ecpe connections

faculty develop tools for controlling oil spills

more inside ...

- **ultrasound pioneer** alum honored
- **new digital women's** student group initiated
- **online graduate** programs expanded

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letter from the chair

Greetings! As you receive this newsletter in your mailbox, I will be starting my first official week as the new Palmer Department Chair in Electrical and Computer Engineering. Although I am new to this position, I am not new to Iowa State. I was a professor in both the Department of Electrical and Computer Engineering (ECpE) and Department of Materials Science and Engineering, as well as a senior physicist with the U.S. Department of Energy's Ames Laboratory and Center for Nondestructive Evaluation, until 2005. I have continued to work closely as a research collaborator with the Ames Laboratory since that time, and I am happy to be returning to Iowa State after spending the past five years as a professor at Cardiff University and the director of the Wolfson Centre for Magnetics in the United Kingdom.

I look forward to leading the department in a direction that allows us to grow our research programs and continue to increase our student enrollment and improve programs offered for students. I also look forward to meeting many of you, alumni and friends of the department, through various events and other activities.

As I begin my new role with the department, I am pleased at the progress in advancing our research and education mission. In the past several months, faculty have actively pursued new research opportunities and student enrollment has grown tremendously. Specifically, in response to the Deepwater Horizon oil spill in the Gulf of Mexico earlier this year, two of our faculty are working to develop computational models to help control oil spills in the future (page 7). Additionally, our faculty have been involved in creating a new National Science Foundation Industry/University Cooperative Research Center for security and software engineering research and bringing new state-of-the-art nanolithography technology to Iowa State (page 8).

With a total of 1,035 undergraduate and 365 graduate students, our enrollment is up significantly from last year at this time. Nearly 375 of those students are new freshmen or transfer students, an increase of more than 50 from last year. We also have introduced several new online, coursework-only programs to help you and other professionals pursue an advanced degree or certificate in electrical and computer engineering or information assurance (page 3).
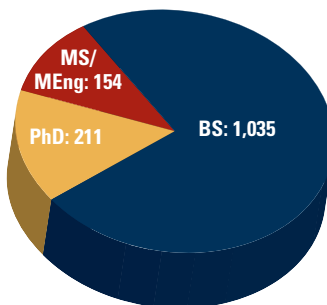
All in all, this looks to be a promising year for the ECpE department. Have a great fall and winter season!

Kind regards,

David Jiles
Palmer Endowed Department Chair in Electrical and Computer Engineering
Anson Marston Distinguished Professor

Student enrollment increased this fall (MS/MEng: 154, PhD: 211, BS: 1,035)

in this issue

about this issue

about the cover photo

The cover photo shows the Deepwater Horizon oil spill in the Gulf of Mexico on May 7, 2010. Photo courtesy of the U.S. Coast Guard.
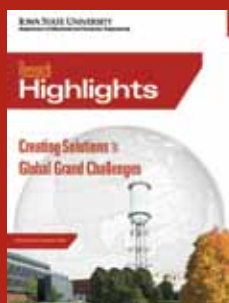
research highlights now available

The 2010 Research Highlights biennial report is now available. View a copy online at *www.ece.iastate.edu/research/research-highlights*, or call the department at 515 294-2664 to obtain a hard copy.

new ways for students to earn
MEng degree

The ECpE department now offers a new, more convenient way for students to earn their master's degree. Current undergraduate students can participate in the new Bachelor of Science/Master of Engineering concurrent degree program, where they can count up to six credits towards both their BS and MEng degrees. Once students graduate, they can finish their master's degrees online via the coursework-only Master of Engineering degree programs in electrical and computer engineering and information assurance. See more details on the concurrent degree program at *www.ece.iastate.edu/academics/concurrent-degree-programs* and the MEng programs at *www.ede.iastate.edu*.

ecpe offers new online
graduate certificates

Last spring, the ECpE department introduced three new online graduate certificate programs: a Software Systems Graduate Certificate, Computer Networking Graduate Certificate, and Embedded Systems Graduate Certificate. The programs are designed to enhance the technical skills of industry professionals, as well as their competitiveness in the job market, and complement the department's current certificate offerings in power systems engineering and information assurance.

Students can receive a certificate in as little as nine months by taking two courses a semester. **Akhilesh Tyagi**, associate professor and director of graduate education, says the department created these programs because many industry professionals are unsure whether they can handle the academic challenge of completing a full Master of Engineering degree program, since many have not participated in a structured class in a long time. This allows students to test out the program before committing to a full degree program.

Entry into the certificate programs requires a bachelor's degree in science or engineering from a four-year college, with a grade point average of 3.0 or higher. Students may take up to nine credits as a non-degree seeking student, so it is possible to begin studies before formal admittance into the program. Courses are delivered live or on-demand via state-of-the-art streaming video. •

more online

For more information about graduate certificates offered by ECpE or to sign up for courses, visit *www.ede.iastate.edu*.

introducing
new faculty and staff

Raj Aggarwal is an adjunct professor in the ECpE department and managing director of advanced research and technology for the College of Engineering. Aggarwal previously had served as vice president of research and technology at Rockwell Collins. At Iowa State, Aggarwal assists the ECpE department's external advisory board and works to raise the national and international visibility of the College of Engineering. He has a PhD in electrical engineering from Purdue University.

Maneesha Aluru is a research assistant professor. Her research interests are in functional genomics and systems biology. She recently received the ISU Professional and Scientific Outstanding New Professional Award for her service as an associate scientist. She has a PhD in molecular biology from New Mexico State University.

Kristi Hetland joined the department last year as the ECpE Student Services secretary. She helps plan student events, organizes and distributes teacher evaluations, and schedules adviser appointments, among other duties. Prior to joining ECpE, Hetland worked for 21 years as an editorial assistant for the North Central Regional Center for Rural Development at Iowa State. She has a bachelor's degree in public service and administration and is currently working towards earning a designation as a certified meeting professional.

Deena Klesel came to the department last year as a four-fifths time accountant. She processes purchasing card charges, travel/non-travel reimbursements, departmental account reconciliation, and student time sheets, as well as assists with grant proposal submissions, among other duties. Before coming to the ECpE department, Klesel worked for the ISU Book Store as an account clerk and accounts receivable intern. Klesel has a bachelor's degree in accounting and plans to pursue a master's degree in accounting in spring 2011.

Jaroslaw Zola is a research assistant professor. His research focuses on applications of high-performance computing, parallel algorithms, and emerging parallel architectures in bioinformatics and computational biology. In 2007, he was a best paper finalist at the ACM/IEEE Supercomputing Conference. He has a PhD from the Grenoble Institute of Technology, France. •

Students who helped develop the mobile platforms course display their work at VEISHEA.

spotlight on
two new courses

a computer security course for all

As pervasive as computers and the Internet have become in our modern technological society, a lot of us leave the digital doors unlocked, our Windows open, and the keys to our most sensitive information hanging on a hook for all to see.

This complacency when it comes to security is a situation PhD student **Joseph Idziorek** and his mentor, University Professor **Doug Jacobson**, are trying to address in a 100-level course called CprE 131x: Introduction to Computer Security Literacy. The course content? Passwords. Phishing. The difference between a bot, a virus, and a worm. It's part of the computer engineering curriculum but most of the students—42 out of 53 last semester—are from other disciplines.

And that's the target audience: the nontechnical student, the average user of information technology. "It's really exciting when I get someone from design or liberal arts who just wants to learn more about how to protect their assets and their digital persona online," Idziorek says.

smartphone programming and applications

As smartphones become the cell phones of choice for consumers, the ECpE department joins the likes of Harvard University and Stanford University, among others, in offering a course that teaches concepts using the iPhone platform. The ECpE department is introducing a new embedded systems course on mobile platforms. The course, developed last spring, focuses on fundamental aspects of embedded programming and mobile development.

Associate Professor **Akhilesh Tyagi** designed the course, and computer engineering senior design students **Chad Nelson**, **Autumn Winkie**, **Sean Freitag**, **Morgan Janes**, and **Tim Danzer** developed many of the lab exercises. "I got involved because I wanted to bring cutting-edge technology to the classroom," Nelson says. "It's one of the few courses at ISU that focuses on graphical user interface programming."

Nelson and the other senior design students incorporated a hands-on component for students to learn about tools and Application Programming Interfaces available to them on the iPhone, including user interface components, Google's Map Kit, accelerometers, Bluetooth, wireless networking, and OpenGL programming. High student interest and the mobile nature of the device make the iPhone a practical tool to teach students how to efficiently manage limited resources.

three faculty and staff celebrate
retirements from ISU

Three faculty and staff members recently announced they will retire this fall. We thank these individuals for their service to the department and wish them the best in retirement:

Robert J. Weber (BSEE '63; MSEE '66; PhDEE '67), professor, taught at Iowa State briefly in the 1960s when he was a graduate student, then worked at Collins Radio (later Rockwell International, now Rockwell Collins), and finally returned to Iowa State in 1988. He is retiring in December. While at Collins Radio, Weber worked on a 1 kW, 1 GHz, pulse modulated amplifier for commercial avionics guidance equipment (DME)—an industry first for a DME in the commercial avionics sector. He also worked on early versions of high power pulse generation sources for Doppler weather radars at C-band (5.4 GHz) and X-band (9.45 GHz) that were first marketed by Rockwell Collins in the 1970s. During the mid 1980s, Weber worked on a technology transfer project with a team of engineers from Rockwell Collins, Rockwell's Science Center, and from industry developing an RF integrated circuit receiver chip for a handheld GPS for the U.S. Marines. He considers his largest contributions at Iowa State to be guiding and mentoring graduate students, several of whom are now in responsible positions in the microwave industry.

"I have immensely enjoyed being able to do applied research in microwave engineering with a team of graduate assistants," Weber says. "Working side-by-side with them, teaching them experimental microwave printed circuit board skills, device measurement, and characterization skills was particularly satisfying."

Weber has received many honors throughout the years, including an ISU NASA Traineeship for Graduate Study (1964-67), Engineer of the Year at Rockwell International (1978), a U.S. Defense Advanced Research Projects Agency's Strategic Technology Office Technical Breakthrough Award (1987), ECpE department's Warren B. Boast Undergraduate Teaching Award (1996, 2002, 2005), David C. Nicholas Professorship (2002-09), and the State of Iowa, Board of Regents' Award for Faculty Excellence (2010). He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE).

Weber, who grew up on a farm watching farmers fix their own machinery and spent three summers working as a mechanic, plans to do hobbies that allow him to experiment and build things in his retirement. A major project he's thinking about doing is rebuilding again a '61 Volkswagen that he and his oldest son rebuilt in the 1980s. He also plans to continue church activities, biking, hiking, repairing items on the farm acreage where he lives, gardening, and visiting his five grandchildren.

Tom Baird (MEngEE '76) has served as director for the Electric Power Research Center (EPRC) for the past five and a half years, and came to Iowa State as a program manager a year prior to that. He is retiring October 31. As program manager, Baird coordinates short ▶

courses for professionals in the electric power industry, which provides support to electric utilities in Iowa and surrounding states on behalf of the ECpE department and Center for Industrial Research and Service. Prior to coming to Iowa State, Baird worked for 41 years at MidAmerican Energy Company (MEC) first as a protective relay engineer and then as a supervisor of transmission and generation planning.

Baird has served on several regional and national committees, including the Mid-Continent Area Power Pool's (MAPP) Engineering and Design Review Committees, Edison Electric Institute's Engineering Committee, and IEEE's Computer Relaying Subcommittee. He also was a MAPP representative to the North American Electric Reliability Corporation's Reliability Assessment Subcommittee and as Iowa Power and Light's (a predecessor to MEC) representative on ISU's Power Affiliates Research Program (now known as the EPRC). He is a life member of IEEE, member of Eta Kappa Nu (HKN) and Tau Beta Pi engineering honorary societies, and a registered professional engineer in Iowa. He also has a private pilot's license.

Baird says that throughout his career he has enjoyed interaction with faculty and staff in the department "My job also has allowed me to maintain and cultivate friendships with individuals in EPRC member companies," he says. "I have enjoyed having a ring-side seat as the electric utility industry at large is going through its most radical change since its inception."

Baird was the first master's degree student in Iowa to complete a program entirely via distance education in 1976. He participated in the ECpE department's early distance ed program, which delivered lectures via 9-inch reels, and later on VHS cassettes.

In retirement, Baird plans to do volunteer work, and do more biking, running, sailing, skiing, singing, golfing, travelling, house maintenance, and flying.

Pam Myers, records analyst, has worked at Iowa State for 29 years and is retiring in December. She held an hourly position in the economics department for a few months before joining the ECpE department in April 1981. She later worked at the ISU Research Foundation from 1991 to 1995, and then returned to the ECpE department. In her position, Myers assists with the processing of graduate student applications, including maintaining a database of all applicants, replying to prospective student questions, preparing offer letters, and assisting faculty recruit and negotiate finances for new graduate assistants. She also assists current graduate students by answering their questions about department procedures.

In 2004, Myers received the ECpE department's Mervin S. Coover Distinguished Service Award. She also is a member of Iowa State's 25-Year Club.

In retirement, Myers plans to play more Farmville and other games on Facebook, take some computer classes, and take an exercise class. She also eagerly awaits her husband's retirement in 2011. •

faculty and staff
recognitions

Congratulations to the following faculty and staff on their recent professional awards and honors:

- **Rana Biswas** was promoted to adjunct professor.
- **Degang Chen** was promoted to full professor.
- **Chris Chu**, associate professor, received the *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*' Donald O. Pederson Best Paper Award.
- **Thomas Daniels**, senior lecturer, received the Technology Association of Iowa's Prometheus Award for Innovation in Education: Best Use of Innovation in Teaching.
- **Thomas Daniels**; **Mani Mina**, senior lecturer; **Akhilesh Tyag**i, associate professor; and **Arun K. Somani**, distinguished professor, each won the ECpE department's Mervin S. Coover Distinguished Service Award.
- **Liang Dong**, assistant professor; **Randall Geiger**, Richardson Professor in Electrical and Computer Engineering; **Manimaran Govindarasu**, associate professor; **Kenneth Kruempel** (BSEE '61; MSEE '63), associate professor emeritus; and **Zhengdao Wang**, associate professor, each won the ECpE department's Warren B. Boast Undergraduate Teaching Award.
- **Liang Dong** was named a new recipient of the Harpole-Pentair Developing Faculty Award.
- **Ayman Fayed**, assistant professor, received two patents (no. 7,679,433 and 7,675,345) for work he conducted previously at Texas Instruments. The patents are titled "Circuit and method for RF power amplifier power regulation and modulation envelope tracking" and "Low-leakage level-shifters with supply detection."
- **Doug Jacobson**, university professor, was named one of seven individuals nationwide to receive the 2010 Cyber 7 Award.
- **Juan Jose Jaramillo**, a postdoctoral research associate, received the Best Poster Award at a recent Defense Threat Reduction Agency technical review meeting.
- **Sara K. Harris**, assistant to the chair, won the university's Professional and Scientific Outstanding New Professional Award.
- **Daji Qiao** was promoted to associate professor with tenure.
- **Ruth Shinar**, adjunct professor; **Joseph Shinar,** adjunct professor; and **Vikram Dalal**, Thomas Whitney Professor of Electrical Engineering, received a U.S. patent (no. 7,718,130) for "Integrated thin-film sensors and methods."
- **Arun K. Somani** received a U.S. patent (no. 7,671,627) titled "Superscale processor performance enhancement through reliable dynamic clock frequency tuning."
- **Umesh Vaidya**, assistant professor, and **Lei Ying**, assistant professor, were each named new recipients of the Litton Industries Professorship.
- **Zhengdao Wang** won the College of Engineering's Faculty Early Career Research Award.
- **Robert J. Weber**, professor, was awarded the State of Iowa, Board of Regents' Award for Faculty Excellence.

more online
For more details on faculty and staff recognitions, visit *www.ece.iastate.edu/news/honors-and-awards*.

new endowed
palmer department chair established

The new Palmer Department Chair in Electrical and Computer Engineering was created last spring through additional earnings from an endowed faculty position created by Iowa State alumni **Barbara R**. and **James R. Palmer** in 1986. Over time, the fund's earnings have pushed the value of the endowment past $2 million, the minimum level needed for a department chair at Iowa State.

Proceeds from the Palmer Department Chair will be used to strengthen the efforts of the ECpE department by supporting the scholarly research and educational initiatives of the chair holder, cutting-edge research and educational programs in the department, and recruiting world-renowned faculty and top students to the department.

The Palmers are both graduates of Iowa State. Barbara is a 1946 family and consumer sciences alumna, while James (now deceased) was a 1944 graduate in electrical engineering. The couple resided in State College, Pa., where James was president and CEO of C-COR Electronics for 31 years. Barbara was a director of C-COR, which develops worldwide communications networks, for more than 23 years. Over the years, the Palmers have supported a myriad of Iowa State projects and programs, including the College of Engineering, College of Human Sciences, and University Museums.

"Endowed positions are an invaluable tool to deans and department chairs," says Jonathan Wickert, dean of the College of Engineering. "Positions such as the Palmer Department Chair in Electrical and Computer Engineering enable us to attract and retain elite faculty members. The opportunity afforded by the Palmer Chair can be the deciding factor for a leader in electrical and computer engineering to join our faculty."

David Jiles, the new ECpE department chair, is the first to hold the Palmer Department Chair. •

James and Barbara Palmer

Article courtesy of ISU Foundation.

endowment created for
ed jones scholarship

In our last alumni newsletter, we brought you a story on how alumni were initiating an effort to create a scholarship in the name of **Edwin C. Jones, Jr**., a former ECpE faculty member who had a great impact on their lives. We are pleased to announce that we have pledges to allow us to establish this endowed scholarship. Currently, the scholarship could support up to two students per year with $500 scholarships each. In order to help honor Professor Jones and allow the scholarship to impact the most undergraduate students as possible, the department continues to seek pledges and donations of any dollar amount for this endowed scholarship. To contribute to this effort, contact Ben Barnhart, ISU Foundation, at 515 294-0934 or barnhart@iastate.edu.

calendar of
events

OCTOBER 8
Distinguished Lecture: "Architectures for Practical Client-Side Security"
Howe Hall, Alliant Energy Lee Liu Auditorium, 1:10 p.m.

OCTOBER 13
IEEE Signal Processing Society Distinguished Lecture
3041/3043 ECpE Building Addition, 1:10 p.m.

OCTOBER 29
ECpE External Advisory Board Fall Meeting
Coover Hall/ECpE Building Addition, times vary

OCTOBER 29-30
ISU Homecoming
Locations, times vary: See *www.isualum.org* for details.

NOVEMBER 12
Virtual Reality Experience
VRAC in Howe Hall, 1 p.m.

NOVEMBER 19
Distinguished Lecture: "Time-to-Digital and Digital-to-Time Converters and Other Useful Applications of Time-based Signal Processing"
Howe Hall, Alliant Energy-Lee Liu Auditorium, 1:10 p.m.

DECEMBER 18
Master's, PhD, and Undergraduate Commencement Ceremony
Hilton Coliseum, 1:30 p.m.

MARCH 11
Distinguished Lecture: "Foundations of Cyber-Physical Systems"
Howe Hall, Alliant Energy-Lee Liu Auditorium, 1:10 p.m.

APRIL 5
Distinguished Lecture: "Biology and Medicine: Systems Approaches Transforming Health Care"
Memorial Union, Sun Room, 5 p.m.

APRIL 11-17
VEISHEA
Event locations, times vary: See *www.veishea.iastate.edu* for details.

more online
For more details on events, visit *www.ece.iastate.edu.*

The Deepwater Horizon oil spill (pictured) in the Gulf of Mexico inspired two faculty associated with the ECpE department to create mathematical and computational tools to help control future spills.

ecpe faculty offer
insights in controlling oil spills

Two engineering faculty with ECpE ties are applying theory, mathematics, and computational modeling to offer a detailed look into how the April 2010 Deepwater Horizon oil spill in the Gulf of Mexico may have begun, and how planners can prepare to minimize the effects of any future spills. **Umesh Vaidya**, assistant professor, and **Baskar Ganapathysubramanian**, courtesy assistant professor and assistant professor of mechanical engineering, hope to provide tools that account for uncertainty but emphasize control ahead of the next potential disaster.

Vaidya, an expert in dynamical systems and control theory with extensive experience dealing with complex systems and their control, and Ganapathysubramanian, who uses mathematics and high-performance computing to model real-world phenomena where uncertainty is a given, had already found that their knowledge blended well in research collaborations (for example, control of complex fluid flows). But as the oil spill emanating from the Deepwater Horizon's exploratory well began to expand, they saw an opportunity to offer the world insights for keeping the next spill under control.

"It's very important to understand the natural flow of a system," Vaidya says. "My work involves developing theoretical models and tools that will allow me to understand the behavior of a complex system and ultimately control its behavior."

In this case, the complex system is the ocean currents in the Gulf. The two researchers have gathered data from the National Oceanic and Atmospheric Administration so they can build a model of the currents.

"Once you have that model," Vaidya says, "you analyze and try to understand it, and then try to design a control mechanism to allow you to change the behavior of the system. The goal is to understand how ocean currents behave naturally and then take advantage of the natural dynamics for the purpose of control."

By having an intricate understanding of the currents, Vaidya explains, it's much easier to know where chemical dispersants should be sprayed for maximum effect, or to determine the optimal location for booms and other barriers. This can be achieved, he says, even though conditions can change by the day or hour.

"Right now we're at the stage where we're actually developing the models and doing simulations to verify if the output represented in the model is realistic," Vaidya says.

That's where Ganapathysubramanian's expertise comes in. Through the use of partial differential equations, he must find ways to account for uncertainties in weather patterns, wind flow, and the uncertainty of the oil flow itself. By using the parallel computing resources at Iowa State, he can simulate a system with multiple uncertainties. Doing so allows him to consider potentially all possible scenarios.

While early results may be available soon, the longer-term goal is to create software packages that could be placed online, thus making them available as resources that could be used immediately when the next spill occurs.

"The message we want to get out is that we really need to understand the natural dynamics and the uncertainties in the ocean flow currents first, before there is a spill," Vaidya says. "Our work points to where the oil might go and when it might get there. We may even find that there are natural barriers to the oil flow that we can take advantage of and learn where those barriers are." •

more online

professor researches causes and solutions to
disruptive events on large networks

Nicola Elia, associate professor, recently started a new research project funded by the National Science Foundation under the American Recovery and Reinvestment Act of 2009. Elia's project focuses on networked systems and developing new analytical and computational tools for understanding and analyzing how uncertainty is generated, propagated, and managed in the system.

Elia's research could be applied to complex systems such as the electric power grid, the Internet, social networks, and networks of cooperating autonomous robots which he says work well most of the time, but are occasionally subject to large disruptive events such as blackouts or congestion. He's looking to discover why those blackouts or congestion occur so changes can be made to their design and construction.

isu part of team creating new
research center

Iowa State University and Ball State University have joined forces to start a new National Science Foundation Industry/University (I/U) Cooperative Research Center (CRC): the Security and Software Engineering Research Center, or S²ERC for short.

"As our nation and the world becomes more reliant on software, and as that software and other systems are under attack, it is critical that we focus our research attention on security and software engineering. This center is focused on working with industry to help solve their problems," says **Doug Jacobson** (BSCpE '80; MSEE '82; PhDCpE '85), university professor.

The new center merges the Center for Information Protection, a former NSF I/U CRC, which was established in 2005 at Iowa State, and the Software Engineering Research Center, a center established by Ball State. The mission of the new center is to conduct a program of applied and basic research on software security, system security, and software technology problems of interest to its member companies from industry.

The center helps bring in companies that propose research projects. It brings in faculty from computer engineering, management information systems, math, political science, and computer science to solve the research problems.

"We have worked on projects from identity theft to intrusion detection to attack models," Jacobson says. "The center also serves as a testing center for member companies providing them with unbiased evaluation of third-party security products and testing their own products."

Ball State is the lead university for the new center. Other university collaborators are Purdue University, the University of West Florida, and the University of Illinois at Chicago. The center is actively recruiting new member companies. Representatives from interested companies can contact Jacobson at dougj@iastate.edu or 515 294-8307 for more information. •

more online
Get more information on the new center at *www.iac.iastate.edu/cip*.

enhancing cyber security of electric
power infrastructure

A recent McAfee worldwide survey of 600 IT and security executives sheds some unsettling light on security vulnerabilities. Among survey respondents, 37 percent said their sector's vulnerability to cyber attacks increased over the past year. In the energy/power and oil/gas sectors, about 55 percent of attacks targeted computerized operational control systems such as Supervisory Control and Data Acquisition (SCADA) controls systems. According to the report, these attacks are serious because criminals can gain direct control of operational systems, creating the potential for large-scale power outages or man-made environmental disasters and potentially costing millions of dollars a day due to downtime caused by cyber attacks.

These increasing security threats to the nation's electric power infrastructure, and interest in industry partners through ISU's Electric Power Research Center, sparked **Manimaran Govindarasu**'s interest. In the past two years, Govindarasu, associate professor, and his research team have developed a SCADA security test bed at Iowa State.

"The test bed integrates industry-grade control systems software, substation automation systems, communication protocols, security devices, and relays," Govindarasu says. "The test bed provides capability to conduct cyber attack defense exercises in the power grid control environment and enables us to develop effective countermeasures. The test bed is unique to have a university because it provides an environment where both cyber and physical aspects of the system can be studied."

In 2009, Govindarasu and collaborator Chen-Ching Liu, a former electrical engineering professor at Iowa State, received a National Science Foundation grant to study risk modeling and mitigation of cyber attacks on the power grid.

"In particular, we are developing quantitative modeling of the likelihood of cyber attacks on SCADA control systems and the resulting consequences on the power grid in terms of load loss, stability violations, or equipment damage," Govindarasu explains. "We also are designing and evaluating novel risk mitigation algorithms using techniques from cyber systems and power systems."

department acquires new
nanolithography instrument

The ECpE department recently purchased a new Raith e-Line nanolithography instrument (*at left*). The equipment was acquired with funding from a $700,000 National Science Foundation grant. This new piece of equipment housed at the Microelectronics Research Center (MRC) completes the suite of equipment faculty need to fabricate nanostructures for use in electronic, optical, and solar energy conversion devices. This equipment is capable of defining features as small as 20 nanometers. Until this new instrument arrived, researchers at Iowa State could only define structures at 1,000 nanometers in size at best.

Students and faculty in several departments within the College of Engineering, College of Liberal Arts and Sciences, and College of Agriculture and Life Sciences will use this new instrument for studying topics ranging from biological activity of pesticides on agricultural pests to making nanowires for sensors.

"This instrument will be particularly useful for making advanced photonic and plasmonic structures which can significantly enhance efficiency of thin-film solar cells," says **Vikram Dalal**, Thomas M. Whitney Professor and director of the MRC. Dalal was the principal investigator on the grant that received funding to purchase the instrument.

news from you

We want to hear about your career moves and personal news for future issues of *ECpE Connections*! Please fill out the form below or online at *www.ece.iastate.edu/alumni* (click Alumni News Form) to share your news.

Name: _____ Graduation year(s) and degree(s): _____

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News I'd like to share: _____
_____
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_____
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_____

supporting the department

The ECpE department relies heavily on the support of our alumni and friends to ensure students have access to scholarships and the latest lab facilities and classroom spaces, faculty can continue to support graduate students and conduct state-of-the-art research, department facilities remain updated for staff to do their jobs efficiently, and student organizations and department events can continue to thrive.

If you would like to help the department continue to be one of the best in the country, you can support the department through several funds. Additional opportunities are available to support endowments and building space. Please check the appropriate box below if you want to offer your support today, or visit *www.foundation.iastate.edu.* For more information about the funds, contact Ben Barnhart, Director of Development, College of Engineering, at 515 294-0934 or barnhart@iastate.edu.

I'd like to support the:

Electrical/Computer Engineering Excellence Fund
 ❏ $1,000 ❏ $500 ❏ $250 ❏ Other $_____

ECpE Coover Hall Building Project
 ❏ $1,000 ❏ $500 ❏ $250 ❏ Other $_____

Please contact me about supporting:
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 ❏ scholarships and fellowships
 ❏ laboratories and classroom space
 ❏ ECpE Coover Hall Building Project

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Thank You!

Code: 07 EC1:03

Mailing Instructions: Detach this form along the perforated edge. Fold the form in thirds so that the ECpE address shows on the outside. Tape the form closed and place your stamp in the labeled box. If you're mailing a check, remember to completely seal the edges of the form or send the form along with your check in a standard envelope.

students start
new group for women engineers

In November 2009, two female computer engineering students, junior **Kristen Muehlenthaler** and senior **Aisha (Grieme) Steege**, launched a new student group called Digital Women aimed at supporting female electrical, computer, and software engineers in their academic and career pursuits.

"Research shows that women who participate in networking groups do better academically and are more self-assured," Muehlenthaler says. "We hope to provide forums for sharing advice, experiences, and resources. Our main goal is to have women feel connected to other women in electrical, computer, and software engineering."

Through the Digital Women group, Muehlenthaler and Steege hope to give female students an opportunity to form networks and help retain them in the electrical, computer, and software engineering disciplines, as well as offer an educational

Computer engineering students Aisha (Grieme) Steege, *left*, and Kristen Muehlenthaler, *right*, started the Digital Women's group last fall.

support system, foster a sense of community in the ECpE department, and offer professional and social activities.

The group met a couple times last year and hopes to meet more often this year. Activities the group plans to do this year include helping students prepare for the career fair, hosting lectures by women who have recently graduated and who work in industry, getting involved in Cyber Defense Competitions, attending Institute of Electrical and Electronics Engineers and Information Assurance Student Group meetings together, providing academic support, and organizing social events, including events with male students in their discipline to bridge the gap between males and female engineers in the department. •

more online
Check out the Digital Women's Facebook group at *www.facebook.com/group.php?gid=328497224329&ref*.

how alums can help the digital women's group

The Digital Women student group is looking for electrical, computer, and software engineering alumnae to assist the group. Alumnae are needed to provide presentations to the group or in classes, as well as help connect students with job shadowing, mentoring, and internship opportunities. Sponsors also are needed for various activities. If you're interested in helping out, please contact Kristen Muehlenthaler at kristenm@iastate.edu.

isu robotics team competes at
robogames 2010

After spending a year designing and building a 120-pound robot named Dark Cyde, the ISU Robotics Club's Battlebots team put its work to the test in April at the 2010 RoboGames' Combat Robot competition in San Mateo, Calif. By the end of the double-elimination bracket, the team had a record of two wins and two losses and was pleased Dark Cyde had flipped some its opponents and was still operational after some repairs. The team finished among the top eight teams.

Weapons on combat robots can range from a fire element to saw blades. Dark Cyde featured a pneumatic flipper that gets underneath the opponent and throws it out of the arena or turns it over so it can no longer function. Students from electrical, computer, industrial, mechanical, and aerospace engineering, among other majors, custom-built every component of the robot including the power and controls, frame, and armor.

The team is already looking ahead to next year's competition and is planning to either add thicker armor to move up a weight class or develop a lighter-weight robot.

"The combats were pretty intense at times and many of the robots ended up completely destroyed," says Derek Joseph, project manager and senior in mechanical engineering. "We learned a lot from our first go at this, and we're looking forward to working on our next bot."

The ISU team's robot named Dark Cyde placed among the top eight teams.

software engineering student develops
cyride app

iPhone owners no longer have to worry about carrying around CyRide maps or memorizing bus schedules, thanks to **Jonathan Salvador**, a software engineering student who graduated in spring 2010. Last spring Salvador released the CyRide application, which allows iPhone users to check bus schedules and access the transit system's Twitter feed in seconds.

Jonathan Salvador, *center*, displays his CyRide iPhone app senior design project at VEISHEA 2010.

Salvador began work on the application during his electrical and computer engineering senior design class. The goal of the assignment was to create an app for engineering students that allowed access to various online campus resources.

"One of my responsibilities on the project was to allow students to view the CyRide bus schedule. I made a prototype and found it was useful," Salvador says. "I started feeling impatient having to wait until the end of the semester to release it with the engineering app, so I decided to release it myself as a standalone app."

The CyRide app can be downloaded at *itunes.apple.com/us/app/cyride/id355285386?mt=8*, and is compatible with the iPhone, iPod touch, and iPad. •

more online

To see a video of the senior design team who developed this app, as well as demos of other senior design projects, visit *www.youtube.com/ECpEDepartmentISU* (click on the All Videos playlist).

student
honor roll

Congratulations to the following student award winners:

- Graduate students **John Carr**, **Joseph Idziorek**, and **Sasha Kemmet** each won a Spring 2010 Teaching Excellence Award from Iowa State University.
- **Fu-gang Hu**, PhD student in electrical engineering, won the IEEE Antennas and Propagation Society's Doctoral Research Award for 2009-10.
- **Joseph Idziorek**, PhD student in computer engineering, received the IBM PhD Fellowship for 2010-11, as well as the ISU Graduate and Professional Student Senate Teaching Award.
- **Sasha Kemmet**, PhD student in electrical engineering, received the ISU Graduate and Professional Student Senate Peer Research Award.
- **Karen Littlejohn** (BSCpE '09), graduate student in computer engineering, and **Karl Peterson**, senior in electrical engineering who graduated in May 2010, both won National Science Foundation Graduate Research Fellowships.
- **Amit Pande**, PhD student in computer engineering, won the 2010 Computing Innovation Fellowship from the Computing Research Association and Computing Communication Consortium. The award supports his postdoctoral research work to be conducted at the University of California, Davis.
- **Abhinav Sarje**, PhD student in computer engineering, won the Best Paper Award at the IEEE Technical Committee on Parallel Processing PhD Forum at the IEEE International Parallel and Distributed Processing Symposium in April 2010. He also won an ISU Summer 2010 Research Excellence Award.
- **Ryan Hall**, sophomore in electrical engineering, won the Tze-Yen Teoh Sophomore Leadership Award from Iowa State University in spring 2010.
- The **Eta Kappa Nu** (HKN) electrical and computer engineering honor society student chapter won the Outstanding Student Chapter Award for 2008-09. The award was presented in March 2010.

electrical engineering freshmen get
challenged and inspired to learn, discover

"**W**ho would like to be shocked?" asks a smiling professor to a room full of college freshmen. He isn't speaking figuratively: a 4-foot-tall Tesla coil sits on a table next to him to emphasize that point. Hands shoot up throughout the classroom. A few students are called up and stand excitedly next to the electrical contraption. With the lights dimmed, the professor flips two switches. A bulb begins to glow and the snap of electricity breaking the air fills the room.

"All right, go ahead and touch it," the professor encourages. The student volunteers look tentatively at the sparking giant. One slowly raises a single finger near the top where mini-lightning bolts leap through the air. A blue arc of light jumps to his finger. The student pulls back in surprise. The room sits captivated waiting for his response.

Then the student laughs. He brings his hand up and electricity begins dancing along his palm and fingers. "*That* is cool!" he laughs, and within a few minutes the entire class is gathered around getting zapped. The experiment is the perfect imagery for the freshman class as they face the unknown, act brave, experiment, and enjoy the learning process. The class is EE 185: Introduction to Electrical Engineering and Problem Solving and the professor is **Mani Mina**.

The class is part of a program for first-year students in electrical engineering designed by Mina, senior lecturer, and his team of graduate and undergraduate students. This course, along with the Electrical Engineering Learning Community (EELC), creates a first-year experience that inspires and challenges students. The program involves the EE 185 class, labs, help sessions, and community meetings that emphasize to students the value of understanding the learning process, questioning, being brave with new materials and ideas, and being passionate about the learning process.

"The main idea is to provide new students in the EELC and EE 185 course a platform that gets them engaged, pro-

Students in the Electrical Engineering Learning Community and EE 185 class

vides experiential learning opportunities, and teaches them how they learn," Mina says. "Learning is a personal experience and each person goes through stages differently. So our team works to make an environment that is informative, challenging, and engaging for the students."

The class and labs focus on building students' problem-solving skills through various tools such as classic riddles, trigonometry, statistics, basic electrical engineering principles, and MATLAB. Lectures, discussions, group work, and hands-on experiences are employed to help students learn the material and create awareness of the stages of learning.

The EELC serves as a place where students can form relationships with their peers and effectively apply what they have learned in the classroom. Students can get (or provide) help with material for all of their first-year classes, meet other students, design and build projects, and do social activities together. Throughout the semester, Mina, his team, and students in the EELC design projects to address the students' interests while also serving as a catalyst for their creativity and excitement for learning.

"To make an impact of the magnitude we want requires a creative, strong, diverse, and devoted team. It's impossible to deliver this without them," Mina says of the group of students who work together to help create this freshmen experience. The team includes four graduate students and 12 undergraduate students. Many of them were part of EE 185 and the EELC when they were freshmen and were inspired to deliver the experience to others. Together they work and volunteer hundreds of hours per semester.

"In my view, engineers can make a positive impact on the world through their own work and through teaching other people who will one day be in a position to make positive changes. I am privileged and constantly rewarded to be interacting with freshmen engineering students on a weekly basis," says **Joseph Idziorek**, a graduate student who helps with the team.

While the activities in EE 185 and EELC undoubtedly deliver quantities of technical knowledge regarding circuits and programming, the much larger goal of the class work, projects, mentorship, and the learning community is to create a learning environment where students feel comfortable trying new ideas, questioning what they're learning, experiencing mistakes with the goal of learning, and getting inspired.

Every year, freshmen in electrical engineering are greeted with a simple question and this year was no different. Their answer to the question? "Yes, we're ready to be shocked." •

current team of peer mentors

graduate students
- **John Carr**
- **Ryan Gerdes**
- **Joseph Idziorek**
- **Sasha Kemmet**

undergraduate students
- **Josh Allen**, senior
- **Jose Arroyo**, senior
- **Alex Dolan**, senior
- **Will Johannes**, sophomore
- **Amy Xuetong Mao**, sophomore
- **Byron Montgomery**, junior
- **Cody Morgan**, junior
- **Josephine Namatovu**, junior
- **Jane Peters**, junior
- **John Pritchard**, senior
- **Alex Sturgeon**, sophomore
- **Jerome Whitter**, senior

electrical engineering alumnus recognized as a
pioneer of medical ultrasound technology

Earlier this year, electrical engineering alumnus **Gerald J. Posakony** (BSEE '49), who is a native of Pocahontas, Iowa, joined the company of famous inventors such as Alexander Graham Bell, Thomas Edison, George Westinghouse, and Orville Wright when he received the American Association of Engineering Societies' John Fritz Medal—the highest award in the engineering profession for scientific achievement—for his pioneering contributions to the fields of ultrasonics, medical diagnostic ultrasound, and nondestructive evaluation technologies.

Gerald J. Posakony

"Frankly, I was overwhelmed to be included in such distinguished company," Posakony says.

Posakony began his pioneering research in the early 1950s after a radiologist from the University of Colorado Medical Center came to the small television components company in Denver where Posakony was working as a production engineer and told him that he needed to see soft tissue, and not just the skeleton as X-rays showed.

"I had a background in sonar from my Navy service days and the man I worked with was an expert in radar, so we put together small systems and did experiments to see if there was any possibility," Posakony recalls. "We would go to the local meat market to get a cow's liver, and then put artifacts in there to see if we could see the artifacts. We got an echo back and we got an award from the Veterans' Administration to continue the work at the university."

So Posakony left his position at Decimeter, Inc., and began developing medical diagnostic ultrasound technology full-time as a research engineer at the University of Colorado Medical Center. While there, he and his research team developed a compound scan technique that is still used today in phased-array ultrasonic exams.

"The technology associated with pictures was pretty unique at that time," Posakony says. "What we discovered was that most people used a linear scan, took a transducer and moved it back and forth, and that did not give us the image we needed. The technology needed to look at any object in the body and get a full picture."

Posakony and his team soon published their work on the compound scan technique, a technology that allowed radiologists to scan any object from multiple directions.

"We sort of stumbled along and got some pretty good pictures, and we established the picture of what was required for the medical industry," he explains.

Organizations in the field such as the Institute of Electrical and Electronics Engineers and Eta Kappa Nu, among others, widely recognize Posakony for his role as the lead engineer for developing ultrasonic transducers, the so-called the "eyes" of an ultrasound system.

Since those early achievements, Posakony has dedicated

career at a glance

Here is a brief look at key achievements and honors alumnus **Gerald J. Posakony** has made or received throughout his career.

Past employers: Decimeter, Inc., Motorola, University of Colorado Medical Center, Automation Industries

Current employer: U.S. Department of Energy's Pacific Northwest National Laboratory

Key accomplishments: Developed compound scan technique used today in phased-array medical ultrasonic examinations, and continues to develop and enhance nondestructive evaluation technologies

Patents: 15 (and more pending)

Technical articles: More than 80

Fellow of: American Society for Nondestructive Testing (ASNT) and American Society for Testing Materials (ASTM)

Awards: American Institute for Ultrasonics in Medicine (AIUM) William Fry Memorial Lecture Award, AIUM Pioneer Award, ASNT Lester Honor Lecture Award, ASNT Gold Medal Award, ASTM Award of Merit, Eta Kappa Nu (HKN) Eminent Member, IEEE Honorary Member, AAES John Fritz Medal

much of his career to developing and enhancing nondestructive evaluation technology for medical and other applications. He left the University of Colorado Medical Center in 1966 to join Automation Industries, where he was responsible for the developmental research, instrument design, technical procedures, and manufacturing of systems for nondestructive evaluation, as well as development techniques and systems in ultrasonic, eddy current, and infrared and magnetic methods. In 1973, he joined the U.S. Department of Energy's Pacific Northwest National Laboratory (PNNL) as manager of the nondestructive evaluation section.

While Posakony is now officially retired from PNNL, he remains on staff as an hourly professional to continue to research, develop, and deploy ultrasonic technology. He says curiosity is what motivates him to continue pursuing new avenues of research. In fact, he's currently working on research in the area of sonochemistry, trying to use high-quality ultrasound to modify cellular structures.

"Anytime you can modify cellular structures you can come up with compounds to use in pharmaceuticals, the oil industry, or any place trying to modify or mix a compound or structure," Posakony says.

As Posakony reflects back on his career and his college years at Iowa State, he acknowledges that the broad education he received at Iowa State was a good cross section of education that has served him well in his career. •

Alumnus Mike Boxleiter creates video games for a living. His company has created Dinowaurs and Solipskier and also offers free games available at *www.mikengreg.com* or *www.intuitiongames.com*. Solipskier is available for $2.99 in the iTunes Apps Store. Dinowaurs is available at *www.kongregate.com.*

Photo by Kenzie Brennan.

computer engineering alumnus
starts video game company

You never know where career opportunities will find you. For **Mike Boxleiter** (BSCpE '07), the path to creating his own video game company started in a college experimental game development course where he met Greg Wohlwend, a graphic design student. The two later worked together at the Virtual Reality Applications Center and after they graduated, they founded Intuition Games and set up shop at the ISU Research Park in Ames. Their first video game, Dinowaurs, debuted in 2009.

"The game is a one-on-one strategy/action game. Each player controls a dinosaur which they choose and equip from a host of options," Boxleiter says. "The game world is presented as a flat side-scrolling environment with caveman villages dotting the landscape. The goal of the game is to capture those villages from your opponent and use the resources the villagers provide to equip your dino with more explosive and insane weaponry until you have defeated the opponent's dino in combat."

Although Boxleiter admits that Dinowaurs, which has nearly 1.7 million plays, was a financial failure, the company's first game served as a baptism-by-fire training ground.

"Everything that might have gone wrong in the project did, and the biggest lesson we learned is that the only foolproof way to keep failures small is to keep the project small," Boxleiter says.

Boxleiter's company recently released a new game: Solipskier. He describes it as an "unconventional skiing game that allows the player to control the slopes they are skiing down." The player gets to draw the terrain he skis along so if he draws a down slope, he speeds up, and if he draws a hill, he loses speed.

"The skier can fly into the air with enough speed and do crazy tricks to rack up points," Boxleiter says. "Players can compete for high scores online, and many of our players have already far outpaced our own scores."

And while owning his own company comes with perks—freedom and challenge to find your own path and determine your future—it also comes with downsides—not having a mentor with experience and knowledge to provide guidance. But despite any disadvantages, Boxleiter is working on something that he loves.

"I've always loved playing video games, but creating them is different. The most interesting aspect of the process for me is hearing how players respond to our work," he says. "It's fun and rewarding to see players get frustrated on an aspect we made particularly challenging, and even more meaningful to watch them overcome obstacles they thought were too hard at first glance." •

honoring deceased alums
in memoriam

The ECpE department recognizes our alumni who passed away this past year. This list includes alumni who died between August 13, 2009 and August 13, 2010. Every effort was made to ensure the accuracy of this list.

1930s
- **Fred H. Steuck** (BSEE '37)

1940s
- **L. Sterling Heins** (BSEE '49)
- **Alfred J. Hoehn** (BSEE '41)
- **Roger D. Opheim** (BSEE '49)
- **John R. Smith** (BSEE '40)
- **Gerald L. Thompson** (BSEE '44)
- **Lawrence W. Von Tersch** (BSEE '43; MSEE '48; PhDEE '53)

1950s
- **Terry M. Brain** (BSEE '59)
- **Donald D. Carter** (BSEE '56)
- **Gordon T. Cavanaugh** (BSEE '50)
- **Charles J. Celsi** (BSEE '50)
- **James E. Griffin** (BSEE '51; PhD Physics '63)
- **Sherlock A. Johnson** (BSEE '53)
- **James B. Klingler** (BSEE '52)
- **Robert M. Muir** (BSEE '52; MSEE '62)
- **Wallace E. Newman** (BSEE '58)

- **Rex E. Sharp** (BSEE '53)
- **Clifford J. Thomforde** (MSEE '51)
- **Richard D. Winter** (BSEE '59)

1960s
- **Russell J. Campion** (BSEE '69)
- **John P. Shanklin** (BSEE '65)
- **Richard M. Willett** (PRFEE '66)
- **Eugene F. Wiltgen** (BSEE '63)

1970s
- **Dennis R. Schaeffer** (BSEE '70)

1980s
- **Patricia M. (Maas) Brockman** (BSCpE '85)

1990s
- **Carrie A. Erickson** (BSEE '98)
- **Thomas B. Wilson** (BSEE '92)

2000s
- **Christopher R. Borland** (BSCpE '05)
- **Aaron W. Honecker** (MSEE '01)

U.S. Navy christens
ship named for electrical engineering alum

Alumnus **Howard Otto Lorenzen** (BSEE '35), known as the "Father of Electronic Warfare" for his breakthrough work at the Naval Research Laboratory (NRL), has been memorialized with the launch of a new U.S. Navy ship. Christened June 26 in Pascagoula, Miss., the *USNS Howard O. Lorenzen* is the second ship in U.S. Navy history to honor an NRL scientist for contributions made to naval and civilian research. The missile range instrumentation ship, which is operated by the Military Sealift Command, will replace the *USNS Observation Island* launched in 1953.

The 12,575-ton, 534-foot *USNS Howard O. Lorenzen* will be home to a crew of 88, and will host embarked military and civilian technicians and mariners from other U.S. government agencies. Missile range instrumentation ships provide a platform for monitoring missile launches and collecting data that can be used to improve missile efficiency and accuracy.

Lorenzen had a 33-year career at the Washington, D.C.-based NRL. He developed radio countermeasures that could exploit detected or interrupted electromagnetic transmissions for military purposes, intelligence gathering, and electronic countermeasures—a pioneering concept that was the genesis of modern-day electronic warfare.

Lorenzen died in 2000. His daughter, Susan Lorenzen Black, was on hand for the ship's christening.

"Lorenzen understood and the Navy realized the value and relevance of not only detecting enemy radio and electronic transmissions, but that recording, analyzing, and deciphering these transmissions and developing intuitive countermeasures would prove to be an integral and vital function to the future of national security," says Pete Wilhelm, director of the NRI's Center for Space Technology.

Beginning his NRL career in 1940 as a radio engineer, Lorenzen got his first taste of electronic countermeasures when he unintentionally jammed the signal of radar being tested at the lab's radar division. As the United States entered World War II with the

USNS Howard O. Lorenzen

attack on Pearl Harbor, Lorenzen's research focused on developing electronic means to detect, locate, jam, and otherwise deceive enemy radar and other electronic locating equipment, ushering in a new era of warfare to benefit U.S. military countermeasures.

After the war, Lorenzen continued to develop new and modify existing electronic countermeasure technologies. He developed the first U.S. magnetic tape-recorder for intercept work and tunable microwave intercept receivers equipped in Navy ships, shore stations, and aircraft.

Howard Otto Lorenzen

According to the Navy, Lorenzen's most notable achievement came after a U.S. U-2 spy aircraft was shot down over the Soviet Union in June 1960. Lorenzen led the Galactic Radiation and Background payload, or GRAB. GRAB was the earliest space-based reconnaissance satellite and the first U.S. Navy electronic intelligence satellite used to obtain information on Soviet air defense radars that otherwise could not be observed from U.S. military aircraft.

Lorenzen became the NRI's first superintendent of electronic warfare in 1966. During that time, he led the development of defense equipment for naval aircraft to guard against guided missiles. He also helped develop the nation's first portable radar equipment. Lorenzen was appointed superintendent of NRL Space Systems in 1971 and served in that role until his retirement in 1973. •

ecpe alumni
class notes

1940s

Marvin Moody (BSEE '46) of Lincolnshire, Ill., wrote in regarding the article on the Atanasoff-Berry Computer (ABC) in the Spring 2010 *ECpE Connections*. He writes: "I became a patent attorney and made an investigation of the Mauchly-Eckert patent and ENIAC computer for a client making digital computers. I went to the University of Pennsylvania where they [Mauchly and Eckert] were professors and located the relevant files. The files were stored under the seats of the football stadium where there was an unheated triangular space. It was February and about 32 degrees, and I spent a few days going through boxes of the ENIAC files wearing my overcoat and gloves. In these files, there was a travel expense to Ames dated well before the ENIAC work started, which verified that Mauchly and/or Eckert had actually seen the ABC in Ames and talked to Dr. Atanasoff and Berry." More info about the history of the ABC is online at *www.ece.iastate.edu/who-we-are/department-history*.

1960s

Richard Dostal (BSEE '60) of White Bear Lake, Minn., visited the ECpE department during Alumni Days in May. He says he remembers that when he went to college, you could recognize all the engineers by the slide rules hanging from their belts. He worked for 30 years with Unisys and retired in 1989.

Jerald Johanson (BSEE '60; BSME '61) of Solon, Ohio, also was on campus during Alumni Days in May. He tells us that throughout his career, he worked for Hercules Power, Boeing, Gates Learjet, Certain-Teed, Genova, Carlon, and TRW.

Eugene Teggatz (BSEE '60) of Dodgeville, Wis., visited during Alumni Days, too. He says he remembers being challenged as a student, and very much enjoyed the power lab. After college, he spent three years in the U.S. Air Force, and then worked for Collins Radio.

celebrating
alumni awards

Congratulations to the following alumni who recently received national and departmental awards for their exceptional work in their fields:

- **William Childs** (MSEE '65; PhDEE '70) won the ECpE Engineering Impact Award for his outstanding and distinctive accomplishments in the field of electrical engineering, specifically in regards to scholarly contributions, technical contributions, and professional leadership in the microwave CAD industry.
- **Andrew Jenkins** (BSEE '95) received the ECpE Early Career Impact Award for significant early career accomplishments in software and electronics for machinery used in agricultural research.
- **Edwin C. Jones, Jr.**, an emeritus faculty member of the ECpE department, received the ECpE Exemplary Service Award for his service to the department in ABET accreditation preparation, service on the ECpE Honors and Awards Committee, and as expressed by alumni, the career success of students he advised.
- **Gerald J. Posakony** (BSEE '49) won the American Association of Engineering Societies' John Fritz Medal, the highest award in the engineering profession, for his pioneering contributions to the fields of ultrasonics, medical diagnostic ultrasound, and nondestructive evaluation technologies.
- **Srinivasan Ramasubramanian** (PhDCpE '02) received the ECpE Early Career Impact Award for significant early career accomplishments in the field of optical network research for curriculum development in computer science.
- **Bill Sears** (BSCpE '99; MSCpE and MSInfAs '05), who works at the Ames Laboratory, won the 2010 U.S. Department of Energy Cyber Security Award.
- **Aaron Striegel** (BSCpE '98; PhDCpE '02) received the ECpE Early Career Impact Award for significant early career accomplishments in the field of network security and quality of service, and for associated curriculum and laboratory development.
- **A. J. Van Dierendonck** (MSEE '65; PhDEE '68) received the ECpE Distinguished Career Achievement Award for his continuing technical contributions to the Global Position System (GPS) spanning 35 years—he's one of the father's of GPS. •

Professor Vikram Dalal, *right*, presents the ECpE Engineering Impact Award to William Childs, *left*.

more online

See more information on ECpE alumni award winners and learn how you can nominate an alum for an award at *www.ece.iastate.edu/alumni/ ecpe-alumni-awards*.