in Learning Systems for Vision Applications
Sridhara, Srinivasa R.	Shanbhag, N.	Communication-Inspired Design of On-Chip Buses
Wells, Jason Richard	Chapman, P.	Generalized Selective Harmonic Control
Xue, Feng	Kumar, P.	Design and Analysis of Wireless Networks: Connectivity, Coverage, and Capacity
Yu, Tianli	Ahuja, N.	Geometric and Photometric Modeling of 3D Scenes from Multiple Views
Zhang, Ming	Shanbhag, N.	Analysis and Design of Soft-Error Tolerant

ECE undergrads get research-savvy with alumni help

By Jamie Hutchinson

Many ECE alumni know that engineering graduates can be under prepared for the kind of independent research demanded by certain jobs. That is why the ECE Alumni Fund generously finances ECE's Undergraduate Independent Study Fund, established two years ago to encourage undergraduate research. Students can apply to receive up to \$500 for materials and supplies, equipment, and software needed for their projects.

ECE Associate Head for Undergraduate Affairs Seth Hutchinson distinguished research experience from other undergraduate opportunities. "Jobs can be classified according to the independence and creativity you exercise," he said. "Research gives you more than internships and co-ops with companies. It gives you a taste of life as a pure researcher rather than a typical problem-solving engineer."

Before graduating in December, Amanda Chang got a taste of that life through her work in the Laboratory for Optical Physics and Engineering, directed by ECE Professor Gary Eden. Chang specialized in microcavity discharge arrays that can be used for sterilization, phototherapy, information display, and sensing. She earned credit during her first two semesters in the lab by enrolling in independent study, but volunteered her time after.

Chang said the most satisfying aspect of working in the lab was "observing what the graduate students were doing and learning the lab techniques, which are very valuable." At first, she was a little overwhelmed at the amount and level of reading required to prepare for work in the lab, but she found the motivation to tackle it. "Gradually, I learned more and more," she said.

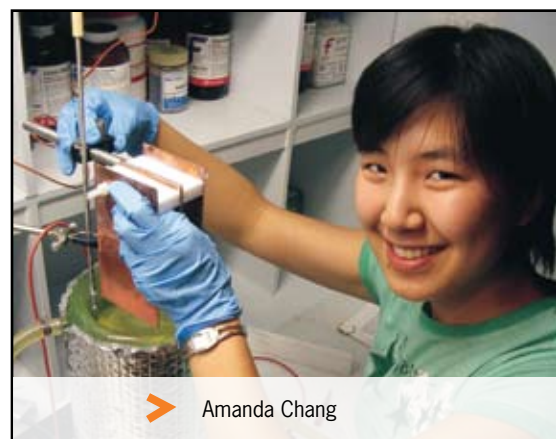
Prior to graduating in May, John VanderVennet and Shanil Merchant were enrolled in independent study with ECE Professor Jennifer Bernhard's Electromagnetics Laboratory. VanderVennet worked last summer on reconfigurable antennas, and last fall he switched over to high-frequency software simulation (HFSS) of broadband antennas. Merchant had worked on series-fed arrays before moving on to HFSS of U-slot antennas.

"It's a challenge to pull yourself up to the level of others in the lab," said Merchant, but both agree the challenge was worth meeting. "There's a lot of satisfaction in working with people who are passionate about what they do," said VanderVennet.

The Undergraduate Independent Study Fund is one part of a wider effort in the department and the College of Engineering.

For many years now, ECE has sponsored an annual undergraduate research symposium in the spring, and the Eta Kappa Nu honor society has maintained a Web site that helps match undergrad researchers with faculty. In addition to the new fund, ECE recently has been doing more to publicize and support opportunities for undergrad research, such as honors projects, individual studies, senior theses, and the NSF Research Experience for Undergraduates program.

Collegewide programs include the student-run *Illinois Journal of Undergraduate Research*, the Engineering Council's periodic undergrad research workshops, and the Intel Scholars Undergraduate Research Program, which provides research opportunities for women and minority undergrads. ●



➤ Amanda Chang

Amanda Chang graduated in December 2006 and is now working in Abbott Laboratories' professional development program, which will put her through four, six-month rotations in different roles and divisions within the company. She's thinking about graduate school, too.



➤ John VanderVennet and Shanil Merchant

John VanderVennet (left) has accepted a fellowship to work part-time at Northrop Grumman in Redondo Beach, California, while pursuing his MSEE at USC. Shanil Merchant (right) is interviewing for jobs and considering an MSEE as well as an MBA.

Vietnamese students exposed to American learning at Illinois

By Maureen Wilkey

At Illinois, the first government-funded exchange students from Vietnam since the Vietnam War are working toward their master's and doctorate degrees in science and engineering.

ECE Professor Minh Do returned to his homeland of Vietnam in 2004 with Department Head Richard Blahut and representatives from the Vietnam Education Foundation, an independent federal agency funded by the U.S. Congress with the purpose of improving relations with Vietnam through education. There, Do interviewed several of Vietnam's top students to determine which would benefit most from an education in the United States.



Vietnamese students studying in ECE, Cac Nguyen, Quang Nguyen, Chinh La, and Hien Nguyen, surround ECE Professor Minh Do.

"In the new generation of Vietnamese students, everyone had heard of MIT and Harvard, but not a lot of students had heard of Illinois," Do said. "We're working to gain some recognition and also to have Vietnamese students that

are able to go back and show their country how the American education system works."

Do said that education in Asian countries is very different than in America. At Illinois, students are encouraged to engage in active learning by performing their own research as well as to think critically and question their teachers and professors.

"In Vietnam, they don't really teach independent thinking. The students who have come here are getting exposed to a new system," Do said. "It's going to change the way they learn, and they can bring the system back to Vietnam to make the talents of other students stronger."

Out of the 1,000 students from Vietnam who applied for VEF fellowships in 2004, 150 were selected to be interviewed after multiple rounds of testing. Of those 150, Do helped select 30 students to come to Illinois; about half of them are currently working on degrees in ECE. The VEF program requires the students to return to Vietnam to work after completing their studies.

"Whatever they do, they will be the future leaders in science and technology in Vietnam," he said.

Cac Nguyen, who started her doctorate in ECE in 2005, hopes to finish her degree in three more years and go back to Vietnam to become a lecturer.

"Being in the U.S. is a very different environment for me," she said. "I will be able to bring back a lot of what I learn from the research I am doing here."

Chinh La, a master's student who did his undergraduate work in Australia, said his main reason for coming to America was curiosity, but he found the education systems in America and Australia very different from that in Vietnam.

"Here, we are encouraged to do a lot of group work and a lot of presentation," he said. "You're encouraged to study and question what your professors say here."

Ha Thai Nguyen said that after doing his undergraduate studies in France, he felt like America was a lot easier to adjust to.

"I can find places where they serve Vietnamese food and people who speak Vietnamese," he said. "There are so many different cultures here, and everybody is different, so it's not really that hard to adapt."

In addition to students from Vietnam coming to the U.S., the ECE Department is planning to have faculty members travel to Vietnam to teach at Ho Chi Minh City University of Technology. While they will teach electrical and computer engineering courses in English, Do thinks there will be a lot of cultural differences that the professors will experience in Vietnam.

Do said the Vietnamese students have been doing very well in American classes. He hopes that Illinois will become one of the leading institutions Vietnamese students look forward to coming to in the future.

For more information on the Vietnam Education Foundation, visit www.vef.gov.

Creating a stronger ECE

By Jonathan Hill, Director of Development



As the director of development for ECE, I spend most of my time visiting with alumni around the world. My travels frequently take me to Chicago, San Jose, Portland, Washington, D.C., and Dallas. Last year's trips also included Korea, Taiwan, and Hong Kong.

It's great visiting all of these places, but what I enjoy most is seeing how successful our alumni are. ECE alumni are leaders at nearly every major technology company in the world. It's a pleasure meeting them and hearing about their many accomplishments.

The success of our alumni directly impacts our position as a leading ECE department. Alumni provide essential support for the department's

programs, scholarships, fellowships, facilities, and professorships. We are eternally grateful for the support they provide.

Making a contribution to the department is easier than ever. Because we received many requests for an improved online giving tool, contributions made online can now be earmarked for a specific fund or given to ECE's general Trust Fund. Visit the new ECE Web site at www.ece.uiuc.edu.

My travels can't bring me to every ECE alumnus, but I hope to meet you the next time you come to campus. Please let me know if you plan to visit. I can be reached at (217) 265-6567 or jonahill@uiuc.edu.

Emma Marshall scholarship created

Emma Marshall retired in April after more than 30 years of service to the department. For 15 years, Emma touched hundreds of students and alumni in her role as alumni and student relations coordinator.

In recognition of Emma's many years of service to ECE Illinois, the ECE Alumni Association board of directors has established the Emma Marshall Scholarship Fund. The scholarship will be awarded each year to an undergraduate student who exemplifies Emma's work ethic and commitment.

Contributions are being accepted for the Emma Marshall Scholarship. Donations can be made via the ECE Web site at www.ece.uiuc.edu or by contacting Jonathan Hill.



➤ Department Head Richard Blahut (left) and incoming Alumni Board President Denise Turic (BSEE '88) (right) present Emma Marshall with a certificate announcing the creation of a scholarship in her name at the spring Alumni Board meeting.

DONOR PROFILE

The Tollis give back

By Brad Petersen



Photo courtesy of the Tollis

Nick Tollis (BSEE '88, MSEE '90) and his wife, Natalie, have been donating to ECE Illinois for years because they enjoy giving back to the department. They recently continued their support of ECE by creating the Ernest A. Tollis Memorial Scholarship Fund in memory of Nick's grandfather.

A research engineer for Communications Systems with Motorola, Nick says his bond with ECE was cemented when he took ECE 313: Probability with Engineering Applications (now called ECE 413) as an undergraduate.

"I actually got an A that semester," recalled Nick. "I was asked after that to be one of the graders and eventually became the teaching assistant, and that kind of led me into the communications department, where I became a grad student under Bruce Hajek."

The strong bond that began in ECE 313 and the influence it had on his life are among the reasons Nick and Natalie have become such ardent supporters of the department. There's also a sense of obligation.

"As an undergrad you are given a lot of opportunities from previous alumni. There are scholarship opportunities and funding for equipment and materials. It's kind of a tradition that alumni give back," explained Natalie. "It's important for undergraduates to not only benefit, but to understand that there's an opportunity for them to give back in the future."

A graduate of the Victorian College of Pharmacy in Australia, where she received a bachelor of pharmacy degree, and the University of Iowa, where she completed her master's, Natalie now works for Abbott Laboratories in the company's regulatory affairs group.

Nick and Natalie chose to honor Nick's grandfather because of his influence on Nick.

"He was an electrician, and I just really liked being down in his basement, in his work room where he had equipment and a lot of little components all over the place—certainly a lot of tools," said Nick. "He was an inspiration in just wanting to get my hands into things. I have nowhere near the talent that he did, but he certainly was able to pass on a bit of that. He would want to

help anyone. I think helping is the key of what we're trying to accomplish."

Nick said that it will take a few years to fully fund the scholarship, but he and Natalie are happy to give back to the University.

"I remember when I was there that we'd always have equipment needs or just little things where an independent study project would need some materials just to allow a little better flexibility," noted Nick. "We've been able to move a little forward in being able to make sure that we can give some money. It does turn out that we're young, but we're comfortable enough to be able to support the University in this manner."

The Tollis' most recent contribution to the scholarship turned out to be doubly good for the department, as they took advantage of the corporate matching program at Abbott, an opportunity they hope other ECE alumni will take advantage of.

According to Natalie, using the matching program was "actually very simple to do. It's all online. All I need to do is basically go online to a secure site through my company and put in who the donation is to. You put in the amount, and Abbott matches 100 percent."

If you're considering a donation to ECE, visit the ECE Web site at www.ece.uiuc.edu and search for "matching gift" to access the University of Illinois Foundation's database of company matching programs, or check with your company's community relations department. ●

INTERESTED IN MAKING A DONATION TO ECE ILLINOIS?

There are many ways to support the department. To schedule an informal appointment, please contact:

Jonathan Hill,
Director of Development
53 Everitt Laboratory,
1406 W. Green St.
Urbana, IL 61801
(217) 265-6567
jonahill@uiuc.edu

Contributions can also be made via secure Internet transaction at www.ece.uiuc.edu.

Van Valkenburg professorship nearly funded

Professor Mac Van Valkenburg was a great educator and leader who left an indelible imprint on a generation of ECE alumni. Although a fellowship in his name has been in place for some time, the Van Valkenburg professorship will come into being later this year, an honor that recognizes an outstanding career.

At the time of his passing 10 years ago, Van Valkenburg's impact was clear in the remarks former students made.

"If Mac is not remembered primarily as a scientist or research engineer or administrator," said Steven Sample (BSEE '62, MSEE '63, PhD '65), president of the University of Southern California, "why are we making such a fuss about him today? The answer is easy—because Mac Van Valkenburg was, first and foremost, a teacher, a teacher par excellence, one of the very best engineering teachers in the world."

Van Valkenburg may have been best known for his textbooks. *Network Analysis*, which was first published

in 1955, had a major impact on engineering education. This text pioneered the use of the Laplace transform in circuit analysis and provided generations of students with an introduction to that subject. In all of his books, Van Valkenburg's presentation was renowned for its clarity and style.

"Mac was the best expositor of pedagogical technical material that I have ever encountered," said Franklin Kuo (BSEE '55, MSEE '56, PhD '58). "His textbooks were masterpieces of technical writing. It was from Mac that I learned how to write clearly, and what he taught me has helped me immeasurably in writing my books and papers."

The first Mac Van Valkenburg professor will be announced this fall. Contributions to the Mac Van Valkenburg professorship are still being accepted and can be made online at www.ece.uiuc.edu/give.asp or by contacting Jonathan Hill. ●



➤ Mac Van Valkenburg



➤ Alumnus Kim Hartman presents Dan Block, ECE engineering lab teaching specialist, with a software donation courtesy of tenAsys, a software company based in Beaverton, Oregon.

ALUMNUS RETURNS BEARING GIFTS

Champaign native and ECE Illinois alumnus Kim Hartman (BSCompE '84) was back on campus recently to present the department with a software donation valued at \$85,000. The software was a gift from tenAsys, the Beaverton, Oregon, company for which he works.

The software package, INtime, provides a real-time operating system that can run alongside Windows and is used in control systems. INtime software is used in industry for machine control, robotics, factory automation, time-critical processing of medical instrumentation, and test and application purposes.

Hartman is the vice president of sales and marketing for tenAsys. ○

Donor List

Donor Honor Roll May 2006 through January 2007

ECE is extremely grateful to the alumni, friends, and partners who have made contributions to the department. This list includes financial donations, but we are just as grateful for the ongoing support you lend in other ways. ECE could not maintain its position as a great educational and research institution without you.

The following list includes charitable gifts designated for ECE and received between May 1, 2006, and January 31, 2007. Gifts to other campus units may be recognized in other campus publications.

We strive to make this list as accurate as possible. If your name is listed incorrectly or omitted, please accept our apologies. To report an error or omission, or for information about making a gift, please contact Jonathan Hill, director of development, at (217) 265-6567 or jonahill@uiuc.edu. ○

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President's Letter

Letter from the ECE Alumni Association Board of Directors President



Dear Fellow ECE Alumni,

Earlier this year, I concluded nine years of Alumni Board service, the last three years of which I served as president. It has been an honor and privilege to work with Dick Blahut and the ECE staff on a wide variety of alumni issues. I would like to share some thoughts regarding the ECE Department.

First and foremost, ECE Illinois remains one of the top five ECE departments in the United States. We annually produce more electrical and computer engineering graduates than most of our peers, and our outstanding faculty continue to receive prestigious recognition for their professional achievements.

We must do a better job of connecting with our alumni. While we have produced more than 19,000 graduates, just over 21 percent of them are members of the University of Illinois Alumni Association. Alumni are important to the University as a source of new students, for placement opportunities for new graduates, and, as the University moves to more of a private endowment-funded model, as a source for personal and corporate giving.

The ECE alumni base stretches worldwide and is a powerful resource for recruitment of top student and faculty talent. I have long admired MIT and Stanford alumni for their dedication to the recruitment of high school talent. If we harnessed our alumni to the recruitment task, we could make a real difference. These alumni work in every kind of business imaginable and in every corner of the world. I wonder how many potential employment opportunities there are for our new ECE graduates in these businesses.

The giving leverage is tremendous, as well. If every alumnus gave just \$1,000 to the University, we could fund 10 chaired professorships. Given the professional success of many of our alumni, one could project an average giving goal greater than \$1,000.

Fostering a strong connection with future alumni is a long-term undertaking. It involves creating a student environment that will form a bond between students and ECE. This requires a nurturing role for our faculty, and not just for graduate students, but for undergraduates as well. Our curriculum must continually change to match industry needs. Likewise, we must continue to emphasize creating an entrepreneurial mindset and focusing on international business models.

Finally, throughout my term as Alumni Board president, Emma Marshall, alumni and student relations coordinator, ably assisted me, as she did for numerous predecessors. Emma retired in April and will be greatly missed.

Denise Turic (BSEE '88) replaces me as president. I wish her, the board, and the ECE Department continued success.

Sincerely,

Sherel Horsley (BSEE '64, MSEE '65)
ECE Alumni Association
Board of Directors President

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Always Illinois—a home for ECE alumni on the Web

If you haven't yet joined Always Illinois, the College of Engineering's online community for alumni and students, what are you waiting for? This free service provides an easy way to connect with old friends and build a network of new ones. For more information, go to www.ece.uiuc.edu and enter the Alumni section.

Wulf retiring from NAE presidency

By Brad Petersen

At the end of June, William A. Wulf (MSEE '64) will complete his tenure as president of the National Academy of Engineering (NAE), the country's preeminent honorary organization for engineers. Wulf's presidency will likely be remembered as a time of stability and growth for the NAE.

BUILDING A FOUNDATION Wulf, who had a modest upbringing in Elmwood Park, Ill., began his tenure at the NAE during a somewhat turbulent time for the organization. The previous president was ousted after the first year of his six-year term, and Wulf was deemed the best man to take over. He served as interim president for nine months and was then elected to fill out the remainder of his predecessor's term.

"I never thought of this as a hard job," Wulf confessed. "Certainly it was very clear that we needed to reestablish the stability of the organization, we needed to regain the confidence of the members, we needed to build better relations with the Academy of Sciences (NAS) and the Institute of Medicine (IOM). There wasn't much question about what we needed to do, so we just set about doing it."

A driven man who is a natural leader, Wulf quickly proved he was the right man for the job by helping to create a stronger working relationship between the NAE, NAS, and IOM. This close working relationship has made each of the National Academies more effective.

Both a contributor to and outcome of the strengthened relationships was the construction of a new 11-story, 350,000-square-foot office building to house the National Academies. The construction coincided with reconfiguring the

Academies' management structure, another important change for the organization.

"One of the major design criteria [for the building] was to build it in such a way to allow easy interaction between our various staffs and to encourage collaboration at the staff level," Wulf explained. "We did a major reorganization and really created a much more professional management than we'd ever had before. I think we have built a foundation for the Academies that's going to last a long time."

The closer relationship has paid dividends every day for the National Academies and, ultimately, the nation. One example of cooperation Wulf cited

on committees to advise the nation on important issues.

"It's certainly the case that having our prestigious membership lends credence to the studies that we do, although we're meticulous about the fact that our studies are fact-based; they're not opinion-based. They're very tightly reasoned; the facts are checked extremely thoroughly," Wulf said.

Under Wulf's direction, the NAE has continued to provide invaluable advice to the nation.

According to Wulf, United States policymakers "have available to them the best and best communicated information about the current state of

"The challenging thing for me, and in some sense a frustrating thing for me, is we have a society now in which a huge percentage of the population cannot engage in an intellectually meaningful dialogue about issues like energy policy or climate change."

is the recently completed study, *Building a Better Delivery System*.

"What it's really all about is using systems engineering principles to improve the health care delivery system. We've got some of the best health care technology in the world, but we don't have the best delivery system," Wulf said. "And so that's an example of a kind of study that neither the NAE or the IOM could have done alone. But it's really important."

GRASSROOTS SUPPORT Facilitating studies like this one are the other half of the NAE's mission. Wulf said the NAE uses about 10,000 people each year

science and engineering on which to base policy decisions. It just doesn't exist anywhere else."

Wulf is proud of what he calls the organization's "convening power," its authority to get very busy people to come and work for free. A recent study "had a committee of 20 people—half a dozen CEO's of major corporations, half a dozen university presidents, half a dozen former presidential appointees in various administrations, three Nobel Prize winners—really an incredible group. What is not known by most people is that we made 21 phone calls to get those 20 people to serve."



➤ Outgoing NAE President Bill Wulf (left) posed last fall with Ilesanmi Adesida, ECE professor and College of Engineering dean, and Craig Barrett, chair of the NAE and chairman of the board at Intel. *Photo courtesy of the National Academy of Engineering*

BACK TO WORK IN VIRGINIA Wulf's career has taken him on quite a journey. After leaving Illinois in 1964, he received his PhD in computer science from the University of Virginia in 1968. From 1968 to 1980, he was a professor at Carnegie Mellon University (CMU). While there, Wulf founded Tartan, a company that built high-quality optimizing compilers, and served as chairman and CEO from 1981 to 1987. After Tartan was sold, Wulf went to work at the National Science Foundation as an assistant director until 1990. Since 1988, he has been a faculty member at the University of Virginia (UVA), where he is the AT&T Professor of Engineering.

Wulf's wife, Anita, has had a storied career of her own, often working near or with him. They were together at CMU, Tartan, and UVA. After many years of hard work and service, they're looking forward to a respite, but just a brief one.

"I'm still feeling pretty good, so I'm not going to slow down very much. I did promise my wife that we would both take a sabbatical in the fall and decompress a bit," Wulf said.

But Wulf still has grand plans. He's been on leave from UVA since he took his post at the NAE and is looking forward to returning. He plans to combat a common problem while he's there: The fact that most of the population is technologically illiterate.

"I'm going back to the University of Virginia. Virginia was founded by Thomas Jefferson. He said he did it because you can't have a democracy without an informed citizenry," Wulf explained. "The challenging thing for me, and in some sense a frustrating thing for me, is we have a society now in which a huge percentage of the population cannot engage in an intellectually meaningful dialogue about issues like energy policy or climate change."

Wulf's solution is to develop an engineering course for liberal arts majors where the objective is not to make them into engineers, but to make them able to participate in a meaningful way in discussions of important issues.

That's an ambitious goal, but one that could have a great payoff. Of course, that's typical of Wulf, who said he hasn't even considered his legacy at the NAE. Instead, he looks at his time there as paying back.

"The most rewarding part has been being able to pay back, to give back to the system, the American society, some of what I've gained because of that system, because of the meritocracy that the United States is. [It's amazing that] I could rise from a kid that was literally raised on welfare to a position like this and be given the opportunity to pay back." ●

AN ILLINOIS LEGACY OF NATIONAL LEADERSHIP

Founded in 1964, the National Academy of Engineering (NAE) provides engineering leadership in service to the nation. The NAE operates under an 1863 congressional act of incorporation signed by President Abraham Lincoln under which the NAE is directed "whenever called upon by any department or agency of the government, to investigate, examine, experiment, and report upon any subject of science or art."

Two Illinois faculty were among the 25 founding NAE members: Nathan M. Newmark and William L. Everitt. Newmark was a professor of civil and environmental engineering, and that department's building at Illinois bears his name. Likewise, Everitt, an electrical engineering professor, is the namesake of Everitt Lab, home of ECE. Everitt served as dean of the College of Engineering from 1949 to 1968.

ECE's connection to the National Academies stretches from Everitt to Wulf. But even with the end of Wulf's term as NAE president, a link remains. ECE alumnus Ralph Cicerone (MSEE '67, PhD '70), former chancellor of the University of California at Irvine, remains president of the NAE's sister organization, the National Academy of Sciences. ●

Alumna promotes engineering to grade-schoolers

By Bridget Maiellaro

As a young girl, ECE alumna Karen Coperich Branch (MSEE '96, PhD '01) knew she wanted to become an engineer. With a father in the field and a strong love for math and science, it's no surprise that her life involves helping others understand the basics of engineering.

Branch, who works at Sandia National Laboratories, a multiprogram lab focusing on national defense R&D, energy, and environment projects, volunteers at a local grade school in Albuquerque, New Mexico, teaching students basic science skills for the future.

"No matter what field anyone goes into, technology will be a part of it, and they need those skills," said Branch, a Columbia, Maryland, native.

As a volunteer through a program at Sandia, Branch works directly with a teacher and her curriculum at Our Lady of the Assumption, a private school. She visits every two weeks during the school year, presenting students with scientific information, demonstrations, and, most importantly, hands-on experiments. Branch has worked with the same teacher, Pamela Grossi, for five years.

"Students see me on a regular basis as a role model," she said. "I'm able to bring in hands-on activities, establishing fundamentals and getting them excited."

Branch said that, at the beginning of each school year, her new students already say they "hate science." She feels that the preconceived notions come from their parents and other teachers. Her goal, however, is to at least open and possibly change their minds.

"They can do it. It's not as hard as they think it is. They just need the right tools," she said.

Branch said that although the feedback she gets from her volunteer work is indirect, it's very rewarding. In fact, the volunteer coordinator informed her that a former student interviewed at another school specializing in math and science. She discovered that, during his interview, the student told the administration he wanted to study the atom. "It was at least six months after I had taught him," Branch said, "but somewhere along the line, something clicked in his brain and got him excited."

In addition to teaching, Branch also takes part in judging local, regional, and national science fairs and science bowls.

Branch obtained her bachelor's degree in electrical engineering from the University of Maryland in 1994. She then attended the University of Illinois to earn her master's degree and PhD. She said she chose the University for its electromagnetics group and the opportunity for interdisciplinary research.

Branch began teaching engineering "in some shape or form" in high school. She taught throughout graduate school and took part in the volunteer program when she arrived at Sandia.

After graduating in 2001, Branch taught a graduate course over the summer and started working for Sandia's Synthetic Aperture Radar Sensor Technologies Department the following September. As a member of the technical staff, Branch does everything from small research and development projects to playing a role on larger projects, such as design, testing, and analysis. As a result, she describes



Shane Pulsifer, a student at Our Lady of the Assumption in Albuquerque, New Mexico, is just one of the children excited about engineering thanks to alumna Karen Coperich Branch's volunteer efforts. Photo courtesy of Karen Coperich Branch

Sandia as a "hybrid" between academia and industry.

Branch is also involved in IEEE, both locally and nationally. In her spare time, she and her husband, Darren, who is also an Illinois PhD graduate, enjoy cycling and woodworking. Branch also strives to improve her triathlon and photography skills. ●

ECE alumnus, entrepreneur still appreciates the fundamentals



By Jamie Hutchinson

As early as his first day on the job after college, a realization began to dawn on ECE alumnus Tony Zuccarino (BSEE '83).

Hughes Aircraft had hired him to design hardware and software for radar signal processor boards used in F-15s. "I completed my critical path timing analysis for my design and successfully presented my design to senior engineering staff," recalled Zuccarino. "When I got the board back from manufacturing, with some minor wiring changes in the clock circuits, it powered up and worked the first time."

That early triumph set the tone for Zuccarino's career, even as he migrated from corporate engineer to entrepreneur. "At the end of the day," Zuccarino realized, "the strength of our economy is built on innovation and competitive edge, and those factors are largely correlated to the quality of core, fundamental education."

So Zuccarino takes time from his busy schedule to help maintain ECE's high quality. He works with faculty and alumni to raise the department's profile on the West Coast. (He lives in Saratoga, California.) With his broad experience in different roles and with different kinds of companies, he serves as a helpful mentor to ECE students making career decisions. He even offers a hand to students and alumni looking to start their own businesses.

After Hughes, Zuccarino designed 2400 bps modems at Sharp. As his attention began to shift from the engineering to the business side of the tech industry, he decided to earn an MBA from the University of Southern California. That led to a product marketing position at Rockwell Semiconductor Systems in 1991, where he boosted the company's share of the burgeoning data modem market. Then, Zuccarino decided to leave the world of established companies and see what life was like in a Silicon Valley startup.

In 1996, he joined real-time Internet video innovator VDOnet as director of marketing, running the company's IP video conferencing department. In 1997, he became vice president of sales and marketing for Epigram, a home-networking startup that was acquired by Broadcom in 1999. Broadcom made Zuccarino senior director of marketing and business development for its home networking department. Zuccarino left Broadcom in 2002 to serve as senior vice president of marketing and sales for semiconductor startup Universal Network Machines.

In 2005, Zuccarino joined the venture capital firm Benchmark Capital as part of the firm's "entrepreneur in residence" program, which gave him the opportunity to establish a new company, Experimental Web Services (EWS). Zuccarino describes EWS's

innovation as "a new way to use the Internet to communicate and share experiences with others." He left Benchmark to join EWS full-time last year and is currently working with the startup's half-dozen-strong team to test their new product with a small audience.

"My current startup has raised the personal and professional stakes to the highest level yet," said Zuccarino of his first return to the consumer Web market since his days with VDOnet. "While the business models are better understood, the programming environment more mature, and the consumer more familiar with online conventions, we face at least one significant obstacle we didn't face back in 1996. Today we see many more startup and mature sites clamoring for user time and attention."

Also clamoring for Zuccarino's time and attention are his wife, two kids, two English bulldogs, and a slew of forlorn hobbies that include snowboarding, skiing, motocross, and home theater. ●

UPCOMING EVENTS



Alumni David Crockett (PhD '67) and Richard Toepfer (BSEE '56, MSEE '57, PhD '62) with ECE Director of Development Jonathan Hill and Department Head Richard Blahut at the Bay Area reception last November.

SEATTLE ALUMNI RECEPTION—JULY Join representatives from ECE and the College of Engineering for an informal reception to reconnect and network. Details will be announced in early summer. For more information, view the calendar at www.ece.uiuc.edu.

HOMECOMING WEEKEND—OCTOBER 26–27 Mark your calendars for Homecoming 2007. The Illini men's football team will take on Kent State. For more information, visit the UIAA online calendar at www.uiaa.org. For football tickets, visit www.fightingillini.com.

SAN FRANCISCO BAY AREA—NOVEMBER 12 The ECE and Computer Science Departments will hold their annual Bay Area reception again in the fall. Details will be announced in early summer. For more information, view the calendar at www.ece.uiuc.edu.

ENGINEERING OPEN HOUSE—MARCH The College of Engineering's premier event is fun for the whole family. This is the perfect time to make a trip back to campus. For planning assistance, contact Jill Jarboe at jjarboe@uiuc.edu.

ALUMNI CLASS NOTES



Members of the class of 1956 were honored last fall at a reception in Everitt Lab. Attendees included Herbert Kobayashi (BSEE '56), Matthew Remec (BSEE '56, PhD '63), ECE Professor Emeritus George Swenson, John Kreer (MSEE '54, PhD '56), and John Woythal (BSEE '56).

1940s

Daniel F. Hang (BSEE '41, MSEE '49) was named a Fellow Member of the National Society of Professional Engineers on June 11, 2006.

1950s

Don Pierre (BSEE '58) authored and published a historical novel titled *Yesteryears Western Trek* in 2006. Pierre is a Life Fellow member of the IEEE and a professor emeritus at Montana State University, Bozeman.

1960s

Sherel D. Horsley (BSEE '64, MSEE '65) joined the ViewCast Corporation's board of directors in June 2006. Horsley is the outgoing ECE Alumni Board president.

Vincent O'Brien (BSEE '67), a director of Law Economic Consulting Group, a global expert services firm, created a memorial scholarship at Illinois in honor of his parents, Vincent and Janet.

Eikichi Yamashita (MSEE '63, PhD '66) received the 2006 Microwave Career Award from the IEEE Microwave Theory and Techniques Society during the International Microwave Conference on June 14, 2006.

1970s

Rob Kennedy (BSEE '78) was named co-president of C-SPAN in December 2006.

John A. Orr (BSEE '69, PhD '77) was named dean of undergraduate studies at Worcester Polytechnic Institute in September 2006.

Hubert Wo (MSEE '70, PhD '73) was appointed to direct technical operations in China by ARRIS, an international communications technology company, in November 2006.

1980s

Joseph Fergus (MSEE '84), chief executive officer of Communications Technologies, Inc., was featured in the November/December 2006 issues of *USBE and Information Technology* magazine.

Mark R. Jenkins (BSEE '84) was awarded the Bronze Star on July 15, 2006, at the Navy Operational Support Center in Forest Park. Jenkins, a reserve Civil Engineering Corps officer, was recognized for his work in support of Operation Iraqi Freedom as deputy district engineer for the U.S. Army Corps of Engineers.

Mike Norris (BSEE '80, MSEE '82) was appointed vice president of corporate development by CardioVascular BioTherapeutics, Inc., a biopharmaceutical company focused on introducing new therapies for cardiovascular disease, in October 2006.

Vikram Saksena (MSEE '80, PhD '82) was appointed chief scientist at Sonus Networks, Inc., a leading supplier of service provider VOIP infrastructure solutions, in October 2006.

Ping Yang (MSEE '78, PhD '80) was appointed to the board of directors at Credence Systems Corporation, a leading provider of test solutions from design to production for the semiconductor industry, in November 2006.

SHARE YOUR SUCCESS

Share your good news with your fellow ECE alumni. E-mail Jill Jarboe, alumni and student relations coordinator, at jjarboe@uiuc.edu, or submit your information online at www.ece.uiuc.edu. Go to the Alumni section and select "Keep in Touch Form." You can also mail your news to:

Jill Jarboe
Alumni and Student Relations Coordinator
55 Everitt Laboratory
1406 W. Green St.
Urbana, IL 61801

1990s

Angie Breitenbucher (BSEE '90) received the Rehabilitation Institute of Chicago Fitness, Sports, and Recreation Department's Sportsmanship Award in October 2006.

Mariesa Crow (MSEE '86, PhD '90) was named the Fred W. Finley Distinguished Professor of Electrical and Computer Engineering and the director of the Energy Research and Development Center at the University of Missouri-Rolla School of Materials, Energy, and Earth Resources in August 2006.

Ralph Kling (MSEE '87, PhD '90) was named chief architect of advanced wireless platforms at Crossbow Technology, Inc., a leading wireless sensor network platform provider, in September 2006.

Andrew Krone (BSEE '90, MSEE '92) was named a Silicon Laboratories Fellow by Silicon Laboratories, Inc., a leader in high-performance, analog-intensive, mixed signal IC innovation, in October 2006.

Erica Messinger (BSEE '99) was honored with the Betsy Bernard Emerging Leader Award from the Women's Vision Foundation, an organization aiming to enhance success of corporate women and corporations, in September 2006.

Steve Sullivan (MSEE '91, PhD '97) received an Academy Award for Scientific and Engineering for his contribution to the design and development of the Industrial Light & Magic Image-based Modeling System.

2000s

Dane E. Bar Hoover (BSEE '03) and Kristen Andrew (BUS '03) were married April 22, 2006, in Springfield. Dane is an electrical engineer at Bibb and Associates.

David A. Booth (BSEE '00) and Alicia Yaegar were married on April 22, 2006. David is self-employed at Webshare, LLC, specializing in search engine optimization and Web design.

Jason W. Chan (BSEE '00) and Jennifer Kenyon (LAS '01) were married September 30, 2006, at Allerton Park. Jason is an engineering manager at WMS in Chicago.

James Jang (BSEE '04) was hired as an electrical engineer for the San Diego division of R.W. Beck, a leading provider of management and engineering services consulting, in October 2006. He previously worked for San Diego Gas and Electric.

Andrew T. Knox (BSCompE '04, MSEE '06) and Laura Watson (MUS '06) were married on July 8, 2006, in Urbana. Andrew works for Codex Novus in Champaign.

Richard B. Kujoth (BSEE '03, MSEE '04) and Carrie Jackson (LAS '03) were married on June 10, 2006, at Allerton Park.

David R. Lytle (BSEE '03, MSEE '04) and Kelly Villiger (ED '06) were married June 10, 2006. David is a systems engineer at Northrop Grumman in Rolling Meadows, Ill.

Philip P. Ramirez (BSCompE '04) and Kristen Anton (ENG '04) were married May 28, 2006, in Hinsdale, Ill. Philip is an application developer at Allstate Insurance Company in Northbrook, Ill.

Jennifer A. Roth (BSEE '01) and Bryan Harrelson were married July 22, 2006. Jennifer is a manager with Accenture in Washington, D.C.

IN MEMORIAM

George F. Axmann (BSEE '57) died August 13, 2006. He was 74. Axmann worked at Royal Dutch Shell for more than 31 years and retired in 1988.

John C. Barker (BSEE '50) died November 24, 2006. He was 83.

Robert L. Berger (BSEE '47) died June 21, 2006. He was 84. After college, he worked for Standard Fruit in Honduras. He then worked for Western Electric in Lee's Summit, Mo., and retired as a senior staff engineer.

Alexander S. Chodakowski (PhD '56) died August 11, 2006. He was 89. Chodakowski was an assistant professor in the Department of Electrical Engineering at Illinois from 1946 to 1958.

Laurence Erman (BSEE '67) died on February 13, 2007. He was 63.

Eugene A. Esker (BSEE '51) died on

September 1, 2006. He was 78. Before attending the University, Esker served in the Navy for three years and taught electronics. After attending, he worked for the Westinghouse Corporation for 30 years.

Paul A. Freeland (BSEE '43) died September 18, 2006. He was 85. Freeland served in the U.S. Army Signal Corps during World War II and retired as a lieutenant colonel in the U.S. Army Reserve. After graduating, he was employed for 26 years at Western Electric, retiring in 1973.

Dwight J. Garrison (BSEE '50) died on May 15, 2006, at age 82. Garrison served in the Army Air Corps in Cuba during World War II. He was later president of General Pacific in Portland for eight years.

Leo G. Gensler (BSEE '63) died November 4, 2006, at age 75. Gensler worked as an electrical engineer with the U.S. government.

Stanley A. Gore (BSEE '47) died November 12, 2006. He was 83. During World War II, Gore served as an ensign in the Navy. After graduating, he worked as a sales engineer for General Electric.

S. Louis Hakimi (BSEE '55, MSEE '57, PhD '59) died June 23, 2006. He was 73. Hakimi was a professor emeritus and chairman of the Department of Electrical Engineering at the University of California, Davis, from 1986 to 1996. He retired in 2001.

Richard M. D. Hall (BSEE '48) died November 3, 2006. He was 81. Hall earned his degree after serving in the Army Air Corps. He worked as a full-time owner of a commercial and industrial light fixture sales agency until his death.

Homer F. Harman (BSEE '40) died on June 4, 2006, at age 89. Harman was employed by E. I. DuPont de Nemours and Company for 35 years in a variety of management positions.

Yates M. Hill (MSEE '49, PhD '51) died August 12, 2006. He was 88. Hill served 12 years with the U.S. Army and Air Force and later served with Armed Forces Special Weapons for three years. In 1954, Hill became a senior engineer

ALUMNI CLASS NOTES

continued...

at the IBM Corporation in Endicott and Poughkeepsie, N.Y., and retired in 1980.

John Jones, Jr. (BSEE '40, MSEE '41) died on December 16, 2006. He was 88. After graduation, Jones worked for the Naval Ordnance Lab until retiring in 1963.

George E. Kimble (BSEE '28) died May 16, 2006. He was 99. Kimble was a division engineer at the Illinois Power and Light Company for more than 20 years. He later joined EBASCO International Corporation in New York City as a consulting electrical engineer until his retirement in 1971.

George P.B. Lake (BSEE '49) died July 3, 2006. He was 83. After earning his degree, he was employed at the New York Telephone Company for 30 years.

Robert L. McDonald (BSEE '49) died July 12, 2006. He was 87. McDonald served in the U.S. Army Signal Corps in World War II. After graduating, he was employed as an electrical engineer at Bell Labs in New York and New Jersey for 30 years.

Bruce R. Meyer (BSEE '59) died on June 29, 2006.

Harold A. Miller (BSEE '43) died on January 16, 2007. He was 86. Miller was a veteran of the U.S. Army Air Corps during World War II. After returning from the war, Miller worked for several engineering companies in Michigan.

Joseph J. Mistretta (BSEE '49) died in October 2006. He was 81.

Floyd G. Powell, Jr. (BSEE '53) died September 29, 2006. Powell served in the U.S. Army ROTC and, after graduating, became an aerospace engineer.

William E. Schreiber (BSEE '39) died June 21, 2006. He was 88.

Theodore Shaifer, Jr. (BSEE '59) died on December 5, 2006, at age 72. Shaifer was one of the first minorities to work for the Illinois Institute of Technology and earned a patent for his work on a video playback amplifier. He retired from SoniCraft, a minority-owned engineering firm.

William F. Scharre, Jr. (PhD '54) died August 2, 2006. He was 84. Scharre served during World War II and graduated from the U.S. Military Academy at West Point in 1946.

John W. Skomasa (BSEE '51) died in October 2006 at age 79.

Edward W. Springer (BSEE '47) died January 11, 2007. Springer became a captain in the U.S. Army Air Force during World War II. After graduating, he was employed at General Electric and retired as vice president and general manager of the Electric Utility Sales Division.

Harry J. Venema (BSEE '46, MSEE '47, PhD '50) died on November 9, 2006. He was 84. During World War II, he served in the Navy. Venema worked for Borg Warner Research Labs for more than 30 years. He was also a past president of the ECE Alumni Board.

Harry Williamson (BSEE '52) died July 13, 2006. He was 78. He worked in operations management for Consolidation Coal Company and Freeman United Coal Company. ●



JARBOE JOINS ECE

Jill Jarboe joined ECE this spring as the alumni and student relations coordinator in the External Relations and Development Office.

Since earning her bachelor's in elementary education from Eastern Illinois University in 1999, the Penfield, Illinois, native has worked as a substitute teacher, a Walt Disney World character, a front desk agent at the Walt Disney World Swan & Dolphin Hotels, and both assistant and store manager with Abercrombie & Fitch, abercrombie, and Hollister Co.

Most recently, Jarboe worked on campus in the Office of Admissions & Records as an admissions counselor and coordinator of communications, recruiting undergraduates to the University. She also helped review applications each year.

Outside of work, Jarboe loves to travel. In fact, she has been to various countries and every state in the U.S. except Hawaii. She also enjoys outdoor activities, taking pictures, dancing, and spending time with her family. ○

Distinguished alumni honored

By Tom Moone



> Seated (from left): Leon Newman, Per Enge, and Arvydas Kliore. Back: Steve Sullivan, Michael VanBlaricum, Larry Weber, and Jennifer Sterling.

On September 22, seven alumni were honored at the annual ECE Distinguished Alumni Banquet.

The Distinguished Alumni Award recognizes ECE alumni who have served in a professional and technical capacity to give honor to the department and University.

PER ENGE (MSEE '79, PhD '83) was recognized for his leadership and technical contributions in the development and operational success of the Global Positioning System. Enge is the Kleiner-Perkins, Mayfield, Sequoia Capital Professor in the School of Engineering at Stanford University. He is also the director of the GPS Research Laboratory, which pioneers satellite-based navigation systems for aviation and maritime use.

ARVYDAS KLIORE (BSEE '56) was recognized for his scientific contributions to our understanding of the atmospheres and ionospheres of Mars, Venus, Jupiter, Saturn, Io, Europa, Ganymede, and Callisto through spacecraft radio occultation experiments. He has been a senior research scientist at the Jet Propulsion Laboratory of the California Institute of Technology since 1989. He has held the position of principal investigator on nine NASA radio science teams and is currently the team leader of the Cassini Radio Science Team.

LEON NEWMAN (MSEE '73, PhD '76) was recognized for his leadership in the laser industry and the development of high power, compact carbon dioxide lasers. Newman was a founder and president of DeMaria ElectroOptics Systems (DEOS), Inc., a world-renowned CO₂ laser company that was acquired by Coherent, Inc., in 2001. He led the CO₂ Business Unit within Coherent until his retirement from this position in 2006.

MICHAEL VANBLARICUM (BSEE '72, MSEE '74, PhD '76) was honored for his seminal contributions to fundamental and applicable research in the fields of signal processing and electromagnetic sensor systems for national defense and the aerospace industry. VanBlaricum is chief scientist and a director of Toyon Research Corporation, a leading firm in the technical analysis, simulation, and design of advanced sensor systems for the Department of Defense and the aerospace industry.

LARRY WEBER (BSEE '69, MSEE '71, PhD '75) was honored for his pioneering development of the plasma display panel, including the 60-inch full-color display, and leadership in the formation of the plasma display panel industry.

Weber started his career in plasma displays at Illinois as a student of plasma display inventors and ECE Professors Donald Bitzer (BSEE '55, MSEE '56, PhD '60) and Gene Slottow (PhD '64). From 1969 to 1990, he conducted research on plasma displays at the Illinois Computer-Based Education Research Lab, where he became director of the plasma display research group. In 1987, he became a founder of Plasmaco, which became a wholly owned subsidiary of Panasonic in 1996. He was the president and CEO of Plasmaco from 1996 until his retirement in 2004.

The ECE Young Alumni Achievement Award recognizes alumni under age 40 who have made outstanding professional contributions to their fields. This year, **STEVE C. SULLIVAN** (MSEE '91, PhD '97) was honored for his contributions to the science and art of computer graphics in the field of digital entertainment.

Sullivan joined Industrial Light & Magic (ILM) in 1998 to develop computer vision techniques for visual effects production. He led a team within ILM's research and development group developing systems for matchmoving, photogrammetry, image-based rendering, and motion capture. He has worked on more than 40 films. In 2002, he became director of research and development and currently leads the creation of ILM's next-generation artist technology, as well as the co-development of game and film technology with LucasArts.

The Marcia Peterman ECE Award was established by the ECE Alumni Association to honor the memory of Marcia Peterman. This award is presented annually to a former ECE Alumni Board Member for dedicated service as a member of the board. This year's recipient was **JENNIFER STERLING** (BSEE '89, MSEE '90), in recognition of her devoted and loyal service to the University and ECE.

Sterling is the director of Transmission Planning for Exelon Energy Delivery. She was an ECE Alumni Board member from 1997 to 2005, serving as treasurer from 2003 to 2005. For the past eight years, she has coordinated the ECE Freshmen Calling Program, recruiting alumni and current ECE students to contact new ECE students to welcome them to ECE and answer questions. ●

RETIREMENTS

FOUR ECE STAFF MEMBERS RETIRE

By Tom Moone

This spring, four long-time staff members retired, having given to the University more than 120 combined years of service (pictured left to right).

JERI BORCHERS retired on January 31 after 34 years. Jeri worked in ECE from 1969 to 1973 and then again starting in 1984 until the time of her retirement. In 1986, Borchers moved into the department head's office.

In her position as administrative aide, Borchers facilitated many of the interactions between the department head and faculty. She was in charge of processing faculty promotions and sabbatical leaves, and she supervised the clerical staff in the offices of the department head and associate department head for administrative and instructional affairs.

Among Borchers's favorite duties were department social events. "One of the most fun parts of [the job] is preparing all aspects of putting on the fall faculty banquet and other social things," said Borchers. "I looked forward to them."

Borchers is looking forward to being able to spend more time with her grandchildren when she's not in Florida and to taking what she called "fun classes."

Asked what she'll miss about her job, Borchers said, "I'll miss everybody. I really enjoyed the people. I feel like I've really made a lot of friends over the years."

EMMA MARSHALL spent her entire Illinois career in ECE. She retired on April 30 after nearly 32 years in the halls of Everitt Lab, and she has served as alumni and student relations coordinator for the department for more than 15 years. "I'm the connection between the department and the graduates," said Marshall. "I oversee programs to help maintain the ties with those graduates."

Marshall's work with alumni has covered most of her career. She was hired into the department by Marcia Peterman, who worked as an alumni coordinator for the department long before there was such a named position, and Marshall typed a lot of Peterman's correspondence. Marshall coordinated numerous alumni events throughout the year, culminating in the Distinguished Alumni Banquet held every fall.

Marshall also coordinated the activities of the ECE Student Advisory Committee, assisting in its efforts to enhance student-faculty interactions.

Marshall said she will miss interacting with all the people in ECE. "They opened up doors and trusted me with prestigious



events," she said. "That's saying a whole lot." In terms of her retirement plans, Marshall's are fairly simple: "I'm just going to enjoy my home and my grandson."

After graduating high school, **MELINDA PRATT** got her first big job at ECE (then just EE), and she's been here ever since. Now, after 30 years, she will say goodbye to the University at the end of May.

In 1977, Pratt started in the department's business office. In 1985, she became a secretary in the Center for Compound Semiconductor Microelectronics, an NSF-sponsored research center. In 1988, she began working as secretary for ECE Professors Greg Stillman and Jim Coleman in their research labs. Currently, she is the secretary for five faculty members in the Micro and Nanotechnology Lab.

It's been the people who have really made an impression on Pratt. "They are very good to me," she said. "I just appreciate the opportunity I received with this department. It's just been a lot of good people to work for and with."

After retiring, Pratt plans to spend more time with her children, one of whom will be entering high school and the other who will be going into the seventh grade. "It's time to be home with them," said Pratt.

JAN RICE has perhaps the greatest change ahead of her following her retirement in March. She and her husband are planning to leave Illinois within a year and move to Arkansas. Rice has traveled there several times over the years and really enjoys the area.

Rice has been with the University for over 30 years and with ECE for 26. For the past 10 years, she has been ECE Stores supervisor. Jan works with two other staff to oversee an inventory of nearly 4,000 items worth almost a quarter of a million dollars, ranging from standard office supplies to complex electronics. And the job entails a lot of interpersonal work. "I would say three-quarters of the job is waiting the counter and helping the students," said Rice.

And it's the interpersonal interaction that has brought her the most satisfaction in her job. "I like working with the people—the students and the faculty and the staff," said Rice.

All of these individuals have left a mark on the ECE department and the individuals who have worked with them. ●

CAMPUS ROUNDUP



Photos courtesy of Kalev Leetaru

RENEWABLE ENERGY ON TAP HERE In February, energy giant British Petroleum (BP) announced a \$500 million, 10-year research collaboration that will include the University of Illinois at Urbana-Champaign. Through the new BP-sponsored Energy Biosciences Institute, Illinois will partner with the University of California, Berkeley, and Lawrence Berkeley National Laboratories to develop renewable biofuels using genetically engineered organisms.

The renewable energy effort at Illinois will be based in the new Institute for Genomic Biology. The \$75 million facility is located just east of the Morrow Plots.

ALUMNI CENTER OPENS May 12 marked the one-year anniversary of the Alice Campbell Alumni Center's opening. Located near the intersection of Lincoln Avenue and Illinois Street, the building is home to the University of Illinois Alumni Association. More important, it's a home on campus for visiting alumni. More information about the center is available online at www.uiaa.org/alumnicenter.

ALUMNI GRANTED EASY ACCESS TO PUBLICATIONS ONLINE Alumni Association members are now able to access more than 4,000 national and international newspapers, magazines, professional and scientific journals, and trade publications through ABI/INFORM Complete, one of the most comprehensive business databases on the market today. The database allows users to easily filter through current and archived publications by topic, name, or keyword.

Alumni Association members can take advantage of this free service by logging on to www.uiaa.org/prquest.

CHIEF ILLINIWEK RETIRED Chief Illiniwek made his final performance February 21 at the last men's home basketball game of the season. The decision to retire the Chief enabled the University to immediately become eligible to host post-season National Collegiate Athletic Association events. More information about the controversial decision is available online at www.uillinois.edu/chief.

NEW JEWISH LIFE CENTER IN THE WORKS The Margie K. and Louis N. Cohen Center for Jewish Life, 503 East John Street, was demolished in January, enabling construction of a new, multimillion dollar student center.

The new two-story building will be 20 percent larger and will include a rooftop deck, kosher kitchen, café, and large lounge area on the first floor. Construction on the new Jewish Life Center should be finished in August 2007.

FACILITY TO BECOME FIRST "GREEN BUILDING" The new Business Instructional Facility, which is under construction at the corner of Sixth Street and Gregory Drive, will be the first "green building" at the University.

Building features will include occupancy sensors and carbon dioxide sensors for heating, ventilation, and air conditioning control; motion, infrared, and light sensors for controlling the lighting systems in the building's rooms; and a 30-foot overhang in the commons area to minimize heat during the summer months.

The Illinois Clean Energy Community Foundation funded the installation of photovoltaic solar cells to help provide the building with electricity. The facility is estimated to consume up to 75 percent less energy than the average older campus building. Construction is expected to be completed by the fall semester of 2008.

CLASSES CANCELED FOR FIRST TIME IN NEARLY 30 YEARS Classes at the University of Illinois were canceled on Tuesday, February 13, and Wednesday, February 14, due to a blizzard. It was the first time the University had canceled classes since 1979.

CAMPUS LAUNCHES UI NOW Just can't get enough Illinois news? Then we've got a Web site for you! UI Now is a continuously up-to-date snapshot of campus happenings, including breaking news, feature stories, and events. The site makes use of RSS (Really Simple Syndication) to compile feeds from all over campus. Bookmark it today: www.uiuc.edu/uinow. ●

Alumni input vital to accreditation

By Steve Bishop, ECE Associate Head

Recently I e-mailed 1,400 ECE alumni asking them to complete a survey assessing the job ECE did in preparing them for life after graduation. The department sends a heartfelt “thank you” to all who took the trouble to respond.

The Accreditation Board for Engineering and Technology (ABET), which evaluates university engineering programs nationwide on a six-year cycle, encourages departments to establish processes of continuous self-improvement, including feedback from stakeholders like students, faculty, employers, and alumni. ECE is up for ABET review this fall, and we now have fresh, valuable input from alumni in preparing for the review.

The core of the survey addressed ECE’s performance with regard to the following “Program Educational Objectives” we have defined for ourselves:

DEPTH: To produce graduates who apply in-depth understanding of scientific principles, rigorous analysis, and creative design to achieve success in the practice or advanced study of electrical and computer engineering.

BREADTH: To produce graduates who apply broad knowledge of electrical and computer engineering to a diverse range of successful public or private sector careers, or in their pursuit of graduate education, within the context of the technological, economic, environmental, social, political, and ethical constraints of a global society.

PROFESSIONALISM: To produce graduates who use effective communication skills, participation as responsible team workers, professional and ethical attitudes and behavior, and commitment to lifelong learning to succeed in the complex modern work environment.

LEARNING ENVIRONMENT: To produce graduates who succeed because of attributes they acquired in a learning environment characterized by an innovative, rigorous, and challenging curriculum; by opportunities to acquire leadership, organizational, and teamwork skills; and by faculty and staff who are committed to academic excellence and the inculcation of professional and ethical principles by instruction and example.

Of course, continuous self-improvement has been an ECE tradition for over 100 years. And we would not be the department we are today without constant communication with alumni. ●

GET 'EM BEFORE THEY'RE GONE FOR GOOD!

The ECE Store is holding a clearance sale for numerous items featuring the “vintage” ECE logo. You'll find T-shirts, jackets, sweatshirts, denim shirts, travel mugs, even an ECE umbrella, all on sale now. Online ordering is easy on the new ECE Web site. Visit the Alumni section at www.ece.uiuc.edu and stock up today!



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