

DEPARTMENT OF
ELECTRICAL ENGINEERING & COMPUTER SCIENCE

EECS NEWS



2008

THE UNIVERSITY OF KANSAS

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Cover Photo

(left to right) Graduating seniors Tom Dorsey (BSEE), Jamie Hines (BSEE), and Adam Chura (BSCS) celebrate their upcoming commencement.

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Past Department Chair Photos Courtesy of University Archives

Prescott and New Faculty Photos Courtesy of University Relations

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Past Department Chairs



L. Blake
EE Head
1887-1905



G. Shaad
EE Head
1909-27



E. Johnson
EE Head
1928-30



D. Jackson
EE Head
1930-36



R. Warner
EE Chair
1936-38



V. Hessler
EE Chair
1938-48



D. Wilson
EE Chair
1948-55



W. Smith
EE Chair
1955-65



L. Balin
EE Chair
1965-69



E. Schweppe
CS Chair
1968-71



D. Daughterty
EE Chair 1969-70
ECE Chair
1984-85, 1989-90



A. Breipohl
EE Chair
1970-1979



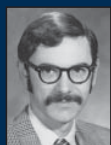
F. Horowitz
CS Chair
1975-1976



V. Wallace
CS Chair
1976-1982



J. Holtzman
EE Chair
1979-1984
ECE Chair
1984-85



W. Bulgren
CS Chair
1982-1993



J. Rowland
ECE Chair
1985-1989



J. Roberts
ECE Chair
1990-1993
EECS Chair
1993-97



S. Shanmugan
EECS Chair
1998-1999,
2002-03



S. Hinton
EECS Chair
1999-2002



C. Tsatsoulis
EECS Chair
2003-2008



Perspective

EECS CHAIR GLENN PRESCOTT

In November, EECS Professor Glenn Prescott was named Department Chair. He had been serving as the Interim Chair since July. Prescott replaced EECS Chair Costas Tsatsoulis, who left to become Dean of the College of Engineering at the University of North Texas in Denton.

Prescott received his Ph.D. in Electrical Engineering from Georgia Tech in 1984. He was an associate professor at the Air Force Institute before joining KU in 1989. Prescott teaches courses in digital signal processing, information theory, and digital communications. In 1998, he earned a prestigious Sharp Teaching Fellowship from the School of Engineering. His research in wireless communication, software radio systems, and radio and radar signal processing is instrumental in developing new technologies to measure and predict sea-level change.



What stands out over your nearly 20-year tenure at KU?

In the last 25 years, the Department has added two majors—computer engineering and computer science. EECS has grown not only in the number of students but also in their diversity. We have numerous internationally recognized faculty. The faculty has more than doubled since I came to KU. More than 20 EECS professors have achieved Fellow or Senior Member status within IEEE (the Institute of Electrical and Electronics Engineers, Inc.). A leading professional association, IEEE, honors individuals for their accomplishments and years of service.

EECS received a new home, Eaton Hall, in the fall of 2003. The state-of-the-art Spahr Engineering Classroom, the Self Computing Commons, classrooms, and laboratories all reside in the 80,000-square-foot building. We are incredibly fortunate to have such generous and loyal engineering alumni!

Where do you see EECS in the next 10 years?

The Department is only as good as the faculty and students it comprises. Five talented faculty members joined the Department in the fall. Their wide-ranging expertise advances traditional EECS focus areas, such as computer systems design, intelligent and resilient communications, and radar systems, while opening other areas. Computer vision and information security will be at the core of evolving intelligent systems research. Our new faculty will challenge students in the classroom and drive innovation in the laboratory.



Four University distinguished professors and six Kemper Fellowships for Teaching Excellence award winners are among current EECS faculty. EECS Professor and Associate Chair of the Edwards Campus **Hossein Saiedian** is a 2008 Kemper winner.

Younger professors are receiving accolades as well. EECS Assistant Professor **Shannon Blunt** earned an U.S. Air Force Young Investigator Award (see page 6 for more on his success in research and teaching). Before Assistant Professor **Sarah Seguin** officially started at KU, she redesigned and deployed a "noisy" accelerometer for the Center for Remote Sensing of Ice Sheets (CReSIS). Read more about Seguin's research on page 23.

The student success of today is laying the foundation for tomorrow's achievements. Current EECS graduate student **Heather Owen** was a top 5 finalist for the national undergraduate Eta Kappa Nu (HKN) 2008 Outstanding Electrical and Computer Engineering Student (OECES) Award. EECS graduate student **Mike Wasikowski** received a prestigious Department of Defense Science Mathematics And Research for Transformation (SMART) Fellowship. **Jerome Mitchell** and other talented students from historically black colleges (HBCs) come to Mt. Oread via the Research Experience for Undergraduate (REU) program. Mitchell spent two summers at CReSIS as an undergraduate before applying to the EECS Ph.D. program. Owen and Wasikowski are profiled on page 12 and 13 while Mitchell and the National Science Foundation-funded REU program can be found on page 15.

Our allegiance does not end the day students graduate. We are working to build a stronger network of EECS faithful. Career Services offers alumni information and resources, including a database of jobs and internships, career advising, and resume reviews (see page 6 for more on services). Additionally, EECS will be rolling out a spiffier web site in the spring of 2009. We hope to offer alumni additional resources and ways to reconnect. Stay tuned for the new and exciting changes. ■

“Professor Prescott was a great mentor and motivated me to think outside of the box. He was a great listener and encouraged lively class discussions. His technical and managerial expertise helped undergraduate students learn to work as a team, complete projects on deadline, and prepare for the challenges of industry. I have been privileged to work and graduate under his guidance.”

Ram Sathyanarayanan, '07 MSEE
Sprint Nextel Network Engineer

Out-of-this-World Robotics Earn International Acclaim

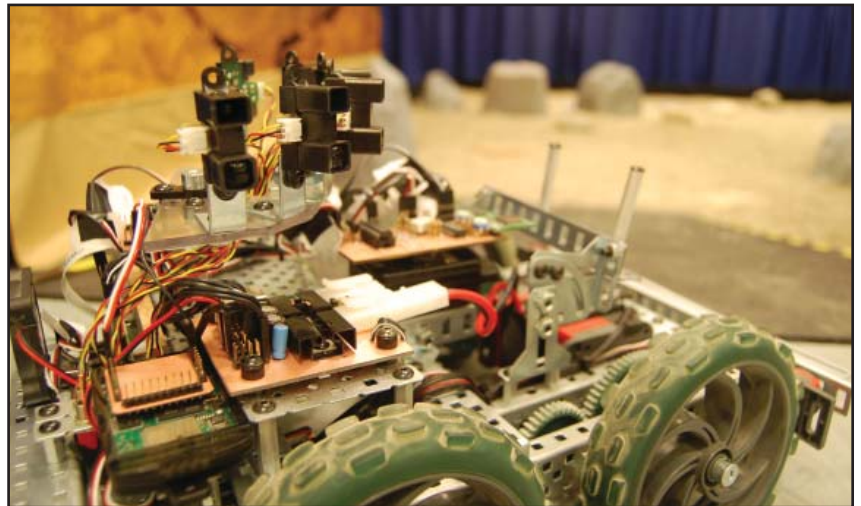
How did an EECS special projects class successfully compete against international robotics teams that spent \$6,000, its entire budget, on a single sensor? Generous amounts of perseverance and ingenuity fueled the creation of the multi-award winning EECS robotics system. Judges and fellow competitors at the Space Robotics Challenge in May gave the KU team kudos for its innovative and cost-effective design. The Challenge was held during the 2008 IEEE International Conference on Robotics and Automation (ICRA) in Pasadena, California.

“Since the project began as an idea and design, it was great to see it transition to a physical system demonstrated at a high-profile venue. We couldn’t be happier with the results,” says Ph.D. student **Chris Gifford**.

According to Ph.D. student **Russell Webb**, the limited budget was not only a challenge but also a great learning experience.

“We designed with a low-cost mind set from the very start,” says Webb. “This involved a lot of effort looking into what could be accomplished with limited computing and sensing. It’s amazing what can be done with inexpensive equipment.”

Gifford and Webb led the team that also included Ph.D. students **Bryan Banz**, **Daniel Leung**, and **Joe Makarewicz** and master’s students **James Bley** and **Mark Calnon**. EECS Professor and Associate Chair of Graduate Studies **Arvin Agah** served as the faculty advisor. The EECS team built four explorer robots that conducted a coordinated survey of an unknown planetary



▲ ▲ Explorer robots, such as this one, conducted a coordinated survey of the unknown planetary surface and identified areas of interest.

▲ In the bottom picture, the explorer robots are beginning their survey. Collected information will be merged into a single image, helping more expensive robots safely explore the new environment.

surface and identified areas of interest, such as shiny objects. Individual maps were merged into a single image and used to traverse safely to specific areas for further investigation.

“Our approach was viewed as unconventional. All other teams utilized one robot to do these tasks, which were considerably larger with much more onboard computing power. Our entire system costs less than one of their ranging sensors.”

— Chris Gifford, EECS Ph.D. student,
team leader

The system completed the “onto the surface” and “map the environment” events. The former required the robots to remain in formation and navigate safely from the Lander to

the planetary surface, in this case a 6x6 meter sandbox.

The explorer robots constructed an accurate map of the environment near the Lander to complete the second task.

KU, Tohoku University in Japan and Germany's Jacobs University were honored for completing the Sandbox Challenge.

“Our approach was viewed as unconventional. All other teams utilized one

robot to do these tasks, which were considerably larger with much more onboard computing power,” says Gifford. “Our entire system costs less than one of their ranging sensors.”

Its low-cost design coupled with information processing and mapping capabilities made the EECS system a standout. ■



Team members (from left to right) James Bley, Daniel Leung, Russell Webb, Chris Gifford, Bryan Banz, Mark Calnon, and Joseph Makarewicz developed a multi-award winning robotics system for the 2008 ICRA Space Robotics Challenge in May.

Robotics Photos Courtesy of Russell Webb



Blunt Succeeds in Research, Teaching

While his communication systems are undetectable, **Shannon Blunt** has a much higher profile. The EECS assistant professor has earned accolades for teaching and research in his first two years at KU. At the spring EECS awards ceremony, Blunt received the Harry Talley Excellence in Teaching Award. Graduating EECS seniors vote for the faculty member who has contributed most significantly to their education and development.

At the ceremony, Blunt also received a Miller Professional Award for Distinguished Research. The Miller Award highlighted his brain imaging research with KU Medical Center and a U.S. Air Force Young Investigator Award. The former has led to patent-pending technology that will increase understanding of neurological disorders such as Alzheimer's disease (see page 24 for more information on Blunt's research).

The prestigious Young Investigator Award includes a three-year grant to develop a new form of high-speed covert communication. Soldiers behind enemy lines will be able to send secure messages by "piggybacking" on existing radio signals.

"Shannon's dedication to his students and research along with his enthusiasm and collaborative spirit make him an excellent addition to EECS," says **Jim Stiles**, associate professor of EECS and associate director of ITTC. ■



Assistant Professor Shannon Blunt (right) and Ph.D. student Tom Higgins conduct signal processing research at ITTC.

Engineering Offers Career Services, Resources to Alumni

The School of Engineering has a number of services it offers to alumni.

Career Services offers alumni information, resources, and opportunities so they may confidently move forward with their careers. Some resources offered include a database of jobs and internships, career fairs, career advising, resume reviews, and more.

These services are offered to all alumni who are looking for a career change or new position. Please visit the Career Center section of the Engineering web site at http://engr.ku.edu/career_center/. You can contact the Career Center at ecc@ku.edu or 785-864-3891.

For alumni who are in a career transition and are considering returning to KU for graduate school, please visit www.eecs.ku.edu/prospective/graduate/. It would be great to have you back at Mt. Oread! ■

Chancellor, Dean of Engineering Travel to Greenland

By Mike Krings

University of Kansas Chancellor **Robert Hemenway** and School of Engineering Dean **Stuart Bell** joined government and academic officials from more than a dozen nations at the North Greenland Eemian Ice Drilling (NEEM) site in July. They represented KU's Center for Remote Sensing of Ice Sheets (CReSIS) at the influential scientific gathering.

To learn about global warming, scientists are working to drill and retrieve an ice core from the Eemian era, the interglacial era that took place more than 115,000 years ago. During the Eemian, average temperatures were about five degrees warmer and sea levels were about five meters higher than they are today. Studying ice samples from the era could show researchers what the future may look like if global temperatures continue to rise.

"This visit was an excellent opportunity for KU to show how our researchers are developing valuable tools that will help the international research community succeed in their mission," Bell said. ■



School of Engineering Dean Stuart Bell (left) and KU Chancellor Robert Hemenway attended an international scientific gathering in Greenland this July.

Photo Courtesy of University Relations

"CReSIS researchers are conducting some of the most sophisticated work in their field," said Hemenway. "This ongoing partnership with great minds from around the world will only strengthen and advance the knowledge base about the Greenland ice sheet and what we can learn from it."

Funded by the National Science Foundation, CReSIS performs radar and seismic testing of Greenland's glaciers to learn more about their thickness, movement, rate of melting, and more. KU scientists collected and provided data used to select the NEEM drill site.

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NEW FACES @ EECS

ANDY GILL

A warm smile and a Scottish accent are the first things you notice about Andy Gill. Born and raised in the United Kingdom, Gill received his Ph.D. from the University of Glasgow in 1996. The day after he handed in his dissertation, he boarded a plane for California. Gill has lived in the United States ever since, working with industry giants Microsoft, Hewlett Packard, and others. He spent the last eight years with Galois, a company he co-founded. It specializes in developing secure, safe software.

The responsibilities of helping manage a growing company left Gill little time for his true passion, research. He returned to academia to continue building bridges between engineering practices and theoretical possibilities. Gill's research improves both the applicability and effectiveness of functional languages. His long-term goal is to change how software is built and hardware designed.

His biggest smile came when asked about his family. The proud father pulled out his phone to show pictures of his two young children, Kayleigh and Liam. ■



BO LUO



Everyone told Bo Luo that Kansas winters would be less harsh than those in the Northeast. He had endured the last five at The Pennsylvania State University and was thrilled at the prospect of a milder winter. Luo finds it ironic that his first Kansas winter has produced some of the coldest days in recent memory.

Luo laughs as he says aside from the weather he is enjoying KU. His expertise is in one of the fastest growing fields, information security and privacy. Currently he is working on middleware that will check authorization for queries to medical

databases. It will ensure that health care providers have access to specific records. Additionally, Luo has applied for an NSF grant to study social networking sites and delineate the flow, security, and privacy of information.

He is looking forward to the spring, when his wife, Fengjun Li, will join him. She is in graduate school at Penn State, where the two met. ■

SARAH SEGUIN

EECS Assistant Professor Sarah Seguin credits her musician husband, John, for her superb translation skills. Wanting to share her work with him, Seguin has found ways to clearly explain her research without the technical jargon. Her students will benefit greatly from her ability to communicate in scientific terms and in a more general discourse.

Seguin recently earned a U.S. patent for her dissertation research. “Electromagnetic Emissions Stimulation and Detection System” identifies improvised explosive devices (IEDs) by their unintended electromagnetic emissions (UEE). All electronic devices, including remotely detonated bombs, radiate energy. Seguin’s program applies an ideal stimulation signal to areas where IEDs are suspected. Results are compared to stored UEE power values.

In addition to teaching electromagnetics, Seguin is applying her expertise to radar developed at the



Center for Remote Sensing of Ice Sheets (CReSIS). For more on her research, see page 23. ■

GÜNEŞ ERÇAL-ÖZKAYA



Güneş Erçal-Özkaya (pronunciation is Gue-nesh Er-chal-Oez-ka-ya, all vowels are short) began attending the University of Southern

California (USC) on a full scholarship after her junior year of high school. She moved to the opposite end of Los Angeles for graduate school, attending the University of California Los Angeles (UCLA).

Erçal-Özkaya returns to the Midwest with a Ph.D. in computer science and expertise in game theory and graph theory. She models and predicts “selfish” behavior and then engineers cooperative, intelligent, and resilient communications. Her interdisciplinary research compliments the KU Agile Radio and spectrum research.

Newlyweds Güneş and Emrah Özkaya grew tired of the Southern California traffic and frenetic lifestyle. They were attracted to KU because of its strong math, engineering, and business programs. Her research spans these fields, and Emrah is pursuing a Ph.D. in business after working as an industrial engineer. Lawrence’s proximity to Erçal-Özkaya’s parents (who live in Rolla, Missouri) in addition to its “hippie” twist and cultural activities sold them on KU.

Born in Istanbul, Erçal-Özkaya lived in both Turkey and America as a child. ■



BRIAN POTETZ

For the first time, **Brian Potetz** is part of a university with a strong sports program. He is enjoying the fringe benefit. Potetz calls the two football games he attended in a packed, raucous Memorial Stadium this fall “pretty amazing.”



He is quick to point out that KU’s strong research focus and quality programs attracted him and his wife, Sarah Pressman, an assistant professor in psychology, to the University.

Potetz was excited to teach a graduate course in computer vision, his primary research interest, in his first semester at KU. He examines the construction of 3-D pictures from single images. The medical and space industries have been among the early adopters of computer vision. Medical image processing assists surgeons, detects tumors and other abnormalities, and tracks the effectiveness of medical treatments. ■

EECS Professor and Associate Chair of Edwards Campus Hossein Saiedian is surprised with a Kemper Fellowship for Teaching Excellence this fall.



Photos Courtesy of University Relations

Faculty Accolades

KU Only School to Have 2 Members-at-Large

Distinguished EECS Professors **Joseph Evans** and **Victor Frost** serve as the only current IEEE ComSoc Members-at-Large from the same institution. The Institute of Electrical and Electronics Engineers Communications Society is second largest IEEE society. Members-at-Large are elected to represent the interests of the more than 40,000 members.

Evans will begin his three-year term in 2009, while Frost started his in 2008. ■

Roberts Honored for Advancing Engineering

In recognition of his long-term contribution to engineering education, EECS Professor **James Roberts** received a 2008 IEEE Education Society Achievement Award at the Frontiers in Education (FIE) Conference this October in Saratoga Springs.

Roberts was a member of the IEEE Education Society Administrative Committee from 1995 to 1998. His FIE service includes conference program co-chair in 1998 and conference general chair in 2000. ■

Saiedian Receives Kemper Teaching Award

Hossein Saiedian, EECS professor and associate chair for the Edwards Campus, collected a Kemper Fellowship for Teaching Excellence in August. KU officials surprised him with the award and a \$5,000 check during class. In addition to his research and teaching, Saiedian led the development of the graduate program in information technology at the Edwards Campus. ■

School of Engineering Honors EECS Teaching, Research

Associate Professor **Xue-wen Chen** and Assistant Professor **Shannon Blunt** earned Miller Professional Development Awards for Distinguished Research at the spring awards ceremony. **Arvin Agah**, EECS professor and associate chair for graduate studies, and EECS Professor **Gary Minden** received Miller Scholar Awards. **Victor Frost**, Dan F. Servey distinguished professor, was named a Bellows Scholar. ■

Prescott Helps Plan, Direct Future Space Missions

EECS Chair **Glenn Prescott** served as a panelist for a forum at the "Future Space: National Priorities and Critical Decisions" conference. Leaders from industry, government, and academia discussed terrorism and other initiatives at the fall conference in San Diego. The American Institute of Aeronautics and Astronautics (AIAA) hosted the event.

Earlier this year, Prescott was appointed a senior technical advisor for the NASA Earth Science Technology Office. ■



EECS Professor Arvin Agah (left) with Ph.D. students Chris Gifford and Jerome Mitchell pose in front of an autonomous vehicle they developed for CReSIS. Agah won a Miller Scholar Award at the School of Engineering

Grzymala-Busse Wins Best Paper at Int'l Conference

In May, EECS Professor **Jerzy Grzymala-Busse** received the Best Paper Award in Data Mining at the "IEEE Conference on Human System Interaction" (HSI'2008) in Poland. The paper focused on the design, evaluation, and implementation of interactive computing systems. ■

Evans Assumes ITTC Director

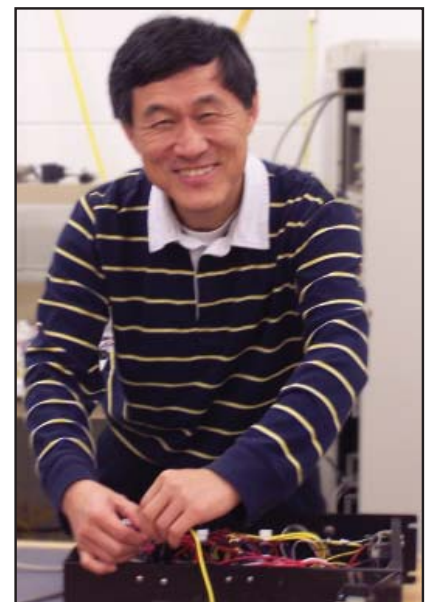
Joseph Evans, Deane E. Ackers distinguished professor of EECS, began his tenure as ITTC director in August. He replaced **Victor Frost**, who stepped down after 11 years in the position. Frost is focusing on research and teaching.

"KU is fortunate to have a researcher of Joe's caliber in this important role," said **Steve Warren**, vice provost for research and graduate

studies, in a KU press release. "He's a national authority on the subject of research computing, and he has experience moving IT research into the marketplace." ■

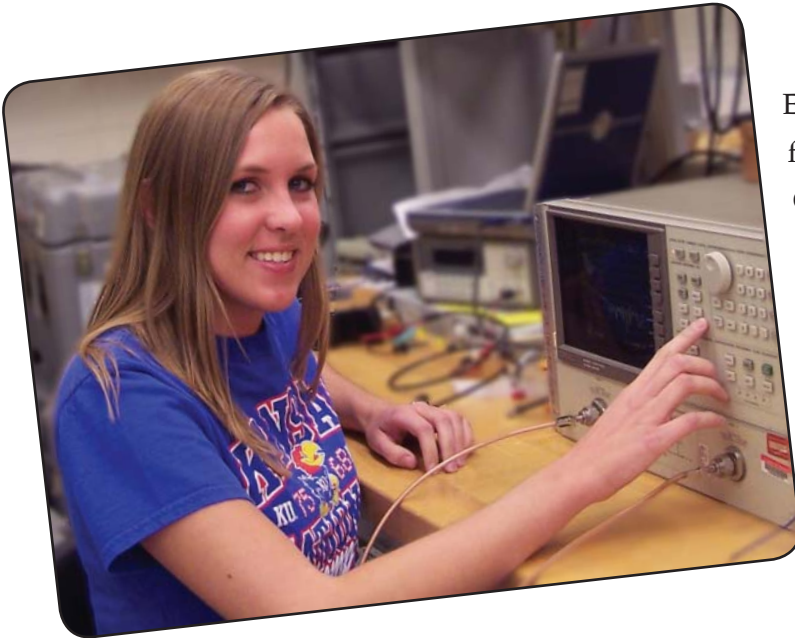
Hui Writes Lauded Book on Optical Measurements

In December, Academic Press published a book co-written by EECS Professor **Ron Hui**. The book examines optical measurement techniques for use in developing photonic systems. *Fiber Optic Measurement Techniques* serves as a reference and resource guide for academic and industrial researchers as well as field engineers. ■



EECS Professor Ron Hui conducts photonics research at ITTC.

Student Excellence



HEATHER OWEN

EECS graduate student **Heather Owen** was a finalist for the national Eta Kappa Nu (HKN) 2008 Outstanding Electrical and Computer Engineering Student (OECES) Award. It is presented annually to a graduating senior who demonstrates scholastic excellence and high moral character and leadership. Owen and four other honorees will be recognized at the 25th Annual Meeting of the Electrical and Computer Engineering Department Heads Association (ECEDHA) in March 2009.

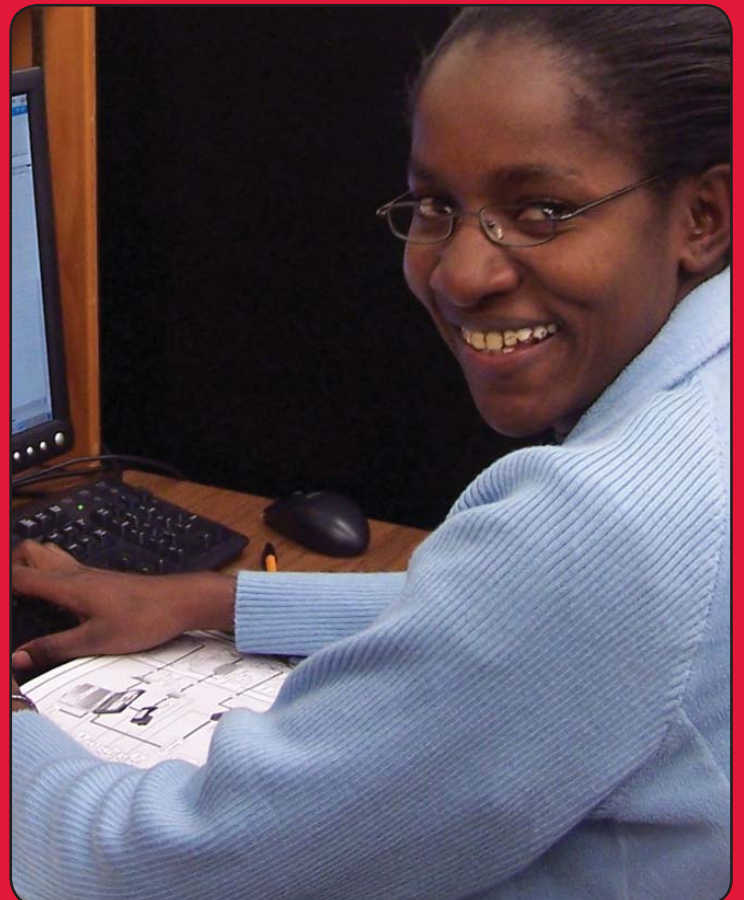
Currently, Owen develops radar hardware as a graduate research assistant for the Center for Remote Sensing of Ice Sheets (CReSIS). ■

ANGELA OGUNA

Angela Oguna was selected as a 2008-2009 University of Kansas Scholar by the Honors Program. The highly competitive scholarship program honors talented sophomores and fosters their development via seminars, events, special advising, and faculty mentors.

Scholars attend a required three-credit hour interdisciplinary seminar. Angela's will interweave history, art, architecture, planning, population, and challenges in "KC: The Biography of a City." Scholars are eligible to receive a \$250 scholarship for up to five semesters while at KU.

EECS Professor **Gary Minden** serves as Angela's mentor. ■



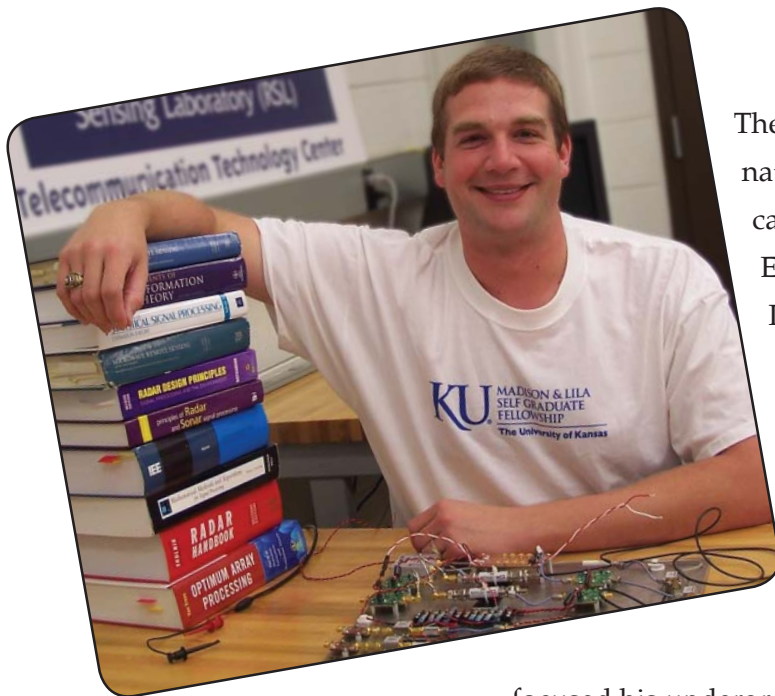
MIKE WASIKOWSKI

EECS graduate student **Mike Wasikowski** received a Department of Defense Science Mathematics and Research for Transformation (SMART) Fellowship. The prestigious award provides a \$25,000 stipend, full tuition and fees, and other benefits.

Wasikowski is exploring artificial intelligence tools that integrate knowledge “learned” from their experiences and observations. He gives the example of satellite

imagery on a proposed target. Software could dissect the data and determine whether it was a civilian truck or an enemy tank.

"Mike is a hardworking and brilliant student," says Wasikowski's mentor, EECS Associate Professor **Xue-wen Chen**. "I was impressed by his motivation and sincerity toward work. He is dedicated and has great potential in research." ■



When **Paul Anglin**'s wife learned her pediatric residency would be at Children's Mercy in Kansas City, Anglin began looking for graduate schools in the area.

focused his undergraduate research on landmine detection.

Stiles and **Arvin Agah**, EECS professor and associate chair for graduate studies, encouraged Anglin to apply for a highly competitive

The Alabama native soon came across EECS Associate Professor **James Stiles**' Web site and his work in mine detection and radar signal processing. Anglin had

PAUL ANGLIN

Madison and Lila Self Graduate Fellowship. The four-year award, including a \$24,500 annual payment and full tuition and fees, helps bring exceptional Ph.D. students like Anglin to KU. Anglin is the seventh EECS student to earn a Self Fellowship.

Anglin laughs as he says "he is just getting his feet wet" his first semester. Some might say a new home and schedule coupled with challenging courses and research is more like a dive into the deep end. ■



Undergraduate Spotlight

Meet Sasha Kaun, EECS Senior

What are your tips for new students?

Try to start a project as early as you can. I can tell you from experience it is not a good idea to start the day before it is due. Always ask if you do not understand. The classes build on one another, and if you do not understand a concept, it can have a snowball effect.

Professors are easy to talk to and they want to help students.

Can you describe a challenge that you encountered at KU and how you overcame it?

At first, it was difficult to juggle basketball and school at the same time. I had to learn time management. I needed to think about how long a project would take, how long practice would be, and try and fit everything into a day.

What does a typical day look like for you?

During the season, I would go straight to practice after my classes. Practice would last three hours and treatment would be another hour or two. After that, I would come back and try and do homework. Once in awhile, I would have to pull an all-nighter.

What has your overall experience as an EECS student been like?

I had some great classes. In EECS 448, we were able to work on one big project over the semester. The engineering robotic competition in another one of Prof. [Arvin] Agah's classes, 690 Software Engineering Tools, was a lot of fun. It was interesting to have a real-time challenge.

What have been some of your favorite times at KU?

It was a great experience. I enjoyed my classes and working with computers. I hope to get back into computer science after I finish playing professionally. Of course, KU basketball was a lot of fun, and it was incredible to win the NCAA tournament. ■



Major: Computer Science

Hometown: Tomsk, Russia

Graduation: May 2008

Future Plans: Play Professional Basketball

Photo Courtesy of KU Athletics

CReSIS Gives Undergrads Unique Research Experience

Ph.D. student **Jerome Mitchell** first came to KU as a summer intern with the Center for Remote Sensing of Ice Sheets (CReSIS). The NSF-funded research experience for undergraduates (REU) program allowed Mitchell to spend two summers at KU, conducting research with world-class scientists. He enrolled at KU after graduating from Elizabeth City State University, a CReSIS partner institution, in 2007. Mitchell now mentors REU students.

“The REU program provided an opportunity for exposure to special topics in computer science and allowed me to delve deeply in those areas. It profoundly shaped my views of academic research as well as instilled the necessary confidence to be successful as a graduate student.

As an alumnus of the REU program and now a mentor, I hope I can help students be proactive within the missions of CReSIS,” says Mitchell.

During an eight-week internship this summer, 10 CReSIS REU students, seven at KU and three at partner institution Penn State, worked with faculty and students on a variety of projects to better understand and predict the role of polar ice sheets in sea-level change. For example, students helped design and build a sled to help measure ice layers in Greenland and calibrated radar to use on the Greenland ice sheet. They presented their work in papers, presentations, and poster sessions.



Research experience for undergraduates (REU) interns Chelsea Vick (left) and Wanda-Marie Carey are preparing for a presentation. Ph.D. student Jerome Mitchell (far right) helps them edit their poster on climate-related and polar science research.



KU graduate student in education Melanie Gile (far left) evaluates an REU student poster. REU students Jimmy Bramante and Megan O'Sadnick prepare for their final summer presentation.

“Our REU program provides students research opportunities normally unavailable at the undergraduate level. These summer interns conduct original research on topics of global significance. They work closely with faculty advisors and student researchers and get a taste of graduate school,” says **Vicky Lytle**, CReSIS associate director of education.

Students selected for CReSIS REU positions receive room and board, a stipend, and tuition for one hour of college credit.

Applications for the program can be found on the CReSIS web site, www.cresis.ku.edu. ■



Record Number of Companies Attend Fall Career Fair

The 2008 fall Engineering and Computer Science Career Fair marked the largest employer turnout in two decades, according to the Engineering Career Center. More than 120 companies participated in the September event.

“As a student, I received several internship and job offers from career fairs,” says **Marina Burton** (BSCoE, '05), who is now with Sprint Nextel. “As a recruiter, we do a majority of our recruiting at career fairs, so they are very important to attend.”

Design engineer **Adam Lohofener** (MSEE, '06) attended the spring career fair for his employer, Garmin. More than 80 organizations came to the February event. With a big welcoming smile, the outgoing Lohofener is a natural recruiter. He recommends all students, from freshmen to seniors, attend career fairs.

“The career fair is a great window for students to get a peek at what companies have to offer. There are so many different directions to go after graduation. The career fair provides insights on some of those opportunities,” says Lohofener. “Also, for those students who aren’t looking for careers just yet, it is an excellent resource for internships, networking, and information.” ■



Students gather information and meet potential employers at the School of Engineering



“The career fair is a great window for students to get a peek at what companies have to offer. There are so many different directions to go after graduation. The career fair provides insights on some of those opportunities.”

—Adam Lohofener (MSEE, '06)
Garmin design engineer and recruiter

Graduate Spotlight

Meet Rabat Anam Mahmood, Fulbright Scholar and Master's Student



What are your top tips for new students?

I think respect is the most important thing in life. Respect not only for others but above all for yourself. If you can learn to respect yourself, confidence and commitment will follow.

Can you describe a specific failure or challenge that you encountered at KU and how you overcame it?

I married my husband a month before coming to the States, and I greatly missed him. After about six months of complete madness, my husband finally got his visa. Apart from that, I was not used to so many assignments, exams, and deadlines. All the moral support from my family kept me going. We now have a cute baby boy who keeps us busy.

Can you describe a typical day?

A typical day starts with me getting ready for work and taking my boy to his sitter. For most of the day, I am busy with my research and writing my thesis, which I completely enjoy. My evenings are dedicated to my son who takes control and charges my batteries for the next day.

Please explain your research.

I am developing a real-world simulation where a communications network is confronted by several challenges, including natural disasters, mistakes, or attacks. I am studying network survivability in these different scenarios. Research will lead to a network designed to be as resilient and fault tolerant as possible.

What has your overall experience been as an EECS student?

I have thoroughly enjoyed my studies as an EECS graduate student and am trying to gather as much knowledge as I can. I am deeply indebted to all of my EECS professors.

Where do you see yourself in the next five years?

I am interested in the education of women in Pakistan. In the next five years, I see myself as a competent and committed university professor in Pakistan. ■



Graduates

Fall/Winter 2007

Ph.D. Graduates

Erik Akers, "Autonomous Mobile Robot Localization in Large-Scale Environments Using Only a Camera," Ph.D. CS, Advisor: Dr. Arvin Agah

Daniyal Alghazzawi, "Inferring Cognitive Learning Styles in e-Learning Environment," Ph.D. CS, Advisor: Dr. John Gauch

Erik Anderson, "Abstracting the Hardware/Software Boundary through a Standard System Support Layer and Architecture," Ph.D. EE, Advisor: Dr. David Andrews

Rakesh Rajbanshi, "OFDM-Based Cognitive Radio for DSA Networks," Ph.D. EE, Advisor: Dr. Gary Minden

Richard Stansbury, "Constraint-based Task Selection and Configuration for Autonomous Mobile Robots," Ph.D. CS, Advisor: Dr. Arvin Agah

Aravind Chandramouli, "A Co-operative Web Services Paradigm for Crawler Support," Ph.D. CS, Advisor: Dr. Susan Gauch

Pradeep Natarajan, "Expert System-Based Post-Stroke Robotic Rehabilitation for Hemiparetic Arm," Ph.D. CS, Advisor: Dr. Arvin Agah

Soshant Bali, "Detection and Mitigation of Impairments for Real-Time Multimedia Applications," Ph.D. EE, Advisor: Dr. Victor Frost

M.S./B.S. Graduates

Thamer Abuyasin, MSCoE

Peter Adany, MSEE♦

Samer Adra, BSCS

Monica Barrientos, BSCS

Kannan Chandrasekaran, MSCS

Weiping Chang, MSEE

Daniel Coldham, BSCS

Matthew Cook, MSCS■

Christopher Coonts, BSEE

Michael Cram, BSCoE

Woods Denny, BSEE

William Dower, MSEE

Adam Doyle, BSCS

Sergey Dremin, BSCoE

Viswanath Ganta, MSCoE

Jordan Guffey, MSEE♦

John Hansen, BSCS

Kevin Higgins, MSCS

Thomas Higgins, MSEE■

Christopher Jeffries, BSCoE

Vitaliy Karakuts, BSCS

Sergey Kardash, BSCoE

Jonathan Kensler, MSCS

Mark King, BSCoE

William Kritikos, MSCoE

Dileep Kumaraswamy, MSEE

Praveen Lakkaraju, MSCS

Nicholas Mabry, BSCoE

Serhiy Morozov, MSCS

Satyasree Muralidharan, MSCoE

Divya Sadashiv Naikwadi, MSCS

Manjunath Narayana, MSCoE

Joshua Noronha, BSCS

Srikanth Pagadarai, MSEE

Atchutha Rama Vivek Pakalapati, MSCS

Benjamin Panzer, MSEE

Zachary Parr, MSCS

Sunil Peechu, MSEE

Victor Petty, MSCoE♦

Tyrian Phagan, BSCS

Vinay Reddy, MSCoE

Stephane Richard, BSCoE

Adam Riha, BSCS

Shane Santner, MSEE

Ramachandran

Sathyanarayanan,

MSEE

Andrew Schmidt, MSCoE

Shilpa Sirikonda, MSCoE

Mark Snyder, MSCS♦

Mark Stockmyer, MSCS♦

Afzal Syed, MSEE

Edward Szczuka, MSEE

Ilya Tabakh, MSCoE

Udaya Kiran Tadikonda, MSEE

Hamid Tahmasebi, MSCS

Bhargav Theertham, MSCS

Philip Weaver, MSCoE♦

Frederick Weidling, MSCoE■

Tiaotiao Xie, MSEE

Spring 2008

Ph.D. Graduates

Timothy R. Newman, "Multiple Objective Fitness Functions for Cognitive Radio Adaptation Engines," Ph.D. EE, Advisor: Dr. Joseph Evans

Heather Amthauer, "Applying Machine Learning Methods to Suggest Network Involvement and Functionality of Genes in *Saccharomyces cerevisiae*," Ph.D. CS Advisor: Dr. Costas Tsatsoulis



Ph.D. students Richard Stansbury (left) and Erik Akers test equipment for the Polar Radar for Ice Sheet Measurements (PRISM) project. Stansbury is now on the faculty at Embry-Riddle Aeronautical University, and Akers is a faculty member at Elizabeth City State University.

Photo Courtesy of Megan E. Gannon

Garrin Kimmel, "Monadic Representation and Refinement of System-Level Properties," Ph.D. CS
Advisor: Dr. Perry Alexander ♦

Pradeepkumar Mani, "A Framework for Service Differentiation and Optimization in Multi-hop Wireless Networks," Ph.D. EE, Advisor: Dr. David Petr

M.S./B.S. Graduates

Deebu Kizhakkekara Abi, BSCoE♦

Daniel Alam, BSEE

Joel Angelone, BSCS

Manoharan Madhumitha Aruna, BSCoE

Craig Berscheidt, BSCoE

Daniel Beuthien, BSEE

James Bley, MSCoE

Ramkumar Bommireddipalli, BSCS

Matthew B. Booth, BSEE

Alexander Brand, BSEE

Tristan Bull, BSCoE

Alma Delia Calderon, BSCS

Andrew Campbell, BSCS

Ryan Cantrell, BSCS

Owen Carnes, BSCS

Matthew Casper, BSEE

Julio Castillo, BSEE

Adam Chaudhry, MSCS

Rama Surya Chikkam, MSEE

Adam Chura, BSCS

Nicholas Conquest, BSEE

Matthew Cook, BSEE

Evan Culver, BSCS

Jyothermayee Dass, MSCS

Justin Donnell, BSCS

Thomas Dorsey, BSEE

Daniel Duda, BSCoE

Robert Elliott, BSCoE

Brandt Elster, BSEE

Susan Enneking, BSCS

Brent Everest, BSEE

Lance Feagan, MSCS

Zachariah Fellers, BSEE

Milagros Figueroa

► Spring graduate Adam Chura (CS) has a little fun with the camera.

▼ (left to right) CoE majors Brett Werling, Deebu Kizhakkekara Abi, and Adam Powell share a laugh at the Spring EECS Graduation Reception.



▲ Michael Jantz (CS) and his parents attend the spring Graduation Reception.

◀ Heather Owen (EE) and EECS Professor and Associate Chair of Undergraduate Studies Dave Petr pose for a photo after Owen received the EE Outstanding Senior Award at the reception. For a complete list of award winners, please see page 21.



Menacho, MSEE
 Jacob Martin Foiles, BSCoE♦
 Alexander Gerling, BSCS
 Daniel Gomez-Garcia
 Alvestegui, BSEE
 Kumar Goundan, MSCS
 Margaret Grattan, BSCS
 Thomas Gregor, BSCoE
 Shannon Griswold, BSCS
 Luke Grover, BSCS
 Erkan Gungor, BSEE
 Lijun Guo, MSCS
 Jesse Hall, BSCS
 Mahmood Abdul Hameed, MSEE
 Samuel Hanson, BSCS
 Brett Harrop, BSCS
 Robbie Hernandez, BSCoE
 Marc Hess, BSEE
 Stephen Janes, BSEE
 Michael Jantz, BSCS
 August Johnson, BSCoE
 James Johnson, BSCoE
 Alexander Kaun, BSCS
 Ryan Eric Kovar, BSEE
 Deepti Krishnan, BSEE
 Jason A Kroge, BSCS
 Balachandra Kumaraswamy,
 MSEE
 Ian M. Lacy, BSEE
 Christopher Larson, BSEE
 Bradley Lewis, BSCoE
 Kiran Marathe, MSEE
 Praveen Mohandas, BSCoE
 Harmanjot Mokha, BSEE
 Wesley Curtis Muessig, BSCoE
 Heather Owen, BSEE ♦
 Andrew Palmer, BSEE
 Bhadrak Patel, BSCoE
 Paul Pechin, BSCS
 Levi Pierce, MSCoE ♦
 Adam Pierson, BSCS
 Jorge Luis Pizzaro Zapata, BSCS
 Adam Powell, BSCoE
 Bharatwajan Raman, MSEE
 Prashanth Rengaswamy Chandran,
 MSEE
 Paul Runanu, BSEE
 Witold Rzepnicki, MSIT
 Gorkem Sevinc, BSCS

Mutharasu Sivakumar, MSEE
 Tyler Smith, BSEE
 John South, BSCS
 Venkatesh Sridhar, BSCoE
 Rajesh Tenukuntla, MSEE
 Tsam Kai Tsui, BSCS/BSEE
 Jayanth Venkataraman, MSCS
 Frederick Vinograd, BSCS
 James Waymire, BSEE
 Brett William Werling, BSCoE
 John Wigner, BSCS
 Michael Wu, BSCS/BSEE
 Matthew Joseph Zeets, BSCS

Summer/Winter Graduates

Ankit Agarwal, MSCoE
 Saad Alnahedh, BSEE
 Supreetha Aroor, MSEE
 Evan Christopher Austin, BSCoE
 Jason Bengel, MSCS
 James Blakesley, MSCS
 Tsz Ping Chan, MSEE♦
 Priyanka Cheerla, MSCS
 William Stryker Clausen, BSCS
 Kanagaraj Damodaran, MSEE
 Madhuri Devaraju, MSEE
 James A. Ford, BSCS
 Randall James Friesen, BSCS
 Justin Lee Hendricks, BSCS
 Jamieka Sharnique Hines, BSEE
 Michael Hughes, MSEE
 Aravindkumar Ilangovan, MSCS
 Arif-Ur-Rahman Joarder, MSCS
 Matthew Jones, MSCS
 Andrew Kannenberg, MSCS
 Manasa Keshavachandra, MSEE
 Shravan Kumar Kuchikulla, MSCS
 Ravi Teja Kundeti, MSCS
 John Ledford, MSCoE
 Seak Fei Lei, MSCS
 Shruthi Tirumalai Mohan, MSCS
 Rabih Mrad, MSEE
 Anthony Newnam, BSCS
 Harish Mitra Panamgipalli, MSEE
 Leela Parimisetti (Varee), MSEE
 Bogdan Pathak, MSEE♦
 Abhinav Peddi, MSCoE
 Deepthi Puthalapatt, MSEE



BSEE graduates Nicole Schnell (left) and Jamie Hines celebrate their upcoming winter graduation.

Vidya Ramachandran, MSEE
 Madhusudhan Ramakrishnan,
 MSEE
 Dinesh Raveendran, MSCS
 Gino Pedro Enrique Rea Zanabria,
 BSCoE
 Sean E. Sanders, BSCS
 Nicole Schnell, BSEE
 Devin W. Scrogum, BSEE
 Jordan Robert Shaw, BSCS
 Qian Shi, MSEE
 Aaron Smalter, MSCS
 Mark Soenen, MSCS
 Jared K. Straub, BSCS
 Nicholas Lee Studt, BSCS
 Sathyanarayanan Sundhararajan,
 MSEE
 Ryan Christopher Trader, BSEE
 Adam Kenton Van Horn, BSCS
 Supriya Vasudevan, MSCS
 Madhuri Velugotla, MSEE
 Steven Thomas Warinner, BSCS
 Christopher Wirgler, BSCS ■

♦ Graduated with Honors

■ Graduated with Departmental Honors

EECS Graduation Reception

The following students were honored at the May 17 event.

Ellermeier Memorial Award

A nontraditional student with outstanding scholastic achievement is the recipient of the Ellermeier award. It is given in honor of former EE Professor and Associate Dean of the Graduate School Robert Ellermeier.

Mark Davis

Everitt Award

The International Engineering Consortium sponsors the Everitt Awards, which are reserved for EECS seniors in the top 10 percent of their class. Winners must be interested in communications and computers and involved in outside activities.

Joel Angelone, CS; **Ryan Kovar**, EE

Paul F. Huebner Memorial Awards

Paul Huebner was a KU graduate with a B.S. in accounting, concentrating in CS, and a M.S. in CS. The award is intended to reward good teaching and encourage students to consider teaching as a career.

Maryam Mahani, EECS 128; **John Gibbons**, EECS 138 Web; **Jim Stevens**, EECS 541/542

Richard K. & Wilma S. Moore Thesis Award

This award is given in honor of Distinguished Professor Emeritus Richard Moore. The best graduate thesis and Ph.D. dissertation are honored.

Thomas Higgins, Master's; **Soshant Bali**, Ph.D.

Outstanding Senior Award

Based on overall achievement, the award is presented to a graduating senior in CS, CoE, and EE.

Brett Harrop, CS; **Adam Powell**, CoE;

Heather Owen, EE

Rummer Awards

Professor Emeritus Dale Rummer's dedication to engineering design was the impetus for the award. The awards are given for outstanding work done by seniors in EE and CoE capstone design courses.

Matt Cook, **Daniel Alam**, **Ryan Kovar**, **Ian Lacy** (EE)

Craig Berscheidt, **August Johnson**, **Adam Powell** (CoE) ■



(Left to right) EE seniors Matt Cook, Ryan Kovar, Daniel Alam, and Ian Lacy stand next to their capstone project, which was part of NASA's CanSat (canned satellite) competition. The prototype contains sensors, a microcomputer, and a radio to send collected data.

CReSIS Examines Ancient Ice to Predict Climate Change

By Katie Oberthaler

For three weeks this August, Center for Remote Sensing of Ice Sheets (CReSIS) researchers conducted surface-based radar research at the North Greenland Eemian Ice Drilling (NEEM) site. Temperatures in Greenland were 3–5 degrees Celsius warmer during the Eemian period than today. Ice samples from this era, which ended approximately 115,000 years ago, could improve projections for how the current climate will evolve.

EECS Assistant Professor **Carl Leuschen** and CReSIS technician **Dennis Sundermeyer** mapped the layers down to the bedrock at 2,500 meters below the surface. The Interferometric Synthetic Aperture Radar (SAR) data was collected by towing a sled with an array of 12 antennas over the ice behind a Toyota Land Cruiser.

“We needed something that was light-weight and rigid and adaptable to different situations,” Sundermeyer said.

REU student Ryan Cummings and EECS Professor Christopher Allen mount antennas on the sled that carried radar used to map ice layers this summer. For more on the Research Experience for Undergraduates (REU) Program, see page 15.

CReSIS-developed, surface-based radar provided a picture of the internal layers and helped determine where the least deformed ice may be found at NEEM. While the ice core provides detailed data at a single location, the echograms produced by CReSIS will allow scientists to extend this information over a broader area, to improve understanding of the ice’s age, movement patterns, and thickness.

Researchers hope to continue similar work in other regions. In the future, Sundermeyer would like to survey between two drill locations to better understand how ice varies over a larger region.

The NEEM site is led by The University of Copenhagen, in collaboration with partners in 13 other countries.

For more information, please visit the NEEM web site: <http://neem.ku.dk/>. ■



EECS Assistant Professor Carl Leuschen (standing) and CReSIS technician Dennis Sundermeyer show off the makeshift solution devised after the bearings broke on the vehicle towing the radar sled.

Photo Courtesy of NEEM



Seguin Quiets Din

EECS Assistant Professor **Sarah Seguin** was not scheduled to begin her new job until late summer. But when radio interference began hampering the team's preparation for a summer mission to Greenland, the Center for Remote Sensing of Ice Sheets (CReSIS) called on the new hire. Within a month, Seguin redesigned and deployed a "noisy" accelerometer. The expert in electromagnetic compatibility then went to Calgary, Alberta, Canada, to ensure the new instrumentation worked with the plane and other CReSIS technology. Furthermore, highly sensitive radar is required to measure ice thickness in the outlet glaciers. Seguin says it was a big challenge to eliminate all noise within a certain range of frequencies so that CReSIS radar worked properly. All electronic devices radiate unintended energy. With multiple laptops and radar in a small aircraft with its own electronic devices, the devices could create a cacophony of interference. Seguin established compatibility among the electronic equipment. She also confirmed communication between radar and ground-based vehicles and unmanned aerial vehicles (UAVs) worked properly. ■

CReSIS Participates in Int'l Polar Year

The International Polar Year (IPY) is a global research effort to better understand the polar regions and their climatic effects on Earth. The "Year," which runs from March 2007 to March 2009, gives scientists two summers to conduct research. More than 60 countries participated in IPY.

During IPY, the Center for Remote Sensing of Ice Sheets (CReSIS) conducted two major field experiments—one in Greenland and another in Antarctica. The 2008 Greenland research project is profiled on the adjoining page.

The 2007 Antarctica expedition included a special guest, **Brandon Gillette**, a science teacher at Olathe North High School. He spent November and December living and researching with polar scientists in Antarctica and blogging about his experience. Gillette was selected through the PolarTREC

program, which enables K-12 teachers to participate in polar research. Experiences are used in the classrooms to improve science education.

CReSIS researchers documented conditions at the West Antarctic Ice Sheet (WAIS) divide. Similar measurements over time will contribute to an improved understanding of, and ability to predict, the impact of changes in polar ice sheets on sea level and climate.

Additionally, the KU Spencer Museum of Art will showcase CReSIS items as part of its "Climate Change at the Poles" exhibit, which runs until May 24, 2009. Students in the KU School of Fine Arts designed the winning "CReSIS—International Polar Year commemorative poster, 2007." ■



Brandon Gillette and Penn State grad student Knut Christianson created the CReSIS snow sculpture during downtime in Antarctica. Gillette, a high school science teacher, spent two months working with CReSIS researchers in late 2007.

Photo Courtesy of Brandon Gillette



KU Collaborates on NASA Effort

Future Lunar and Martian surface communication systems will need to transmit large amounts of scientific and operational data while adhering to severe size, weight, and power (SWaP) constraints.

A multi-institution, NASA-sponsored research project will develop communication systems for future missions. EECS Assistant Professor **Erik Perrins** serves as the principal investigator for KU. The University of Alabama and lead institution Wichita State University are collaborators. Perrins and his students will develop miniaturized hardware for four specific scenarios: astronauts to surface assets in immediate vicinity, astronauts to the main hub (assuming line of sight), back-up link for astronauts to the main hub (assuming no line of sight), and main hub to Earth.

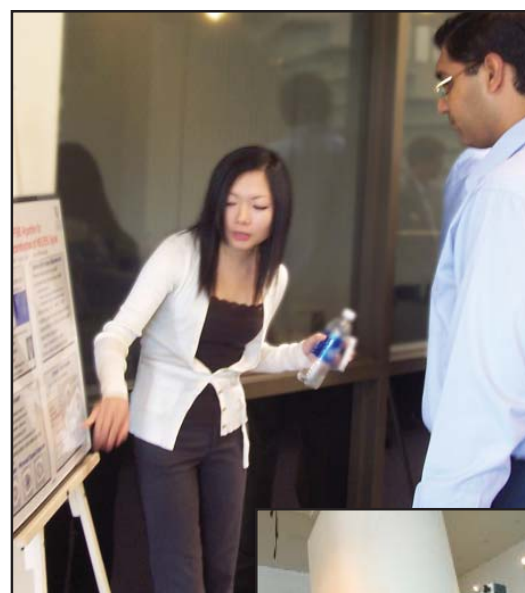
Most of the antenna research will be conducted at Alabama with WSU leading system integration and testing. ■

Novel Image Processing Leads to Insights on Brain Function, Disorder

Greater understanding of healthy brain function and the changes caused by illness and age could significantly improve treatment of Alzheimer's disease and other neurological disorders.

EECS Assistant Professor **Shannon Blunt** has teamed up with the Hogland Brain Imaging Center (HBIC) at KU Medical Center to develop novel image processing for a new brain scan technique, magnetoencephalography (MEG). Blunt, HBIC Research Assistant Professor **Mihai Popescu**, and EE graduate student **Tszping "Charley" Chan** have developed a patent-pending processing method, the Source AFFine Image REconstruction (SAFFIRE). Early SAFFIRE results have yielded unprecedented accuracy, enabling the precise localization of primary auditory responses.

MEG identifies the origins and corresponding time sequences in response to mental tasks. More than 100 MEG sensors surround the head and look inward at a very enclosed space. SAFFIRE's ability to accurately process the dense signal environment makes it unique. ■



▲ ▲ EE graduate student Charley Chan explains her signal processing research to a fellow graduate student. Chan helped create patent-pending technology to more accurately process brain imaging scans.



▲ A magnetoencephalograph (MEG) is used to identify the origin and time sequence in response to a given task. By better understanding brain function, scientists can treat neurological disorders more effectively.

Photo Courtesy of John Jordan

Location, Location, Location...

Kansas City Development Group Aims to Create International Inland Port in the Metro

While Kansas City has long served as a regional hub for commerce, developers are working to turn the metro into an international inland port. Its central location within the continent and nation and abundant transportation network make Kansas City an ideal distribution center for global goods, according to KC SmartPort. The economic development group has teamed with KU researchers and regional industry to develop secure, efficient transportation corridors.

Principal Investigator **Victor Frost**, Dan F. Survey distinguished professor of EECS, leads the research effort at KU's Information and Telecommunication Technology Center (ITTC). Recently, ITTC researchers attached active electronic seals to rail container cars. A locomotive was outfitted with a system to receive signals from the seals and a communication link to the Internet. ITTC-developed hardware and software, known as the Transportation Security SensorNet (TSSN), integrated

the different components. If seals are broken or tampered with, TSSN sends text messages and e-mail to authorized individuals.

Combining real-time tracking and associated sensor information, TSSN works independently of the operator. This is critical, given supply chains often involve multiple modes of transportation. ITTC researchers are concentrating on these intermodal points, such as transitions from rail cars to trucks.

TSSN has been integrated with another SmartPort component, the Trade Data Exchange (TDE). Developed by EDS, an HP company, TDE is a secure information clearinghouse for cargo designed to provide real-time supply chain visibility and cargo security. TDE stakeholders access detailed, aggregated supply chain information



Four major railroads serve Kansas City, making it the largest rail hub in the nation in terms of volume. The region boasts a substantial transportation network that KC SmartPort is looking to turn into a international inland port. As part of that effort, KU researchers are developing secure transportation corridors.

Photo Courtesy of KC SmartPort

online. TDE serves as a secure information clearinghouse for cargo, which stakeholders will be able to access online. The data exchange will be operational by the end of 2009, according to **Chris Gutierrez**, president of KC SmartPort.

"Our partnership with ITTC and EDS has been great. Victor and the team bring a tremendous amount of knowledge and experience to our project and have allowed us to move quickly," says Gutierrez. ■

Alumni Spotlight

Meet Craig Sparks (BS EE '94, MS EE '96), Research Engineer at Sprint Nextel

What are your top tips for students nearing graduation?

I highly recommend students take a technical writing course. As engineers, they will spend much of their careers communicating ideas in writing: e.g., proposals, test plans, and reports. Additionally, they should plan on spending time improving their written and oral presentation skills throughout their careers.

What can be a challenge when first entering the workforce?

You will need to be able to ask and listen to what your colleagues professionally need of you; never be afraid to ask them.

What does a typical day look like for you?

A typical day for me can range from gathering information, developing test plans, implementing test cases, and documenting results to providing company-wide technology choice recommendations through technical assessments. The exciting thing about my work is every day can bring something new, and I always know “the next best thing” is just around the corner to evaluate.



Photo Courtesy of Craig Sparks

What are your favorite KU/EECS memories?

The lasting personal and professional relationships I formed during graduate school.

Why would you say KU is the place to earn an excellent EECS education?

Speaking from my electrical engineering experience at KU, the school provides a very well balanced mix of theory and practical laboratory experience. I have visited the undergraduate labs several times over the past few years and can say they are among the best I have ever seen. The labs and the excellent faculty in the Department provide a top-notch opportunity for students to immerse themselves in design challenges that are representative of real-world situations they will soon be facing.

Do you have any insights or parting comments you'd like to share with readers?

It is not a cliché to say that your engineering degree is just the start of your education. Productive participation and advancement in your career really will take a life-long commitment to learning. Unlike college, however, those learning opportunities will not be brought to you as easily; you will have to seek them out. Never lose the spirit that got you interested in learning about engineering in the first place, and you will do well. ■

AppleScript Creator Drives Technological Innovation

Less than a decade after graduating, [Warren Harris](#) (BSEE '83, MSEE '84) designed a programming language that would empower “regular” Mac users. The AppleScript language allows non-programmers to customize applications and enhance functionality. By writing instructions, or scripts, users can automate repetitive and time-consuming tasks, such as creating charts or cropping photos, and efficiently manage complex workflows.

“I think one of the most impressive things about AppleScript is that it’s still going strong after all these years,” says Harris. “For quite a long time, it was the only way that desktop publishing firms could automate and orchestrate all the applications they needed to put together their publications quickly and efficiently.”

While the basic idea of AppleScript was enthusiastically embraced, it would be a difficult vision to achieve. The team persevered for more than two years to create AppleScript. The language premiered in 1991 as part of the much-anticipated System 7 operating system.

“We were committed to a platform that we all loved and were convinced was far superior to the stuff coming from Microsoft/IBM,” says Harris.

Throughout his career, Harris has advanced the state of the art. His work at Apple led him to the company General Magic, which was trying to create the first hand-held “personal digital assistant” (PDA). From there, he led the integration of Java into the Web browser at Netscape Communications and founded the company Kontiki to develop secure peer-to-peer delivery technology.

In 2008, he joined a new company, Metaweb Technologies. Metaweb is creating an online database, [freebase.com](#), of world facts and human knowledge, which users will be able to freely edit. It represents a return to some of the AI research that he did with EECS Professor [Gary Minden](#) while at KU.

“If it hadn’t been for Dr. [Gary] Minden, who encouraged me to explore my interests in AI and took me on as a graduate student in his research lab to pursue them, I probably would not have the opportunity to be doing the work I’m doing today,” Harris says. “I felt that KU EE really gave me a solid basis for problem solving, pragmatic engineering, and ability to think abstractly and creatively about the problem in question.” ■

“If it hadn’t been for Dr. [Gary] Minden, who encouraged me to explore my interests in AI and took me on as a graduate student in his research lab to pursue them, I probably would not have the opportunity to be doing the work I’m doing today.”

—Warren Harris



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Thank you for your generous and continued support. Your donations enable student scholarships, special awards for faculty, laboratory upgrades, and other important EECS projects. Below are the FY 2008 endowed contributions.

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▲ ▲ EECS
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 Tom Dorsey
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▲ Ph.D. student and U.S. Air Force Major Geoff Akers conducts research in the Radar Systems and Remote Sensing Lab at ITTC. He is developing radar systems able to perform dual operations simultaneously. Current systems are limited to providing either image mapping, such as Google Earth, or moving target detection and tracking.

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