

# IMPACT



2008 Quarter-scale tractor team

# MESSAGE FROM THE DEAN

At the fall convocation in late September, I introduced our new vision statement:

*The Kansas State University College of Engineering will be a highly ranked college providing quality education within a research environment that develops engineering leaders to benefit society.*

Established through the efforts of many, these words embody our core traditions of excellence in engineering education. We've inscribed them on the atrium wall, posted them on our Web site, and you'll be seeing them in many of our materials, starting with this issue of *Impact*.

As we commit to the guiding principles of these words, we will also be establishing "communities of excellence" within the college—a term we've ascribed to, birthed from a concept in Jim Collins' book, *Good to Great*, whereby we understand what we can be the best at, and by focusing the best of our abilities at such, become the essence of perfection in those areas.

While identification of our communities of excellence is not yet complete, early contenders include sustainable energy, healthcare, sensors and materials, water, and others. Our next step, operating under the template of our newly launched strategic plan which you can view at <http://www.engg.ksu.edu/strategicplan/>, is to take aggressive and pertinent action in pressing on toward greatness in our chosen areas.

And as you'll likely note in the following pages, in the midst of this process, we are by no means in a holding pattern. Our achievements and successes continue in our student team accomplishments, outstanding recognition and research efforts of our faculty, and participation in joint efforts with Kansas engineering deans and Big 12 engineering schools to strengthen engineering education in expanded ways, to name a few.



As we focus in the coming months on realizing our vision through the framework of communities of excellence, we must never forget our charter to provide an engineering education that is balanced and up to date, and that develops engineers while instilling integrity and ethics. Such basics will not change, but rather be enhanced and revitalized as we move forward in our newly defined effort.

John R. English

Dean of the College of Engineering

## Quarter-scale tractor team tops international competition for seventh time

For the seventh time in the 11-year history of the event, a team from Kansas State University has won the International Quarter-Scale Tractor Design Competition.

This year's competition was May 29–June 1 in Peoria, Ill. It is sponsored by the American Society of Agricultural and Biological Engineers.

The K-State Powercat Tractors Quarter-scale Design Team placed first overall out of 24 teams from schools across the U.S. and Canada by accumulating the most

points in the competition categories of performance, written report, oral report, design judging, and maneuverability. K-State was first in the 1,050-pound performance pull and tied for first in the 1,300-pound performance pull.

In addition, the K-State X-Team placed third overall in the X-team competition, including receiving first place on the oral report part of the event. The X-team is made up of freshmen and sophomores who compete using last year's tractor.

Members of the team are K-State

biological and agricultural engineering majors from the College of Engineering and agricultural technology management majors from the College of Agriculture..

"I continue to be very impressed with the K-State Powercat Tractors Quarter-Scale Design Team," said Gary Clark, professor and head of the department of biological and agricultural engineering. "They are hard working, dedicated, and highly talented students who also exhibit very professional behavior and great sportsmanship."

—K-State Media Relations

# INSIDE THIS ISSUE

PAGE 2 . . . GALLAGHER STEPS DOWN

4 . . . ENGINEERING EDUCATION

6 . . . FOCUS ON RESEARCH

8 . . . TEAM COMPETITIONS

11 . . . NOTEWORTHY

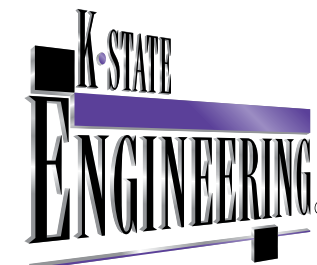
12 . . . FACULTY AWARDS



3



10



6



10



9



2

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**Editor**  
Mary Rankin

**Art director**  
Rich Gardner

**Graphic designer**  
Bob Davis

**Photographers**  
Dan Donnert  
Al Rankin

On the cover, left to right: Matthew Shephard, ATM; David Becker, ATM; Robert Beyer, BAE; Matthew Grollmes, BAE; Benjamin Ross, BAE; Jared Unrau, ATM; Mark Neeland, BAE, seated; Clay Reinecke, BAE; Byron Yeager, BAE; Douglas Grollmes, BAE; Andrew Broeckelman, BAE; and Daniel Martin, BAE.

COVER STORY



# GALLAGHER

## Closing out a 40-year career

For some, even 40 years is not enough time to get it all done. This is the attitude of Associate Dean for Academics and Administration Richard Gallagher who will enter into 0.6-time phased retirement in January 2009.

"After dedicating 40-plus years to my professional career at K-State," Gallagher said, "I am well aware that abruptly dropping such commitment and dedication is simply not a possibility. And there are some projects that haven't been completed to my satisfaction."

Gallagher joined the department of electrical engineering as an assistant professor in 1968, after completing B.S., M.S., and Ph.D. degrees in electrical engineering from Iowa State University.

He moved up the ranks to associate and then full professor in 1982, accepting the position of associate dean for academics and administration in 1997. He served as interim dean in 2006–2007 before returning to his present position last August when Dean John English was hired.

His phased-retirement duties will encompass mentoring his replacement in areas dealing with administrative issues; the organizational/operational format of student services, recruitment, and leadership development areas; and related support programs, academic programs, and resources associated with the college's financial/personnel/facilities. He will maintain his involvement with the College of Engineering scholarship program and related development efforts, and continue to focus on enhancing diversity activities.

"As associate dean," Gallagher said, "I have placed the college's learning environment as a top priority. This has included providing high quality technological infrastructure in the classrooms and laboratories, expanding activities of the Multicultural Engineering Program, and nurturing the Women in Engineering and Science Program from its beginning in 1999. I have also been very supportive of tutoring/mentoring programs and learning communities.

"We are very fortunate to have implemented 10 years of the K-State LEA/RN™ (Learning Enhancement Action/Resource Network) program as a professional development opportunity for faculty in engineering and across campus. Adjustments have been made in our classrooms by moving to a new paradigm of teaching, from the strictly lecture approach to that of being experiential with

a focus on problem-based learning," he said.

Gallagher has witnessed numerous changes in the college over the years, including the expansion of engineering facilities with the three-phase building project of Durland Hall, Rathbone Hall, and Fiedler Hall and renovation of Seaton Hall. He lists the renovation of Nichols Hall and the move of computing and information sciences from arts and sciences to engineering as a plus as well.

"We have seen a tremendous increase in endowment activity," he said. "One result of this effort has allowed us to double engineering scholarship support in the last five to six years to more than \$1.5 million."

Personal accomplishments during his tenure include leading development of the Board of Regents-approved bioengineering option in electrical engineering; serving as K-State Faculty Senate President, 1983–1984, and University Ombudsperson, 1990–1997; and coordinating two successful ABET accreditation visits, 1999 and 2005.

To his successor, Gallagher offered this advice: "Be calm, be a good listener, be honest and trustworthy, act with integrity, be timely with responses, be a team player, be prepared to adjust

your schedule, and don't be surprised at anything . . . note, you'll be working with people!"

In the future, he sees a greater emphasis on interdisciplinary efforts; more attention given to retention of students; accreditation of programs that will require an assessment of diversity activities; and academic programs with a greater sensitivity to international developments, sustainability, safety, and security issues.

Gallagher was named the 2006 Kansas State University Advisor of the Year, sponsored by Blue Key National Honorary. He received the Robert R. and Lila L. Snell Distinguished Career Award for Excellence in Undergraduate Teaching, 2003; the LeRoy Paslay Outstanding Teaching and Research Award, 1993 and 1995; the American Society for Engineering Education's Centennial Certificate of Recognition, 1993; the All-University Conoco Excellence in Undergraduate Teaching Award, 1992; and the James L. Hollis Memorial Award for Excellence in Undergraduate Teaching, College of Engineering, 1977–1978.

—by Mary Rankin

**"Be calm, be a good listener... act with integrity... be a team player..."**

# First-in-the-nation faculty **HPBD** designation for Keen

Julia Keen, assistant professor of architectural engineering, is the first engineering faculty member in the nation to achieve the designation of High-Performance Building Design (HPBD) Professional. Keen passed a certification exam to earn the designation from the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

The HPBD professional certification program identifies individuals who have demonstrated the necessary training and tools for the design of high-performance buildings that live up to their performance capability.

"I thought the high-performance building exam aligned with my area of expertise," Keen said. "High-performance building design looks at how building systems function most efficiently. It was full scope and that's really what my training as an architectural engineer has been—looking at the whole building, including all systems—heating, ventilation, air conditioning, lighting, and plumbing."

Keen believes adding the certification not only gives her additional credibility as a professional engineer, but that it also adds to her standing in the classroom.

"Behind my name I get to list not only my P.E., professional engineer certification, but I can also list HBPD, for High-Performance Building Design Professional," she said. "I thought it was important to set an example for my students, not only being conscious and capable of sustainable design, but also to walk the talk by continuing my personal professional development."

David Fritchen, head of the department of architectural engineering and construction science, also believes that Keen's certification gives her an added edge in the classroom.

"In today's building, implementing innovative technologies for

energy-efficient and sustainable design is essential," Fritchen said. "By earning the HPBD Professional Certification from ASHRAE, Professor Keen has an increased awareness and knowledge of environmentally friendly designs for new and existing building which she can incorporate into her classes."

With energy prices on the rise, sustainable design is more important than ever, Keen said.

"My perspective on sustainable design is that it should be standard practice for engineers and it should be the standard request by owners," she said. "In the past it's been a problem because owners who paid for the building weren't apt to pay more for a building that was more energy efficient because energy was so inexpensive."

"We've seen energy rates go up as well as a consciousness of resource conservation, so there is now more public awareness encouraging building owners to be more sustainable or 'green.' Owners have become more willing to pay for advanced design and installation of these systems. Prior to the rise in energy prices, owners often could not justify these expenditures because they didn't pay for themselves fast enough to make business sense. We're starting to see that these designs pay back more quickly and the commercial sector recognizes that the public is starting to

make purchasing decisions favoring those companies that make sustainability a priority."

Keen said teaching high-performance design is not a new concept in engineering classrooms.

"Good designers have been designing for more sustainable buildings for years," she said. "It just has a new name now. My philosophy and the department's is that we have been teaching 'green' design for years and it now has a new marketing factor. I'm finding that the newer generation of students coming in has a much greater sensitivity to this kind of design. Having this licensure helps me prepare them to incorporate sustainable design into their education."

As the first faculty member to receive the certification, the university and department can both be proud of Keen's achievement, Fritchen said.

"Professor Keen is a highly competent engineer and is serious about her role in building design engineering," he said. "She stays on the leading edge of sustainable building design and has prepared herself well for this paradigm change in the building environment."

—by Megan Wilson  
K-State Media Relations



Left to right: Taylor Lewis, ARE; Julia Keen, asst. prof., ARE; Darren Rottinghaus, ARE; and Susan Nagel, ARE.

# Pursuing and meeting changing needs in engineering education

## Consortium tackles workforce needs

Providing enough engineers to fill the workforce needs of nuclear energy facilities in the Midwest is a challenge facing colleges of engineering across the Big 12 Conference.

At the second annual Summit of the Big 12 Engineering Consortium, Sept. 14–15 in Kansas City, nuclear industry leaders met with Big 12 engineering representatives to establish clear lines of communication with regard to nuclear workforce needs.

Keynote speaker Dale Klein, chairman of the Nuclear Regulatory Commission, applauded the consortium's efforts to prepare graduates to enter the nuclear workforce, considering the current significant demand for trained engineers.

"Universities, community colleges, business groups, government agencies, and utilities need to work together to meet the needs of the nuclear workforce across all levels of training and educa-

to enroll in engineering coursework is always more successful when scholarship support is available," said John English, dean of the K-State College of Engineering and chair of the Big 12 Engineering Consortium, a multi-state consortium offering distance education programs in engineering.

A panel discussion comprised of executives from the Wolf Creek Nuclear Operating Corporation, Nebraska Public Power District & Cooper Nuclear Station, and Omaha Public Power District spoke to the educators about the specific types of engineering needs and competencies required for this workforce.

Students across the Big 12 can enroll on their own campuses to take fully online nuclear engineering courses from Kansas State University, Texas A&M University, University of Missouri, and the University of Texas at Austin, the four consortium schools with nuclear

engineering programs. Topics range from introductory nuclear concepts to utilization of nuclear technologies, and foundations of nuclear engineering to radiation protection and shielding. A summer institute is also being planned where students will be able to participate in on-site training at universities with reactors.

Member institutions of the Big 12 Engineering Consortium, funded in part by the U.S. Department of Energy and the U.S. Department of Education Fund for the Improvement of Postsecondary Education, include Baylor University, Iowa State University, Kansas State University, Oklahoma State University, Texas A&M University, Texas Tech University, University of Kansas, University of Missouri, University of Nebraska-Lincoln, University of Oklahoma, and the University of Texas at Austin. More information about the consortium is available at [www.big12engg.org](http://www.big12engg.org).



NRC chairman Dale Klein, left, visits with Mo Hosni, MNE professor, at the Big 12 Engineering Consortium summit.

tion," said Klein. "The fact that students enrolled in any of the Big 12 schools can take online nuclear engineering courses is a major achievement and will go a long way toward helping the nation meet the growing need for professionals with nuclear engineering training."

Klein also encouraged the consortium to lobby for federal support in the form of scholarships for nuclear engineering students.

"It's essential that we meet this challenge to train and educate men and women to work in the nuclear energy field. And encouraging more students

## Deans take their case to Statehouse, request additional funds

Deans of the three major engineering schools of Kansas universities presented a unified front to lawmakers in asking for financial help to increase the number of engineers.

Deans from Kansas State University, Wichita State University, and the University of Kansas lobbied for \$15 million a year at the House-Senate Committee on Economic Development on Sept. 19.

"There is a shortage of engineers not only in Kansas but across the nation," said John English, K-State's dean of engineering. "We believe that Kansas can step up and fill this void."

The three schools graduate about 875 students a year, which is far below the state's needs. The money would help add 500 more graduates a year.

The deans presented information to the committee showing there were 350 to 400 engineering positions unfilled in the Wichita aviation industry. Garmin, the global-positioning systems manufacturer, has 400 engineering positions open that will likely go unfilled.

"Our engineering college is ranked 60th in



Engineering deans, left to right, John English, K-State; Zulma Toro-Ramos, Wichita State; and Stuart Bell, KU, testify before Kansas House-Senate Committee.

the country," English said. "And 80 percent of our graduates leave with industrial experience. We are just unable to keep up with the demand of the industry."

The money would go to hire new faculty members, increase recruitment, allow schools to offer more scholarships, and let high school students take classes for college credit.

"Above all we want to change the public perception of engineering," said Zulma Toro-Ramos, dean of engineering at Wichita State. "Right now the belief is that a student must excel at math and science to be successful in engineering. Students can be average in those courses and still be a successful engineer."

The request for money comes at a time

when the economy is in an almost fiscal free fall.

Karin Brownlee, committee chairwoman, called the request "daunting."

The deans understood the committee's concerns but said the money would be helpful to the economy in the long run.

"We are offering a partnership here," English said. "The \$15 million would translate to many times that in the economy."

Stuart Bell, engineering dean at the University of Kansas, said the money would be phased in over the next five years.

"We would be looking to our industry friends and alumni for help also," he said. "Kansas has been changing the globe with our graduates for a long time."

Dean English said overall he was pleased with the proceedings.

"I came away from the meeting encouraged, and I think the committee is earnestly interested in helping us," he said. "Our main goal was to present a unified front to show how big a problem this shortage of engineers really is."

—by Brad Dornes, K-State Collegian

## Secondary major a 'first' for K-State engineering

A recently approved secondary major in biological engineering is an academic program that will enable K-State engineering students to pursue their interests in the biological sciences while working toward a primary engineering major.

A secondary major at Kansas State University is defined as an "... interdisciplinary major which must be completed along with the first major course of study." A secondary major in biological engineering will provide students with an opportunity to develop expertise in biological sciences within a collaborative, interdisciplinary environment built upon the strengths of individual departments within the College of Engineering.

By pursuing biological engineering as a secondary major, the program recognizes the inherently interdisciplinary nature of the field, permits students to pursue their

interest in biological topics independent of their selection of a particular major, provides a common framework from which students can explore interests ranging from premedicine to fermentation, and fosters a collaborative environment for students and faculty with interests in these topics.

"This approach was pursued for several reasons," said John Schlup, chemical engineering professor and program director of the advisory committee established to oversee and advance this initiative. "There is no question as to the ever-increasing importance of biotechnology and the biological sciences to today's society. Engineers from a variety of disciplines find themselves collaborating on interdisciplinary

projects with extensive biological components.

"Graduate programs in biomedical engineering might be found in any of several different departments, such as chemical, electrical, or mechanical engineering. Students utilize several disciplines from the physical sciences and engineering to prepare for medical school. With the expanding roles of biotechnology and the life sciences in today's world, many engineering departments have established options in biological engineering, or similarly named fields, or have added a biologically related modifier to their departmental name."

In the process of keeping disciplines relevant, care must be taken to maintain a truly

interdisciplinary perspective.

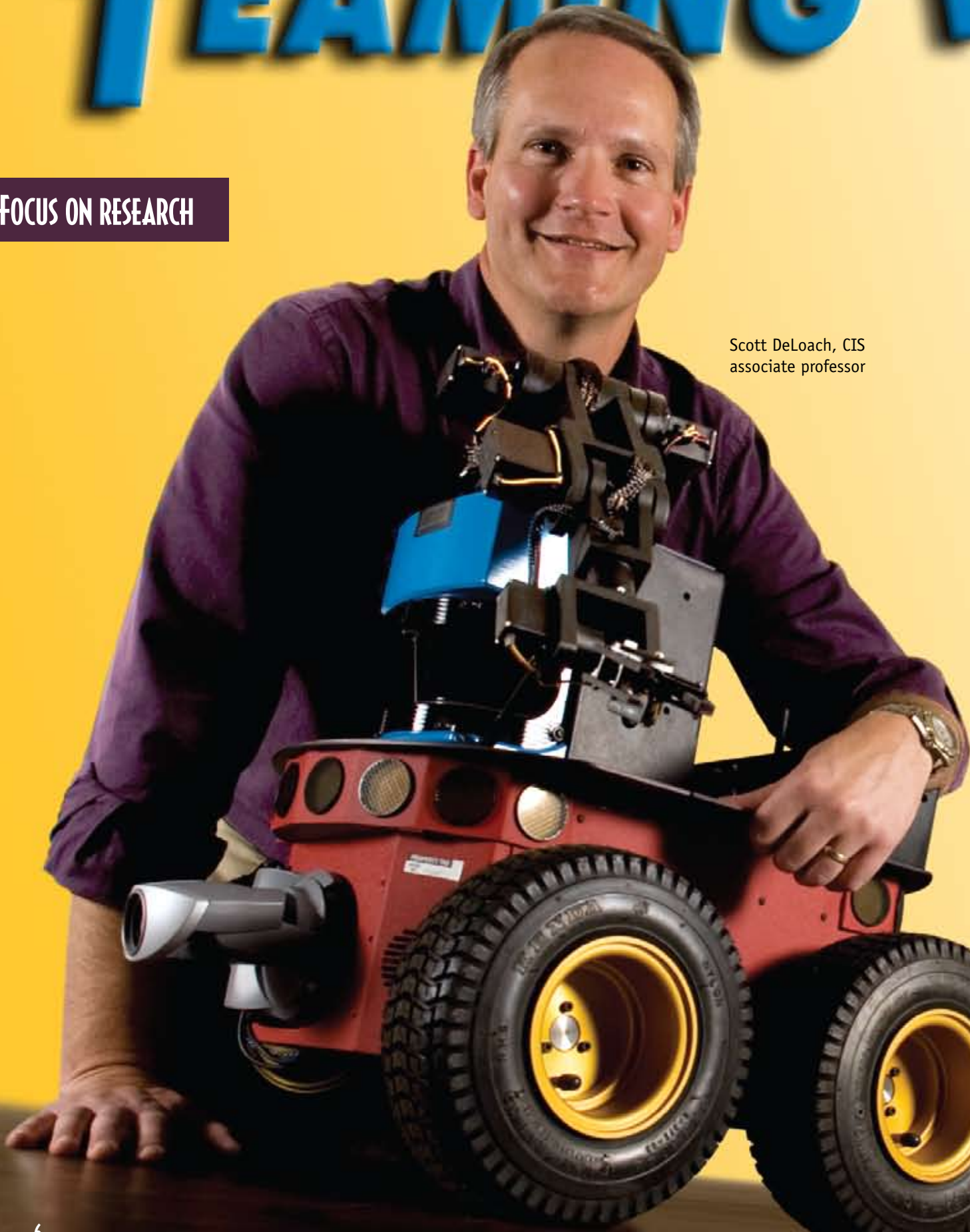
"This is particularly true," Schlup said, "when the subject is not only interdisciplinary, but one in which the interests of the students can range from premedicine to pharmaceuticals to biofuels. The creation of a secondary major in biological engineering seemed to provide a unique solution to allowing engineering students to pursue an engineering career while both developing the interdisciplinary perspective required for this emerging field and tailoring a program of study specific to their interests."

A committee of advisors from interested departments was formed to oversee the secondary major, and participation from students from all engineering departments is expected as the program takes hold.

continued on page 9

# TEAMING WITH ROBOTS

## FOCUS ON RESEARCH



Scott DeLoach, CIS associate professor

From the sweet and caring robotic maid Rosie on *The Jetsons*, to quirky R2D2 and his protocol partner C-3PO of *Star Wars*, to the chilling humanoid Sonny of *I, Robot*—popular culture has taught us to expect an expanded role of robots in our future.

And although not quite the human-looking, English-speaking mechanisms portrayed by the entertainment industry, robotic research is an ongoing focus of engineers in the department of computing and information sciences (CIS) in the College of Engineering at K-State.

Put another way, the MultiAgent and Cooperative Robotics (MACR) Laboratory at K-State focuses on applying software engineering methods, techniques, and models to the design and development of intelligent, complex, adaptive, and autonomous multiagent systems.

“One part of this research that people are probably most interested in and an area that could definitely impact their lives is the notion of humans working with robots in teams,” said Scott DeLoach, MACR Lab director and CIS associate professor.

Funded by the National Science Foundation, U.S. Air Force Office of Scientific Research, and U.S. Marine Corps in conjunction with M2 Technologies, DeLoach and CIS faculty collaborator Dave Gustafson as well as Julie Adams with the Human-Machine Teaming Laboratory at Vanderbilt University, are employing a two-pronged approach to this project.

“First,” DeLoach said, “we

are trying to give humans the ability to control or supervise teams of robots by interacting with them at the ‘team level’ instead of interacting with each robot individually.

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“... we are working on a scenario where robot teams can be used to replace human soldiers on the ground for reconnaissance missions.”

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“Right now, for the most part, a single robot is controlled by a single human, or even multiple humans, due to concurrent demands of image management, navigation, systems monitoring, and decision-making processes. When humans attempt to control robot teams, they do so by watching the overall team but interacting directly with a single robot at a time.”

Interacting at the “team level,” however, means that the human interacts with the robot team or organization by doing things such as manipulating team goals or changing roles that the various robots are playing within the team.

The second part of the approach involves integrating humans and robots into teams as peers. Here, humans and robots both play specific roles on the team and interact with each other to carry out their part of the team goals.

“Our research in this area includes determining how the robots should adapt to humans based on the capabilities the

robots possess; the jobs the robots and humans are performing at the time; and the various factors that affect the human’s performance such as situational awareness, training, experience, and fatigue,” DeLoach said.

A key area where this work will benefit society involves application with emergency responders to allow them to use robots with reduced distractions, thus permitting rapid situation assessment while reducing exposure to contaminants and potentially reducing fatalities.

“There are also several robot-based applications related to homeland security that will increase human capabilities by reducing exposure to dangerous situations and difficult terrain,” DeLoach said. “This work could also be used for people with restricted interaction capabilities such as the elderly and the disabled.”

“But our current applications tend to focus on military applications for robot teams, and we are working on a scenario where robot teams can be used to replace human soldiers on the ground for reconnaissance missions.”

DeLoach came to K-State and the CIS department in 2001 from the department of electrical and computer engineering, Graduate School of Engineering, Air Force Institute of Technology, where he had been an assistant professor. His three degrees in computer engineering are from Iowa State University, B.S., and M.S. and Ph.D. from the Air Force Institute of Technology.

“In general, I came to K-State after 20 years in the Air Force and have really enjoyed my time here,” he said. “Dr. [Virgil] Wallentine has been great to work for and has enabled me to pursue the research that I am interested in. I’m sad to see him stepping down as department head.”

“The CIS department as a whole is a great environment to work in— people really do enjoy working together and there is absolutely no jealousy or competition, so common in many departments at a lot of universities. That is the main reason I chose K-State over several other job offers.”

—by Mary Rankin

# Generous gifts from alumni and friends support student success

## TEAM COMPETITIONS AND AWARDS

Gifts from friends and alumni of the College of Engineering not only support scholarships, but also team activities that lead to success stories like the quarter-scale tractor and aero-design teams. The following student groups were also recognized for their 2007–08 accomplishments at the 25th annual College of Engineering Career Fair Recognition Banquet, Sept. 23.

- BAE robotics team, first, ASABE Competition
- ASHRAE team, second, international design competition
- Steel bridge team, second, ASCE Regional Conference
- Concrete canoe team, third, ASCE Regional Conference
- SAE formula team, tenth, SAE Formula West Competition
- Mini Baja team, twenty-fifth, SAE Mini Baja Competition
- Concrete construction team, first, international competition
- Fountain Wars design team, second, annual competition
- ATM club, first runner-up, Student Mechanization Branch Award
- ChemE Car team, second, Regional AIChE Chem-E-Car Competition
- Heavy/Highway team, first; Design/Build team, third; Commercial building team, eighth, Associated Schools of Construction, Region IV Annual Construction Management Competition

## AERO DESIGNERS LAND IN SECOND PLACE

Team members, all ME majors, left to right: Esteban Maradona, Matt Roberts, Josh Goertz, Greg Payne (team leader), Janessa Wedel, and Curtis Spicer.



A radio-controlled biplane designed and built by Kansas State University students landed in second place overall—and first among U.S. teams—in the regular class category at the 2008 Aero Design West, an international competition.

The K-State entry, “The Purple Diablo,” took second behind an entry from Ecole Polytechnique De Montreal. K-State also took second in the regular class category for the most payload lifted at 27.31 pounds.

The competition, sponsored by the Society of Automotive Engineers April 4–6 in Fort Worth, Texas, attracted 35 teams. The planes had to take off and land while carrying a maximum cargo.

“I am very proud of these kids for the amount of effort they put into all aspects of this extracurricular event, for their determination and dedication to task, and for the amount of engineering professionalism they exhibited at the competition,” said Terry Beck, K-State professor of mechanical and nuclear

engineering and faculty adviser to the team.

“The team spent all last semester and this semester working on the plane, and a lot of time was put in on weekends and breaks,” said Greg Payne, junior in mechanical engineering, Lenexa, and team leader.

“We had a more complex aircraft this year than previous years, in the fact that we’ve never tried a biplane before,” Payne said. “We also had some technologies on the plane that required additional research and time.”

Payne credited the team’s success to the dedication of the members. “At the competition, the team’s speed and precision on assembling the aircraft and reconfiguring and repairing the aircraft was impressive,” he said. “Things got pretty intense in the last flight rounds, but we pulled together, focused, and got things done quickly and efficiently.”

—K-State Media Relations

## Opportunity Award repays Stafford loans

Laura Torres is following the path of many new K-State engineering graduates. Gainfully employed in her first job—in her case as an assistant electrical engineer for Burns & McDonnell in the infrastructure group—she is learning to deal with finances and budgeting. But unlike many grads, Torres is not concerned with the repayment of her student loans.

She instead has had that burden removed by being a recipient of the Carter Opportunity Award. Established by Wichita native Eugene Carter and a part of the E. Eugene Carter Foundation for Excellence in Women in Engineering Fund, the award supports the retention and recruitment of students of Latino or immigrant backgrounds and is committed to fully repaying the Stafford Loans of 20 female engineering students upon completion of their degrees.

“I received the Carter Opportunity Award in fall 2006 through the Women in Engineering and Science Program at the beginning of my fourth year at K-State,” Torres said. “When Dr. Kimberly Douglas-Mankin told me about it, I thought she was joking—an award that would pay off all my subsidized Stafford Loans upon my graduation from electrical engineering in 2008!”

“And even though I received it at the beginning of my fourth year, it would cover all the Stafford Loans that I had received since my freshman year and would continue to do so through to my graduation, in the long run covering a total of five years.”



Laura Torres

Born in Bucaramanga Colombia, Torres moved with her family to McPherson, Kan., when she was 12. Even though her father is an engineer, Torres said she had never considered a career as an engineer herself until hearing a presentation about K-State engineering her junior year in high school.

“The Carter Opportunity Award,” Torres said, “took a great weight off my shoulders and gave me the freedom to concentrate on my studies and other activities instead of working.”

“Now that I’m out of school, I appreciate it even more. I am a new grad without loans—how many people can say that? I won’t be making monthly loan payments, but deposits to my savings account. I am forever grateful to Eugene Carter, not only for this award but also for the times I have met him and he has given me great advice.”

Donor gifts have a profound effect on students’ educational experiences. Increasing costs of tuition and fees force many students to choose between working and studying, especially in a curriculum like engineering that requires many hours on campus.

“If students have the opportunity that I had,” Torres said, “it is much easier to concentrate on the major factor of college, which

is to study and earn a degree. I hope many more girls can benefit like I did and hopefully, I will be able to pay it forward to some college students in the future.”

—by Mary Rankin

“Now that I’m out of school, I appreciate it even more. I am a new grad without loans—how many people can say that?”

## Secondary major a ‘first’ continued from page 5

Students must complete 10 basic courses in biology, chemistry, physics, and math as program prerequisites. At that point they must complete 24 credit hours beyond the prerequisites, with at least 10 of the 24 hours having biological content. Courses from a minimum of three departments are required to encourage an interdisciplinary approach. These 24 hours of coursework are selected from an approved list and must include at least four hours of additional chemistry or biochemistry, at least four hours of additional biological sciences, at least nine hours of engineer-

ing sciences, and a capstone course involving either undergraduate research or an engineering design experience in biological engineering.

“We anticipate the list of courses to be somewhat dynamic over time as departments develop new courses appropriate to this field and as the advisory committee considers the options available to participating students,” Schlup said.

—by Mary Rankin

## Engineering complex damaged by tornado



A tornado struck Manhattan on June 11, taking its toll on the K-State campus where major damage was incurred at the Durland/Rathbone/Fiedler engineering complex and Ward Hall. Also hit were Call, Cardwell, and Bushnell halls, as well as the wind erosion lab. Much of the estimated \$20 million in damages was in the form of broken windows, roof damage, and destruction of light poles and landscaping.

All major repairs to the College of Engineering were on task to be completed by late November. An all-college cleanup day was held July 8 with faculty, staff, and students pitching in on the effort.



## Engineers Without Borders president delivers lecture



Bernard Amadei

Bernard Amadei, professor of civil engineering at the University of Colorado at Boulder and founding president of Engineers Without Borders-USA presented "Role of Engineers in Poverty Reduction: Challenges and Opportunities" Nov. 10 in Fiedler Hall Auditorium as a part of the College of Engineering Eyestone Lecture Series

In the next two decades, almost two billion additional people are expected to populate the Earth, 95% of them in developing or underdeveloped countries. According to Amadei, this growth will create unprecedented demands for energy, food, land, water, transportation, materials, waste disposal, earth moving, healthcare, environmental cleanup, telecommunication, and infrastructure.

"The role of engineers," he said, "will be critical in fulfilling those demands at various scales, ranging from remote small communities to large urban areas, and mostly in the developing world. As we enter the first half of the 21st century, the engineering profession must embrace a new mission statement—to contribute to the building of a more sustainable, stable, and equitable world."

Amadei obtained his MaSc degree in civil engineering from the University of Toronto and his Ph.D. in civil engineering from the University of California, Berkeley. He was recently elected a member of the U.S. National Academy of Engineering.

At the University of Colorado at Boulder, he directs the Engineering for Developing Communities program, whose overall mission is to educate globally responsible engineering students and professionals who can offer sustainable and appropriate solutions to endemic problems faced by developing communities worldwide.

The founding president of Engineers Without Borders-USA and co-founder of Engineers Without Borders-International, Amadei guides these organizations under the mission to partner with disadvantaged communities to improve their quality of life through implementation of sustainable engineering projects, while involving and training internationally responsible engineering professionals and students.

The Eyestone Lecture Series, established in 2000, is funded by an endowment of the late Fred and Mona Eyestone. Fred Eyestone, a 1941 K-State graduate in electrical engineering, was a member of the College of Engineering Advisory Council and a Distinguished Service Award recipient.

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*Eyestone*  
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**LECTURE SERIES**

### Hayter honored by Tau Beta Pi

Richard Hayter, associate dean for external affairs, is the 2008 Tau Beta Pi National Outstanding Adviser. He serves as chief adviser to K-State's Gamma chapter of Tau Beta Pi, the engineering honor society.

The honor recognizes engineering faculty who make important contributions to



Richard Hayter

students and collegiate chapters. While the primary goal of Tau Beta Pi is to recognize students of superior scholarship and exemplary character and to honor eminent practicing engineers, the organization also lauds excellence in engineering education and in the ethical practice of engineering.

Hayter is the 15th national outstanding adviser to be named in honor society's program. He was recognized Oct. 25 at the 103rd annual national Tau Beta Pi Convention in Sacramento, Calif. The honor includes \$1,000 and a commemorative plaque, as well as a \$1,000 grant for the K-State College of Engineering's discretionary funds.

An adviser to K-State Tau Beta Pi chapter for nearly nine years, Hayter was cited by students and peers for his personal commitment to the

chapter, his enduring direct involvement with his chapter, his integrity and genuine concern for the students, and his ability to motivate them by example through his leadership.

Hayter has been an active member of Tau Beta Pi for more than 43 years. He was initiated at South Dakota State University, where he received his B.S. in mechanical engineering. He went on to earn his master's and doctorate degrees in mechanical engineering from K-State. He is a licensed professional engineer who has also contributed to industry and government.

As an associate dean for external affairs of K-State's College of Engineering, Hayter coordinates outreach activities of the college, legislative affairs, international programs, and alumni and corporate relations. He also served as the college's director of engineering extension from 1980 to 2002.

He became chief adviser of the K-State Tau Beta Pi chapter in 2001, after serving as an adviser since 1999.

### Najjar named CE interim head

Yacoub Najjar has been named interim head of the department of civil engineering at Kansas State University, effective July 13.

Najjar joined the K-State College of Engineering as an assistant professor of civil engineering in 1993, became an associate professor of civil engineering in 1997, and a full professor in 2003.

Prior to coming to K-State, he had been an assistant professor in the department of civil, mechanical, and environmental engineering at George Washington University, Washington, D.C.

## NOTEWORTHY

### Stokes to direct transportation center

Robert W. Stokes, professor of civil engineering, has been named director of the University Transportation Center. He will oversee research and outreach efforts in transportation engineering, organized and coordinated through the federally funded center.

Stokes has more than 15 years experience in general transportation planning and applied transportation research. This includes extensive experience in design and implementation of urban, rural,

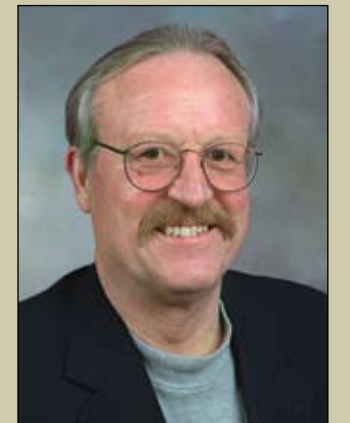


Yacoub Najjar

"We are confident the department will maintain its strong reputation and continue to move forward under Professor Najjar's leadership," said John English, dean of the College of Engineering. "He brings an outstanding set of academic and leadership qualities to the position."

Najjar serves on four committees of the Transportation Research Board, a division of the National Research Council, including chairing the Subcommittee on Neural Nets and Other Computational Intelligence-Based Modeling. He holds three committee posts with the American Society of Civil Engineers, serves on the editorial boards of two international journals, and is a member of Sigma Xi, the scientific research society.

He replaces James Koelliker, who had served as interim head of civil engineering since June 2007.



Robert Stokes

and intercity transportation planning studies; highway design, planning, and operations; traffic engineering; design and operation of turning lanes; traffic safety; and transit planning, design, and operations.

Much of his work has been conducted in a multijurisdictional context coordinating the efforts and priorities of various city, county, and state agencies.

His academic background includes B.S., general engineering, Antioch College; M.S., civil engineering, and M.C.R.P., city and regional planning, Ohio State University; and Ph.D., urban and regional science, Texas A&M University. He joined the faculty at K-State in 1991.

## FACULTY AWARDS



**2008 College of Engineering Faculty Award recipients:** Back row, left to right, Robert Peterman, CE professor, Myers-Alford Memorial Teaching Award; Robert Stokes, CE professor, Larry E. and Laurel Erickson Public Service Award; and Zhijian Pei, IMSE assoc. professor, Frankenhoff Outstanding Research Award. Center row, left to right, William Kuhn, ECE professor, Commerce Bank Undergraduate Outstanding Teaching Award; Terry Beck, MNE professor, Bob and Lila Snell Distinguished Career Award for Excellence in Undergraduate Teaching; and Kimberly Douglas-Mankin, WESP director, Clair A. Mauch Steel Ring Advisor of the Year. Seated, left to right, Julia Keen, ARE/CNS asst. professor, James L. Hollis Memorial Award for Excellence in Undergraduate Teaching; and Hani Melhem, CE professor, Charles H. Scholer Faculty Award.



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## ALUMNI NEWS

**2000**

**Doug Lacy** (ARE) was named one of the nation's "Top 40 under 40" in the July issue of *Consulting-Specifying Engineer* magazine. He is an associate, electrical engineer, with ccrd partners, Dallas. Lacy volunteers with Habitat for Humanity and is a Dallas-Ft. Worth ACE mentor coordinator.

## DEATHS

**1942**

**John G. McEntyre** (CE) died July 23, 2008, in Mission Viejo, Calif. He held an M.S. and Ph.D. from Cornell University, and taught in the civil engineering department at K-State from 1947 to 1963, afterwards teaching at Purdue University for 20 years. He received many prestigious awards over his long career, particularly for his contributions to the land-surveying profession. He was awarded the Sagamore of the Wabash Award by the governor of Indiana in 1980 "for endearing himself to the citizens of Indiana as distinguished by his humanity in living, loyalty in friendship, wise counsel, and inspiration in leadership." He served in the U.S. Army Reserve for 40 years, seeing active duty in WWII, and retiring as Lt. Col. in 1980.

He was preceded in death by his wife, Virginia, and is survived by two sons, one daughter, and one grandson.

**1947**

**George A. Mellard** (ME, EE; M.S. Machine Design '52) died Aug. 27, 2008, in LaVerne, Calif. He was a veteran of WWII, serving two tours in the South Pacific flying bombers for the U.S. Navy Air Corps. He taught engineering for 34 years on the faculties of three universities including California State Polytechnic University where he and three other professors started the engineering program there in 1957. He retired from Cal Poly in 1982 as a professor emeritus. He is survived by his wife of 65 years, Betty, three daughters, seven grandchildren, and two great-grandchildren.

**1948**

**John W. Green** (EE) died April 13, 2008. He had enjoyed a long career as an oil exploration geophysicist in the Gulf Coast area of Houston. He served in the Army during WWII, attaining the rank of Lt. Col. He was a pioneer in the development of ground radar for which he was awarded the Bronze Star. He enjoyed fishing, shrimping, oystering, beekeeping, and raising citrus trees. He is survived by his wife of 62 years, Doris, and three daughters.

**1957**

**Harry O. Gaffin, Jr.** (EE), Granbury, Texas, died Aug. 22, 2008.

**1961**

**Orville O. "Butch" Spray, Jr.** (CE), Great Bend, died Sept. 14, 2008, in Houston, following a courageous battle with cancer. He started the Venture Corporation in 1973, growing it to the company it is today. He was a past president of the Kansas Contractors Association, holding numerous posts with that group throughout his lifetime. Appointed to the Governor's T-2000 Transportation Task Force, he also served on the National Asphalt Paving Association Legislative Committee. He is survived by his wife, Doris, one daughter, two sons, and nine grandchildren.

**1969**

**Steven R. Beck** (CHE), Longmont, Colo., died Oct. 10, 2008. He received his Ph.D. from the University of Texas in Austin and was a member of the chemical engineering faculty at Texas Tech from 1977 to 1988, serving as chairman of that department before leaving academia for pharmaceutical engineering. He finished his career in that discipline at Roche Colorado Corporation where he was director of engineering. He is survived by his wife, Candace, one son, and one daughter.

**1976**

**Jeffrey W. Dancer** (CHE) died Oct. 14, 2007, in Houston. He worked for Phillips Petroleum Company as a chemical engineer for 25 years, most recently serving as president of the Allan F. Dow Group, Houston. He is survived by three sons.

## LIFELONG K-STATE SUPPORTER PASSES

**1938**

**Charles T. Carter** (ME) died Aug. 3, 2008, at the age of 91, at his home in Independence, Kan. He was the former president of ARCO Pipeline Co., formerly Sinclair Pipeline, in Independence, retiring in 1975. At that point he became corporate vice president of the company, moving to Pasadena, Calif., where he worked and lived until 1979, when he once again retired and returned to Independence.

After college, Carter began his career with Sinclair Pipeline Company in Carrollton, Mo. At the beginning of World War II, he enlisted in the U.S. Army, where he served in the Fiji Islands as an armament and artillery specialist, attaining the rank of captain. After his service, he resumed employment with Sinclair Pipeline Co.



Charles T. Carter

Carter was a lifelong supporter of the College of Engineering and Kansas State University. He established the Charles T. Carter Excellence in Engineering Fund as well as being a contributor to the Engineering Dean's Program Enhancement Fund, Engineering Essential Edge Campaign, Engineering Phase II Campaign, Rathbone Scholarship, and general engineering scholarships. At K-State he also supported the International Student Center expansion, the K-State Music Guild, and the K-State Alumni Association and Center.

Inducted into the College of Engineering Hall of Fame in 1989, Carter served on the Engineering Advisory Council and was an emeritus member at the time of his death.

He was preceded in death by his wife, Lois, and is survived by his son, Brad; his daughter, Sue; four grandchildren; and six great-grandchildren.



# 2008 Engineering Advisory Council



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422

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