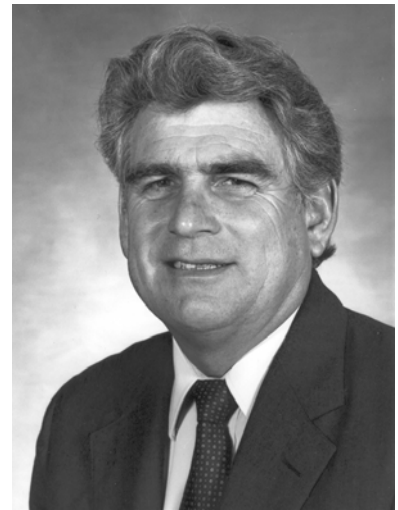




**Kansas State University
Summer 2005**

In Memory of Don Hummels



During the Advisory Council meeting on April 22, 2005, the Electrical and Computer Engineering department dedicated a memorial to Dr. Don Hummels to recognize his numerous contributions and service to the department. Don was a highly respected and loved professor. This display will allow us to honor his contribution and continue to draw inspiration from his memory.

Donald R. Hummels, 67, Manhattan, died Thursday, February 19, 2004 at Mercy Regional Health Center.

He was born on June 30, 1936, in Morris, IL, the son of Raymond and Helen (Kamm) Hummels.

Dr. Hummels joined the faculty of the Electrical Engineering Department at Kansas State University as an Assistant Professor in 1970, after earning his B.S.

(1967), M.S. (1968) and Ph.D. (1969) degrees at Arizona State University. While in Arizona, he was employed by Motorola Inc. for 13 years. At K-State he was promoted to Associate Professor in 1974 and professor in 1981. From 1982 to 1989, he served as department head and was appointed to a LeRoy Paslay Professorship in 1988. Dr. Hummels retired from the Electrical and Computer Engineering Department at K-State in May of 2001.

Dr. Hummels has been recognized for undergraduate teaching numerous times. The awards include the Eta Kappa Nu Distinguished Faculty Award, the James L. Hollis Award for Excellence in Undergraduate Teaching, the Myers-Alford Memorial Teaching Award, and the Robert R. and Lila L. Snell Distinguished Career Award for Excellence in Undergraduate Teaching.

He married Katherine "Kay" (Bossi) Hummels on March 2, 1957, at the St. Anthony's Catholic Church in Joliet, IL. She survives of the home.

Other survivors include three daughters, Susan J. Schulteis and her husband Lee of Perry, IA, Jeanne M. Wallace and her husband Mark of Winston-Salem, NC, and Jill Hummels and her husband Tim Carpenter of Lawrence, KS, two sons, Donald M. Hummels and his wife Sharon of Glenburn, ME, and Mike R. Hummels and his wife Beth of Adel, IA; two sisters, Charlotte Codack of Berwyn, IL, and Helen LaBounty of Greeley, CO; and 10 grandchildren.

Memorial contributions may be sent to the KSU Foundation care of the Donald R. Hummels Electrical and Computer Engineering Scholarship Fund.

Greetings from the Department Head



It has been a year since I became Interim Head of the Electrical and Computer Engineering Department after our previous head, Dr. David Soldan, stepped down after serving for 15 years in this position. Needless to say, it has been a learning experience. A large part of the learning has to do with dealing and communicating with people at all levels, including students, parents, alumni, staff, faculty, and university administrators. A big challenge is to satisfy an individual's needs while keeping the overall good of the department in mind. As we move forward, we must address several important issues. The foremost is the upcoming ABET visit in fall 2005, so the department has been humming during the past year in preparation for this visit. Since assessment of student learning outcomes is an important item for ABET, we have been putting a lot of effort into it.

Another important issue is to boost the research expenditures for the department. EECE faculty members have been actively writing new proposals, and new contracts for research projects have been signed during the past year. Additional increases in research funding can be made by hiring top quality new faculty. We conducted a nationwide search for two positions last year. Prof. Jim DeVault, Prof. Dave Soldan, and I made trips to Georgia Tech, the University of New Mexico, and the University of Washington to recruit candidates for these positions. The K-State ADVANCE Institutional Transformation Project provided funding for these trips. We interviewed several excellent candidates and hired Dr. Caterina Scoglio of Georgia Tech (see the article later in this newsletter). While we increase research produc-

tivity, we cannot lose sight of the excellent undergraduate education we provide. We have introduced a new course, entitled New Student Assembly, for freshmen students to ease their transition to college life. We will also be experimenting with the concept of learning communities for the incoming students in fall 2005. Learning communities are groups of people with common goals who help each other and learn from each other as a team. It has been shown that students who participate in learning communities have a higher probability of success in college.

The third important issue for the department is increasing diversity both at the faculty and student levels. In fall 2004, approximately 9% of our 473 undergraduate students were women and 7% were underrepresented minorities. Although these numbers are respectable, we can do more to attract women and underrepresented minority students to our department. With the addition of Dr. Scoglio, the department will have three women out of 19 faculty members.

We also initiated the Electrical and Computer Engineering Academy in January 2005. Response from alumni to this initiative has been excellent. I would like to thank the Advisory Council members for their suggestions and help. The Advisory Council held its annual meeting on April 22 in Manhattan. We had lively discussions on various topics relevant to the department.

While we set priorities for the next year and beyond we have to keep these issues as well as others in mind. The future is full of challenges, and we strive to excel while facing these challenges.



Anil Pahwa
Interim Department Head

EECE department home page:

www.eece.ksu.edu

Electrical and Computer Engineering Academy Launched

The EECE Department initiated the Electrical and Computer Engineering Academy in January 2005. This academy recognizes alumni and friends who partner with EECE. The academy provides corporate and professional leaders with the opportunity to impact electrical and computer engineering education and personally interact with department faculty and students.

Academy Goals:

- Recognize electrical and computer engineering alumni and friends who bring honor to their profession
- Strengthen the dedication of current students in electrical and computer engineering through interactions with academy members
- Provide advisory guidance and counsel at the request of the department head, faculty or students
- Provide financial support through membership gifts for the benefit of electrical and computer engineering at K-State

Benefits from Membership Contributions:

- Scholarships and fellowships to recruit outstanding undergraduate and graduate students
- Student leadership activities (Eta Kappa Nu, Institute of Electrical and Electronics Engineers, EECE Graduate Student Council, and Solar Car)
- Professional development for faculty and staff
- Equipment and supplies to support active learning and team projects
- Travel for student professional development

Individuals and organizations can join the EECE Academy by contributing directly to the department or to a Scholarship Fund designated for the department. Contributions can be made any time via mail or during the annual Telefund.

The academy members for 2005-06 (contributions made prior to June 30, 2005) follow:

Corporate Partner

Cadence Design Systems Inc
Conoco Phillips
FBI
Midwest Energy Inc
Midwest Industrial Development Inc
National Instruments
SBC Communications Inc
Texas Instruments Foundation

Benefactor

John Devore
Richard Donaldson
Gilbert Ferguson
Eddie Fowler
Donald Gemaehlich
Jeffrey Hamilton
Don Lenhert
Logan Family Trust
Samuel Logan
Larry Martin
Steve Reiter
Dennis Ruckert
Fred Sachen
Kevin Schoen
Sprint Foundation

Seaton Society

Lisa Anderson
David Ayers
Sue Barsamian
Ben Bellinder
Calvin Gooden
Richard Hendricks
John Huff Jr
Bedford Magnus
Robert Moyer
Shawn Mulvaney
Randall Smischny
Thomas Stade
Duane Townley
Terry Weaver
Nathan West
Robert Zrubek

Partner

Dale Allen
Leland Allen
John Clayton
William Conway
Clinton Davis
Steve Dent
Kirk Duncan
Patrick Harris
Kenneth Hass
Burns Hegler
James Heise
Lawrence Hoffman

Dallas Kibbe
William Laubengayer
Robert Liebert
Doug Lutz
Gerald Miller
James Mosimann Sr
James O'Connor
Robert Phelps
Steve Richards
Roger Riggert
Linus Schmitz
A J Scribante
Bob Smith
Thomas Stegmann
Timothy Suellentrop
Leland Townley
John Walters
Robert Washburn
Dennis Zitterkopf
Feng Zou

New Graduate

Collin Delker
Qun Gu
Matthew Jones
Nicholas Wasinger

Scholarship Funds Designated for Electrical and Computer Engineering:

- Allen (CD/BT)
- Bunte (H/H) Memorial
- Burton (Lester W)
- Conoco Phillips
- Crawford (G M)
- Davis (J) Family
- Dillon (DA/J)
- Donaldson (R/M)
- Evans (IJ)
- Ferguson (G/M)
- Fetterhoof (VE)
- Fiedler (GJ/AD)
- Fosmire
- Fowler (Eddie R)
- Gemaehlich (D)
- Hewson (K D/M E)
- Hummels (DR) Memorial
- Hunt (O/L)
- Jenner TR-2
- Jones (JJ/LL) Memorial
- Jorgenson (LM) Memorial
- Kloeffler
- Ku (Ko-Fang H) Memorial
- Lenhert (D)
- Magnus
- Peterson (M) Memorial
- Philips Lighting
- Rose
- Ruckert (M M) Memorial
- Severtson, (MD)
- Sprint Multicultural
- Sprint Computer Engineering

- Sprint Electrical Engineering
- Vanderwilt
- Ward
- Wellman, (H & M.G.) Family
- Wollner

Become a Member

YES! I would like to become a member of the Electrical and Computer Engineering Academy.

Name _____
Address _____
City _____
State _____ ZIP _____
Daytime Phone _____
Email _____

Enclosed is my check or credit card authorization:

- \$2,500 - **Corporate Partner**
- \$1,000+ - **Benefactor**
- \$500 - **Seaton Society**
- \$250 - **Partner**
- \$50 - **New Graduate** (first 3 years)
- Other \$ _____

Check enclosed, payable to KSU Foundation

Please charge my credit card:
Card # _____ Exp. Date _____
Cardholder's
Signature _____

Return to: KSU Foundation
2323 Anderson Ave., Suite 500
Manhattan, KS 66502-2911

**Thank You for your dedication to
excellence in electrical and computer
engineering education!**

Kudos

Alumni Awards

Dr. John B. Slaughter, President and CEO of the National Action Council for Minorities in Engineering (NACME) and a 1956 graduate of the department, received the Arthur M. Bueche Award in 2004.

The National Academy of Engineering established the Arthur M. Bueche Award in 1982 to recognize statesmanship in science and technology, as well as active involvement in determining U.S. science and technology policy, promoting technological development, and contributing to

enhancement of the relationship between industry, government, and universities.

David L. Abrams and Dr. Ramiro Jordan received the Professional Progress Award in 2004.

David L. Abrams graduated from Kansas State University in 1985 with a bachelor's degree in electrical engineering. He is a vice president at Black & Veatch, serving as director for the design-build group in the Water Americas Division. He has been with Black & Veatch since 1985, previously holding various positions in the power delivery and power generation area.

Ramiro Jordan completed both the M.S. and Ph.D. from Kansas State in Electrical Engineering in 1984 and 1987, respectively. He is Associate Professor and Associate Chair of the Department of Electrical and Computer Engineering at the University of New Mexico; Vice President of World Information Technology Solutions Group; Vice President and Director of Strategy and Planning of the Ibero-American Science and Technology Consortium; Adjunct Professor of Electrical and Computer Engineering at Universidad Nacional de La Plata, La Plata, Argentina; and co-founder of the Khoros Group and Khoral Research Inc.

The Kansas State University College of Engineering recognizes successful alumni in the midst of their professional careers and accomplishments. Each department head nominates their selection based on superior career achievement during the first 20 years after graduation from K-State. The Dean's final choice is determined by significant success demonstrated by one or more of the following:

1. Professional accomplishments
2. Service to society and/or the profession of engineering
3. Support of the K-State College of Engineering
4. Other distinguished activities
5. Promise of continued success

Faculty Awards

Dr. William Kuhn received the Paslay Professorship in Electrical and Computer Engineering.

The renewable award recognizes an out-

standing professor in the Department of Electrical and Computer Engineering and provides three years of supplemental funding for developmental activities of the recipient's choice.

Dr. Kuhn joined the faculty at K-State in 1996 following completion of his doctorate from Virginia Tech. His areas of expertise include analog and digital circuits and systems, wireless telecommunications and integrated circuit design. He has worked professionally in both academic and industry settings since 1979 and has received numerous honors for teaching and research including the Eta Kappa Nu Distinguished Faculty Award and the Hollis Award for Excellence in Undergraduate Teaching from K-State, as well as the Bradley Research Fellowship from Virginia Tech.

The Paslay award was established in 1990 through an endowment provided by LeRoy C. and Aileen Paslay, whose lifetime gifts to K-State total more than \$5 million. The Paslay Lecture Hall in the K-State engineering complex was also named in their honor. LeRoy Paslay earned a Bachelor of Science in Electrical Engineering from K-State in 1930, and a Master of Science in the same discipline in 1934. He was awarded an honorary doctorate from the College of Engineering in 1986. Much of his professional career was spent with the Marine Petroleum Corporation.

Dr. Norm Dillman received the Eta Kappa Nu Distinguished Faculty Award. This is an annual award given to an EECE faculty member based on voting by Junior and Senior students.

Dr. Medhat M. Morcos received the Robert R. and Lila L. Snell Distinguished Career Award for Excellence in Undergraduate Teaching. This award is given annually by the College of Engineering to one of its faculty members.

Dr. Shelli Starrett was given the Professional Progress in Engineering Award by Iowa State University. Award winners have made outstanding contributions to engineering fields and are younger than 45 years old.

Dr. Don Gruenbacher, Dr. William Kuhn, and Dr. Medhat M. Morcos were given the "Making a Difference Award" by the Women in Engineering

and Science Program.

Dr. Medhat M. Morcos was honored by the Kansas State University Chapter of Mortar Board National College Senior Honor Society.

Student Awards 2004-2005 Academic Year

David Thompson, senior in Electrical Engineering, has been selected for the prestigious Barry M. Goldwater Scholarship. He is emphasizing the biomedical option within electrical engineering, with minors in physics and Japanese. He plans to pursue a doctorate in biomedical engineering and seeks an academic career.

K-State students have now won 53 Goldwater Scholarships since the program began in 1989. K-State is ranked first in the nation among all 500 four-year state universities in the number of Goldwater winners. Including both the 500 public schools and 1,500 private colleges and universities in the nation, only Princeton, Harvard, and Duke have produced more Goldwater scholars.

Justin Dyer, a master's student in electrical engineering, received a National Science Foundation Graduate Research Fellowship. The National Science Foundation awarded 1,020 graduate research fellowships this year. The fellowship is for three years and totals \$120,000. Justin will research ways to improve quality of service for cellular phones and other wireless technologies.

Chris Weber, a May 2005 graduate in electrical and computer engineering, was named one of five national finalists for the Alton B. Zerby and Carl T. Koerner Outstanding Electrical or Computer Engineering Student Award issued by Eta Kappa Nu, a national honor society for electrical and computer engineering students. Last year Kristen Kitten was selected as a national finalist for this award.

Keil Regehr, a master's student in electrical engineering, received the Zweifach Student Award from the Microcirculatory Society.

Amy Bartak, Jack Bauer, Daniel Kaminsky, Nicola Kinzie, Jimmy Kummer, Junius Penny, Brian Platt, Scott Rock, Austin Wareing, and Chris We-

ber were recognized as Knights of St. Patrick during the 2005 Open House.

The department placed second in the Open House Parade. This is the second year in a row for a second place finish.



Open House Skit

During Open House 2005, Jarrod Wood placed first for his project “Exploding Wires,” Brian Platt placed second for his project “FM Broadcast Transmitters” and Austin Wareing placed third for his project “Optimization of Reflectance-Mode Pulse Oximeter Sensors” in the Outstanding Technical Display Competition. Thanks to Garmin for donating the GPS Units for the first and second place awards.



Brian Platt, Jarrod Wood, Austin Wareing

2003-2004 Academic Year

Jack Bauer, Scott Rock, and Austin Wareing received the Tau Beta Pi Engineering Honorary National Scholarship. Kansas State University was the only university to receive three out of the 40 awarded nationwide.

Daniel Bayouth received the National Physical Science Consortium Fellowship.

Mackenzie Dewerff received the Phi Kappa Phi Award of Excellence.

Renee Ecklund received the Homeland Security Scholars and Fellows Award.

Hamed Funmilayo received the McNair Scholarship Award.

EECE Distinguished Lecture

Dr. Tom Overbye, Professor of Electrical and Computer Engineering, University of Illinois at Urbana—Champaign presented the first Distinguished Lecture entitled “What Lurks Behind the Outlet: Electricity Deregulation and the August 14th Blackout” on November 15, 2004.

Dr. Overbye received his B.S., M.S., and Ph.D. degrees in Electrical Engineering from the University of Wisconsin-Madison in 1983, 1988 and 1991, respectively. He was employed by Madison Gas and Electric Company from 1983 to 1991, where he worked to develop their real-time power system analysis software. He was the recipient of the IEEE Power Engineering Society Walter Fee Outstanding Young Engineer Award in 1993 and an IEEE Third Millennium Medal in 2000. He is also the original developer of PowerWorld Simulator, an innovative computer program for power system analysis and visualization, and a co-founder of PowerWorld Corporation. During Fall 2003 he served on the DOE August 14th blackout investigation team, leading the initial on-site investigations of First Energy and Midwest ISO.

The department intends to continue this new tradition by annually inviting a high profile person for distinguished lectures.

Dr. Dillman had been a faculty advisor to the K-State Solar Car Racing Team since its inception in 1995. He and his wife, Phyllis, participated in each of the team’s cross-country races. He was also faculty advisor to the K-State Society of Hispanic Professional Engineers and the K-State Amateur Radio Club.

Dr. Dillman earned three electrical engineering degrees from Iowa State University—B.S. 1960, M.S. 1962, and Ph.D. 1965. He spent 10 years on the Electrical Engineering faculty at the University of Missouri at Rolla, and from 1974 to 1990 was a design engineer and engineering manager at Hewlett Packard. He holds six patents for his inventions and is a registered professional engineer in Colorado. A Senior Life Member of the Institute of Electrical and Electronic Engineers, Dr. Dillman served as an accreditation visitor for ABET for 15 years.

Welcome



Dr. Caterina M. Scoglio will join the department in Fall 2005. Dr. Scoglio received the Dr. Eng. Degree in Electronics Engineering from the University of Rome I (La Sapienza), Italy, summa cum laude in May 1987. From June 1987 until June 2000 she was a research scientist with the Telecommunication Network Planning Group at the Fondazione Ugo Bordoni National Research Center in Rome, Italy. Since September 2000, she has worked as a research engineer with the Broadband and Wireless Networking Laboratory of the School of Electrical and Computer Engineering at Georgia Institute of Technology. She served on the technical program committees of several leading computer networking conferences. She has been the PI of an NSF funded research project on Internet traffic engineering since September 2001. Her research interests are network resource management, design and optimization of the Next Generation Internet, and optical networks.

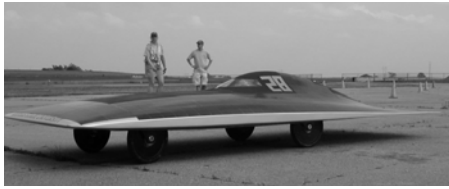
Good Bye



Assoc. Dean and Mrs. Gallagher, Dr. Dillman, Dean Rathbone

Dr. Norman “Norm” Dillman, Professor of Electrical and Computer Engineering, has retired after 15 years with the College of Engineering. He was associated with the Advanced Manufacturing Institute and the Manufacturing Learning Center during much of his time at K-State.

Solar Car is Ready to Rumble



The KSU Solar Car Racing Team has been working all year to build the fourth solar car, Paragon. The new car is a "manta" shape, with the driver further back and lying flatter than in the CATALYST. The car uses silicon "A300" solar cells, rated at 20% efficient, as well as a square meter of triple-junction gallium arsenide solar cells, rated at 27% efficient. Two different cell types means two different maximum-power-point trackers, the circuits designed in-house with consulting help from alumni. The lithium-ion battery pack is similar to CATALYST's, but it weighs 5 kg less while storing the same amount of energy.

Mechanical engineering innovations include carbon fiber incorporated into the suspension and caliper brakes similar to those used on mountain bikes. Overall, the car weighs slightly less than CATALYST and should produce considerably more power. The team is excited to test its design in the North American Solar Challenge (at 2500 miles, the longest solar car race in the world) from Austin Texas to Winnipeg and west, ending in Calgary, Alberta, Canada. The race begins on July 17 and ends on July 27. About 30 teams are expected to take part.

Check out the latest Solar Car News

www.engg.ksu.edu/solarcar

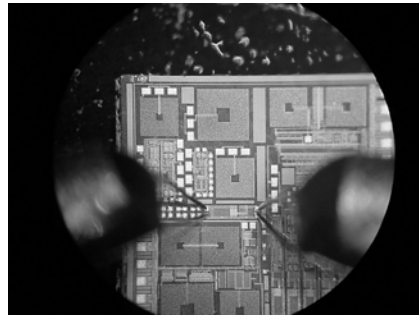
Mission to Mars



Laboratory testing of the Mars Microtransceiver

During the early decades of the twenty-first century, a stream of robotic missions

will be launched to support the exploration of Mars. Miniaturized, lightweight and low-power advanced telecommunications systems are among the needed technologies. Radio transceivers, measuring less than 1.5 x 1.5 x 0.3 cm and operating at fractions of a Watt, will enable the design of new types of Mars exploration craft ranging from low-cost, networked ground sensors/rovers to airplanes or balloons. The transceivers will communicate collected scientific results to earth by relaying data through Mars orbiters already under development and support surface-to-surface links for geographically extended local exploration.



Die photo of UHF receiver IC

The goal of this project, for which Dr. William Kuhn has received funding from NASA, is to develop an application specific integrated circuit (ASIC) microtransceiver meeting these objectives. The development effort will leverage previous research activities conducted at NASA/JPL, Kansas State University, and academic institutions, as well as recent advancements in Silicon-on-Sapphire IC design and electronic packaging technologies. The final demonstration prototype will bring the development to a technology readiness level of 6, suitable for operation in the Mars temperature and radiation environments.

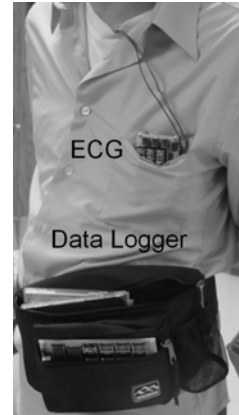
Uplink

Uplink is an annual newsletter of the Department of Electrical and Computer Engineering, Kansas State University.

Editor: Anil Pahwa

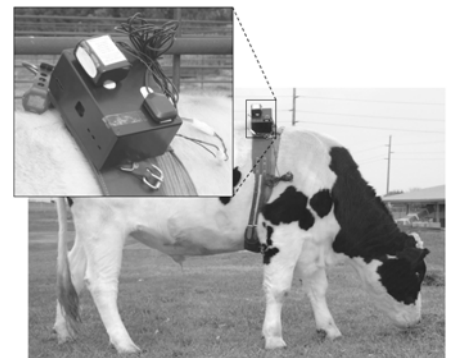
Send feedback and suggestions to pahwa@ksu.edu or send them via mail to the address listed on the back cover.

Wearable Health Monitors



With funding from the National Science Foundation CAREER and ITR programs, Dr. Steve Warren is developing wearable sensors and the supporting information infrastructures to monitor human and animal health. These

systems utilize Bluetooth and ZigBee telemetry to create wireless body area networks and to connect wearable data loggers with nearby receiving stations. The human prototype, designed using plug-and-play interoperability standards such as the ISO/IEEE 11073 Medical Information Bus, demonstrates that it is feasible to construct wearable home health care systems 'on the fly' that are matched to patient monitoring needs. This system includes a wearable electrocardiograph (ECG), wearable pulse oximeter, weight scale, ambient temperature/humidity sensor, wearable data logger, and LabVIEW-enabled base station. The animal system, which utilizes a similar architecture to monitor cattle, may allow a rancher to prevent the spread of disease (whether from natural causes or bioterrorism) while at the same time improving meat quality. The current system acquires animal heart rate, core body temperature, movement, GPS location, and ambient temperature/humidity. This team effort involves partners from the Department of Computing & Information Sciences and the College of Veterinary Medicine.





Council Goals:

- Take a leadership role in encouraging department alumni and friends to provide service and financial support to the department.
- Provide a connection among faculty, students, and organizations represented by council members.
- Provide advice regarding EECE research and degree programs.

Current members: (L to R)

Anil Pahwa, Kansas State University

William N. Dowling, Midwest Energy, Inc.

Terry R. Weaver, Delta Resource Group

Earl Creel, Sandia National Laboratories

David L. Abrams, Black & Veatch

Stuart Gillen, National Instruments

Ann Martin, Enginio

Douglas L. McKinley, Sprint LDD

Tracy Olivier, Garmin

Cal Gooden, Freescale

Gerald O. Burnham, University of Texas—Dallas

Neeraj Magotra, Texas Instruments

Not pictured:

Roderick K. Blocksome, Rockwell Collins

Michael R. Casey, ICE Corporation

Mark Graham, Crown International

*For more information on
the Advisory Council
visit our website:

[www.eece.ksu.edu/
advisorycouncil/index.html](http://www.eece.ksu.edu/advisorycouncil/index.html)*

Year in Pictures



Halloween



Christmas Party



Open House Parade

Alumni Questionnaire

Name _____ Degree(s) _____ Year(s) _____

Home Address _____ Phone _____

City/State/Zip Code _____ Email _____

Employer _____

Address _____

Job Title _____

Job Responsibilities _____

News _____

Mail to UPLINK, Department of Electrical and Computer Engineering, 2061 Rathbone Hall, KSU, Manhattan, KS 66506



Department of Electrical and
Computer Engineering
2061 Rathbone Hall
Manhattan, KS 66506

Notice of nondiscrimination

Kansas State University is committed to nondiscrimination on the basis of race, sex, national origin, disability, religion, age, sexual orientation, or other nonmerit reasons, in admissions, educational programs or activities and employment (including employment of disabled veterans and veterans of the Vietnam Era), as required by applicable laws and regulations. Responsibility for coordination of compliance efforts and receipt of inquiries concerning Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and the Americans With Disabilities Act of 1990, has been delegated to Clyde Howard, Director of Affirmative Action, Kansas State University, 214 Anderson Hall, Manhattan, KS 66506-0124, (Phone) 785-532-6220; (TTY) 785-532-4807.