Letter from the Dean

This issue of *Iowa Engineer* provides overwhelming evidence that the world, though quite chaotic, is growing ever closer in the engineering profession. Our community—including College of Engineering students, faculty, staff, alumni, and friends—is continually reshaping itself through interdisciplinary research collaboration, professional networking, and individual and team achievement.

Take the evolution of “lone-wolf researcher to independent research team,” for example (pages 2 to 6). The days of a faculty member spending a majority of the time isolated in a laboratory have long passed. Today, at The University of Iowa, scholars are intertwined among a multitude of disciplines. In the College of Engineering alone, all six of our disciplines have teaching and research ties with all five UI Health Sciences colleges on one campus—quite unique for a university.

In addition to the research centers and institutes within the College of Engineering, we have more than a half-dozen medically-related interdisciplinary research centers in which Engineering plays a critical role. They include the Biotechnology Byproducts Consortium, Center for Biocatalysis and Bioprocessing, Center for Global and Regional Environmental Research, Center for Health Effects of Environmental Contamination, Institute for Rural and Environmental Health, National Advanced Driving Simulator, and Public Policy Center.

Our new Center for Bioinformatics and Computational Biology (CBCB) started only last fall (see page 16). It achieved considerable momentum from its first day, with an already established network of seven colleges and 22 departments on the UI campus alone. Also, the CBCB cooperates with numerous other centers, including the UI Carver Center for Comparative Genomics, Center for Statistical Genetics Research, the UI Center for Macular Degeneration, and other research support units such as Information Technology Services Research Technologies and the Carver College of Medicine’s DNA Core Facility.

An outgrowth of the College of Engineering’s Coordinated Laboratory for Computational Genomics, the CBCB builds upon over seven years of collaboration between the Carver College of Medicine and the College of Engineering. Those collaborations have investigated genotyping, genetic linkage analysis, gene mapping, and other phenomena and have already attracted more than $35 million in external funding to The University of Iowa.

Overall, out of 82 engineering faculty, 14 percent hold secondary and tertiary appointments in other Engineering departments and UI colleges, including Liberal Arts and Sciences, Medicine, Nursing, Public Health, and Urban and Regional Planning. And 45 percent of the engineering faculty have affiliations with 11 major University of Iowa research centers and institutes. Meanwhile, 33 faculty researchers in other UI colleges and departments have joint appointments in Engineering.

This interdependence is further nourished by numerous examples of partnership and networking set by our loyal and successful alumni. People like Randall Meyer (see pages 14 and 15), retired president of Exxon Company, who orchestrated one of the most prominent multinational organizations in the world during his career, but now encourages the same level of interdependence among alumni and friends who support the College in many ways—from advice and volunteer service to generous financial “giving back” to future generations of aspiring engineering students. Or Rachel McQuillen, who is currently serving as the national president of the Society of Women Engineers (page 18) and inspiring 15,000 women in the U.S. toward greater achievement in and service to their profession.

As we would expect, those who make up the many faces of the UI College of Engineering continue to make their marks on society, whether it’s solving complex problems, creating business wealth and job growth, mentoring tomorrow’s engineers, or even serving in fields well beyond technology, such as government service, the political process, and the arts and humanities. No wonder the pride of this college runs so deep.

P. Barry Butler
Dean
Lone wolves no more
Diabetes, coronary heart disease, and mysteries of the human brain.
UI Engineering researchers transition from lone scholars to members of interdisciplinary teams, percolating ideas across a vast span of disciplines, with far-reaching results.

On the cover:
David G. Wilder, associate professor of biomedical engineering, and Jack F. Wasserman, professor of mechanical, aerospace, and biomedical engineering at the University of Tennessee-Knoxville, proposed a model (equation) describing undamped deflection due to impact between two coffee cups. The cup ringing responses bring to mind the stimulation of ideas between engineers and researchers from other disciplines.
Photo by fisheye

On the banks of the Mississippi
A riverfront classroom opens its doors for students studying hydroscience.

Repaying the debt of gratitude
The spectacular career of retired Exxon U.S.A. president Randall Meyer was launched by his UI education. He urges others to show the same gratitude.
The perfect blend

TWENTIETH-CENTURY TECHNOLOGY RESHAPED THE WORLD, INCLUDING THE TECHNOLOGICAL WIZARDS WHO ENGINEERED THIS REVOLUTION.

Today, the image of the lone-wolf engineer wielding a pencil and slide rule without regard to the social, political, or economic ramifications of his or her efforts no longer computes. Instead, today’s engineers solve problems through teamwork, interdisciplinary collaboration, and international applications.

DURING THE LAST SEVERAL decades, The University of Iowa has developed a reputation for first-rate interdisciplinary research—both within and beyond the College. These efforts are bridging traditional disciplinary boundaries to produce exciting, important research and develop well-educated alumni who are dedicated not only to their profession but also to solving the problems of the world.
Ul researchers from multiple disciplines met at T. Spoons, an Iowa City coffee shop, to illustrate our synergistic cover story — the emerging prevalence of interdisciplinary research between engineers and other disciplines. The overlaid formula for synergy is courtesy of Neural Computation.

Back row: Victor Rodgers, associate professor of chemical and biochemical engineering; Steve Hunter, associate professor of obstetrics and gynecology; Katrina See, MS 2002 in industrial engineering; Antoine Bechara, assistant professor of neurology; John Lee, associate professor of mechanical and industrial engineering; Sarah Vignostad, graduate student (MS) in biomedical engineering. First row: Andreas Wahle, visiting assistant professor of electrical and computer engineering; Milan Sonka, professor of electrical and computer engineering; and K.B. Chandran, professor of biomedical engineering.

Photo by fisheye
For those who relish the vertigo created by an IMAX film, Milan Sonka's latest computer-generated fly-through of a living human artery will be a thrill.

In collaboration with University of Iowa Health Care researchers, the professor of electrical and computer engineering has developed sophisticated imaging techniques to study the flow of blood through the coronary artery. Sonka's approach is visually stunning and scientifically revolutionary.

www.engineering.uiowa.edu/~sonka/MSmovies.html

Engineering meets psychology meets physiology

Kristi Schmidt works to solve problems, even if that means leaping the boundaries of four traditional disciplines. Her interest in human factors and ergonomics led her to The University of Iowa and eventually to the lab of Professor of Mechanical and Industrial Engineering John Lee. In the Cognitive Systems Lab, Schmidt discovered an exciting intellectual crossroads of industrial engineering, mechanical engineering, psychology, and physiology.

"It was an incredible experience as an undergraduate," says Schmidt, who earned her degree in industrial engineering in 2002. "Professor Lee treated me as a colleague and pushed me to explore my own ideas, rather than just telling me what he wanted me to do."

Now, as a graduate student at the University of Michigan, Schmidt is studying how errors in the voice-recognition system of voice-activated e-mail systems affect driver performance in automobiles.

The Presidential Scholar also was a member of the cross-country and track-and-field teams. Schmidt's diverse achievements earned a Hancher-Finkbine Medallion for the Spirit Lake, Iowa, native.

"I learned much more at Iowa than the traditional engineering curriculum," Schmidt says. "The education and the mentoring I received was invaluable."

Sonka, who holds a secondary appointment as professor of applied mathematical and computational sciences, is collaborating on a project to view coronary arteries in vivo from a variety of perspectives, both external and internal. Clinical faculty members of the Department of Internal Medicine perform the X-ray angiography and intravascular ultrasound imaging procedures. Sonka and visiting assistant professor Andreas Wahle design the computer software that creates and analyzes the images. A professor of biostatistics performs statistical analysis on the data while Professor of Biomedical Engineering K.B. Chandran uses information about the location of arterial constrictions and blood flow to calculate shear stress—the forces that act on the interior wall of the artery. Three engineering graduate students also participate in the four-year $1.1 million project funded by the National Institutes of Health.

"Members of the College of Engineering and College of Medicine have been on the leading edge of such interdisciplinary efforts," Sonka says. "By exploring the applications of computer power to basic medical research, we offer the medical experts an engineering way of thinking. It's making the physicians pretty excited."

Sonka or Wahle attends the coronary imaging procedure at The University of Iowa Health Science catheter lab. By combining the X-ray angiography and intravascular ultrasound images of the coronary artery, the two researchers can provide complete three-dimensional information about the patient's coronary artery.

"The angiography provides the geometry of the vessel—the general shape of the artery wrapped around the heart in 3-D space," says Sonka, who researched meteorological imagery before coming to The University of Iowa in 1990. "The ultrasound provides a view of the inside of the artery, including plaque adhering to the arterial walls."

To capture the ultrasound images the Iowa researchers insert a catheter the size of a thin noodle inside the artery. Positioned at an angle at the tip of the catheter is a mirror barely visible to the naked eye. To gather information about the shape of the artery interior and any obstructions, the rotating mirror reflects ultrasound onto the interior arterial wall. The data is then conveyed through the catheter to ultrasound recording equipment.

The cardiologists insert the catheter through the large arteries of the lower extremities. By pulling the 1.5 meter-long catheter slowly through the 10-15 centimeter-long coronary artery, the researchers gather thousands of image "slices" that Sonka later "stacks" together to form a remarkably complete image of the length of the coronary artery's interior. At the moment, the study is not yet cost-effective enough to justify its use for routine coronary diagnostics.

Sonka has taken imagery techniques to new levels of sophistication. The UI Hospitals and Clinics cardiologists now record the images continuously at 30 slices per second so that images are available for each phase of the beating heart. Using powerful computer tools, Sonka then reconstructs the images through time to create a dynamic "journey" through the pulsing artery of a beating heart.
Together with Rodgers' graduate student, Kushanie Tilakaratne, and Hunter's research assistant, Mark Andracki, these researchers are combining their expertise to enhance the transport of oxygen in the pancreases of individuals suffering from diabetes, a potentially debilitating disease that affects 17 million Americans.

Rodgers is a veteran of interdisciplinary research, having conducted his master's degree engineering research in conjunction with the University of Pittsburgh's Department of Surgery. He notes that The University of Iowa is "a great place to collaborate with experts from other fields—especially those in the College of Medicine." His role in the diabetes/artificial pancreas project is to provide the chemical engineering of special oxygen transport molecules and the mathematical modeling of the metabolic process.

Diabetes is characterized by an abnormally high concentration of blood sugar. Under normal circumstances, islets in the pancreas secrete insulin, which helps cells metabolize glucose. Islets are clusters of beta cells. In patients with diabetes, however, islets do not function properly, a scenario that sets in motion a cascading series of abnormal and potentially devastating metabolic responses.

A number of treatments are possible, although each has its drawbacks. Insulin injection is the most familiar treatment. But for certain patients, including those who are pregnant, treatment requires frequent monitoring and injection. In those cases, transplantation of islet cells is the best treatment. In most of these patients, however, transplantation triggers an immune response. To protect the transplanted islets from rejection, researchers protect the cells with a biocompatible polymer barrier. Unfortunately, this can lead to a dangerous decrease of oxygen to the cells.

Rodgers, Yang, and Hunter wondered if they could rectify this problem by enhancing islets with myoglobin—a molecule specialized for oxygen transport—and then reintroduce the enhanced cells into the pancreas. The team believes the myoglobin will facilitate the transport of oxygen, which would help the cells continue to produce insulin, even under low oxygen concentration conditions.

"We knew that myoglobin cells in muscle transport oxygen, so we hypothesized that the introduction of myoglobin into the pancreas could help boost oxygen transport," Rodgers says. "This, in turn, would increase the production of insulin and ultimately improve glucose metabolism."

In the enhanced beta cells, the myoglobin molecule picks up oxygen at the cell wall and then carries it to the center of the cell by diffusion, where it releases the oxygen. The availability of more oxygen in the center of the cells prevents them from suffocating due to a lack of oxygen.

"One of the benefits of using myoglobin is that it holds onto oxygen longer than the other oxygen-transport molecule, hemoglobin," Rodgers says. "That means it won't release the oxygen molecule too soon, but will wait until it's in a low-oxygen environment."

In addition to creating mathematical models of the physiological processes, the team has genetically altered islet cells to produce myoglobin. The project, which already has demonstrated the effectiveness of the enhanced-cell technique, is funded by a two-year, $215,000 grant from the National Institutes of Health (NIH). Rodgers notes that the grant is targeted to proposals that seem likely to produce major breakthroughs with practical applications.

"This is a bold initiative," he says, "and an exciting opportunity. As NIH has recognized, this is interdisciplinary research that may risk failure; but if it succeeds, it may offer an important improvement in the treatment of diabetes."
Over 150 years ago, construction worker Phineas Gage was impaled in the head by a metal pole. His personality forever altered, Gage has been widely studied by scholars like UI’s John Lee, who seeks to understand the importance of emotions in decision-making.

Sometimes the creative spark that ignites engineering research leaps from an unexpected source. In the case of one Iowa engineering professor, that source was a nationally popular book about the human mind written by University of Iowa Professor of Neurology Antonio Damasio.

“Descartes’ Error is a fascinating work about the importance of emotions in decision-making,” says John Lee, University of Iowa professor of industrial engineering. “Dr. Damasio describes patients who suffer certain kinds of brain lesions. They are capable of many higher-level brain functions, but their ability to make decisions is critically impaired. They’re intelligent and able to perform verbal and arithmetic tasks and spatial reasoning, but they can’t decide what to have for dinner.”

Lee, who earned degrees in psychology and industrial engineering from Lehigh University and a PhD in mechanical engineering from the University of Illinois (1992), focuses his research on the interaction between behavior and technology. He was intrigued with Damasio’s findings that certain patients who can’t make simple decisions also suffer emotional impairment.

“Emotions are profoundly important in guiding our decision-making,” Lee says. “The image of the perfect decision-maker as an emotionless Dr. Spock is pure fantasy.”

After reading Descartes’ Error, Lee began to wonder how Dr. Damasio’s work might complement Lee’s own research on the role trust plays in how people relate to technology.

“Trust is important in determining whether we engage in risky situations and how we learn from that experience,” he says. “In other words, the emotion of trust is an element of decision-making about technology as well as about other people.”

One of Damasio’s collaborators, assistant professor of neurology Antoine Bechara, helped Lee devise an experiment. Engineering students volunteered to control a simulated pasteurization plant. For three hours over a three-day period, each student controlled the pump manually or via automation. During the second day, the pump began to fail, and the students had to decide whether to trust automation or to intervene by manually taking over the controls.

“Those who trusted automation too much,” Lee says, “didn’t intervene in time.”

Lee measured his subjects’ physiological responses to the failing pump. With one group, Lee introduced a click and a piano chord from a Fleetwood Mac song, “As the performance of the pump changed for the worse, the sound began to change to indicate the pump was laboring.”

Every six minutes, subjects were asked to assess their trust in the automation and the effort required to control the system. Lee found that when the fault occurred, auditory input resulted in a more rapid loss of trust in automation and therefore more rapid intervention. The subjects in the “sound” cohort also seemed to achieve improved performance with even less conscious effort than those without aural cues.

“Sound influences our affective responses, including trust,” Lee says. “The emotion of trust is important in the decision to rely on others, whether those decisions are about people or machines. If technicians can identify an advantageous decision about reliance before they’re even aware it’s advantageous, they can intervene in technological crisis situations more quickly and easily.”

Air quality meets economists, meets health professionals

As a graduate student in chemical and biochemical engineering at The University of Iowa, Sarath Guttikunda (PhD 2002) studied the air pollution from megacities of Asia and influence on regional air quality and management. Today he works in Washington, D.C., as an engineering consultant for the World Bank’s climate change division.

“My supervisor is an economist,” Guttikunda says, “and on any given day, I may be working with financial experts, health professionals, environmental experts, and other engineers.”

The World Bank is an international organization that works to help develop the educational, financial, and physical infrastructures of developing nations. Guttikunda provides technical assistance to two Chinese cities currently wrestling with sulfur pollution from burning coal in industries and households. Since graduating from the UI, he has broadened his focus to include pollution caused by airborne particles in Asia and Latin America and their impacts on human health and economy.

Guttikunda credits his mentor at the UI, Greg Carmichael, Karl Kammermeyer Professor of Chemical and Biochemical Engineering and co-director of the Center for Global and Regional Environmental Research, for providing intellectual challenges and interdisciplinary research opportunities.

Guttikunda, who speaks four languages, says that facility with more than one language is virtually a necessity for contemporary engineers, because “engineering is rapidly becoming a global profession.”
Hydroscience engineering gets new vista

The Lucille A. Carver Mississippi Riverside Environmental Research Station was dedicated at a ceremony May 3, 2002. The building is made possible in large part by a $1.2 million gift to the College of Engineering from the Roy J. Carver Charitable Trust of Muscatine. Lucille Carver is a member of the Carver Trust Board of Trustees and the widow of the late Roy J. Carver Sr., the trust’s founder.

Located on the banks of the Mississippi River, about seven miles east of Muscatine near the community of Fairport, the 7,000-square-foot facility houses offices, a classroom, laboratory, and display space. Other river stations may monitor a few variables such as flood levels, sedimentation, fish populations, aquatic plants, water quality, flood effects, and the impact of industrialization, but the new research station is the only one that will study virtually all aspects of the river, says V.C. Patel, IIHR-Hydroscience & Engineering director. UI faculty and students already have been conducting classes at the facility.

In addition to the gift by the Carver Trust for construction of the facility, support comes from a number of sources. Marie F. Carter of Bettendorf, Iowa, furnished the classroom in memory of her husband, UI Engineering alumnus Archie N. Carter, and Richard and Mary Jo Stanley of Muscatine, Iowa, provided a gift to equip the water-quality laboratory.
College faculty named to endowed chairs and professorships

Through the generosity of recent major gifts to the College of Engineering, several faculty members have been appointed to named chairs and professorships.

Faculty and donors were honored at events held by the College of Engineering and The University of Iowa. Faculty named are:

**Gregory R. Carmichael, Karl Kammermeyer Professor of Chemical and Biochemical Engineering**

The Karl Kammermeyer Professorship was established through a combination of private gifts and funds from The University of Iowa Department of Chemical and Biochemical Engineering. Dr. John Kammermeyer, an Iowa City allergist and son of the late Karl Kammermeyer, led the funding effort for the professorship. Additional support was provided by alumni mentored by Dr. Kammermeyer: William Liike, Warren Pagel, H. William Lichtenberger, and Richard Dunlavy. Carmichael is also professor of chemical and biochemical engineering, professor of civil and environmental engineering, associate dean for graduate programs and research, co-director of the Center for Global and Regional Environmental Research, and researcher at the Center for Biocatalysis and Bioprocesing.

**Witold F. Krajewski, Joseph & Rose Summers Professor of Water Resources Engineering**

The Joseph & Rose Summers Professorship in Water Resources Engineering, the naming of which honors Summers’ late wife, Rose, was established through a gift to the University of Iowa Foundation from Joseph B. Summers (BS 1948 in civil engineering) of Hanford, Calif. Summers is chairman of the board of Summers Engineering Inc. Based in the Department of Civil and Environmental Engineering, the gift enables the College to further strengthen its internationally renowned programs in water resources. The Professorship will be converted to a fully endowed Chair through a commitment in Summers’ estate. Krajewski also is professor of civil and environmental engineering, and research engineer at IIHR—Hydroscience & Engineering.

**Gene F. Parkin, Donald E. Bently Professor of Engineering**

The Donald E. Bently Professorship in Engineering was established through a gift to the University of Iowa Foundation from Donald E. Bently (BS 1949 in electrical engineering with distinction, MS 1950 in electrical engineering) of Minden, Nev. A globally recognized authority on rotor dynamics as well as vibration monitoring and diagnostics, Bently is founder and former owner, chief executive officer, and chairman of the board of Bently Nevada Corporation. He is also former president of Bently Rotor Dynamics Research Corporation, a subsidiary of Bently Nevada Corporation. Bently is currently owner, chairman of the board, and chief executive officer of Bently Pressurized Bearing Company. He also is owner of Bently Agrowdynamics. Parkin is also professor of civil and environmental engineering, professor of occupational and environmental health, director of the Center for Health Effects of Environmental Contamination, and researcher at the Center for Biocatalysis and Bioprocesing.

**Jerald L. Schnoor, Allen S. Henry Chair of Engineering**

The Allen S. Henry Chair in Engineering was established through a gift to the University of Iowa Foundation from Allen S. Henry (MS 1964, PhD 1971 in mechanics and hydraulics) of Indiantial, Fla. Henry is retired vice president-general manager of JDS Uniphase Broadband Products. He is currently the chairman of the board of Holmes Regional Medical Center and is on the board of Health First, an integrated healthcare delivery system in Melbourne, Fla. Schnoor is also professor of civil and environmental engineering, professor of occupational and environmental health, co-director of the Center for Global and Regional Environmental Research, research engineer at IIHR—Hydroscience & Engineering, and researcher at the Center for Biocatalysis and Bioprocesing.
Three professors receive Engineering Faculty Excellence Awards

Three University of Iowa professors received College of Engineering Faculty Excellence Awards for their individual contributions to research, teaching, and service.

They are Gregory R. Carmichael, Karl Kammermeyer Professor of Chemical and Biochemical Engineering and associate dean for graduate studies and research in the college, for service; Sudhakar M. Reddy, University of Iowa Foundation Distinguished Professor of Electrical and Computer Engineering, for research; and David W. Murhammer, associate professor of chemical and biochemical engineering, for teaching.

Internationally known for his research on the environmental impact of Asian development, Carmichael leads a team of researchers studying how Asian pollution is increasingly affecting air quality in California and the rest of the Western U.S. Carmichael served as departmental executive officer of chemical and biochemical engineering from 1981-1995. He also is co-founder and co-director of the Center for Global and Regional Environmental Research, and served as chair of the UI Research Council from 1991-92. He works with United Nations organizations on such issues as the global and regional impact of the fires in Indonesia, as a member of the NASA Langley Research Center Advisory Board on data archiving and analysis, and as an organizer of some 14 national and international meetings during the last two years.

Reddy, who has served on the UI faculty since 1968, is former department executive officer of electrical and computer engineering. A world-renowned expert in the fields of digital systems reliability and the testing of very large scale integrated (VLSI) circuits, he was a founder of the field of “fault-tolerant computing” that has become one of the largest areas in electrical and computer engineering. His contributions have ranged from coding theory to self-checking circuit design, and his scientific publications are among the most important and enduring in the field. His honors include a Von Humboldt Senior Research Fellowship and a Lifetime Achievement Award from the International Conference on VLSI. He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), which named him a Golden Core Member and selected him six times as a Distinguished Lecturer.

Murhammer has served on the UI faculty since 1989. His teaching duties have ranged from the “Engineering I” freshman course to the junior-level “Chemical Process Safety,” a course he developed with the help of funding from the National Science Foundation (NSF). During the 10 years that Murhammer has served as faculty advisor to the UI student chapter of the American Institute of Chemical Engineers (AIChE), the chapter has received 10 outstanding national chapter awards and has had eight UI students receive prestigious AIChE Scholarships (only 15 are awarded annually nationwide). Nationally, he has served on the executive committee of the AIChE Student Chapters Committee, received the 1996 AIChE Student Chapter Advisor Award, and currently serves as executive committee chair. Murhammer has sponsored more than 60 undergraduates on independent research and successfully sought support for his undergraduate program by obtaining an NSF Research Experiences for Undergraduates site grant.
Faculty: new

College welcomes new faculty

**Linda Ng Boyle**
Assistant professor, mechanical and industrial engineering

- PhD civil engineering, University of Washington, 1998
- MS inter-engineering, University of Washington, 1994
- BS industrial engineering, State University of New York at Buffalo, 1986

**Terry Braun**
Assistant professor, biomedical engineering
Assistant professor ophthalmology and visual sciences

- PhD, genetics, University of Iowa, 2001
- MS, electrical & computer engineering, University of Iowa, 1995
- BS, electrical engineering, University of Iowa, 1993

**C. Allan Guymon**
Assistant professor, chemical and biochemical engineering

- PhD, chemical engineering, University of Colorado-Boulder, 1997
- MS, chemical engineering, University of Colorado-Boulder, 1995
- BS, chemistry, Weber State University, 1993

**Professional experience**
- Senior researcher, Accident Prevention Division, U.S. Department of Transportation-Volpe Center, Cambridge, Mass.
- Senior traffic engineering consultant, KDD & Associates, Seattle, Wash.
- Research associate and research assistant, University of Washington, Seattle, Wash.
- Industrial engineer, The Boeing Company, Seattle, Wash.

**Research interests**
- Genetics, bioinformatics and computational genetics, macular degeneration

**Special fields of knowledge**
- Human factors; statistics; transportation

**Research interests**
- Modeling driver behavior
- User acceptance of new technology
- Commercial vehicle operations and transportation safety

**Professional experience**
- Graduate teaching and research assistant, University of Iowa
- Teaching assistant (Human Genetics, Software Design, Computer Architecture, and Materials and Devices), University of Iowa

**Research interests**
- Polymer reaction engineering
- UV Curable Coatings; Polymer/Liquid Crystal Composites
- Controlled Release; Templated and Ordered Polymerizations

**Special awards**
- PECASE Award 2001
Biomedical Engineering
Vikas Goel and James Fenton, senior biomedical engineering students and founders of Biomedical Solutions, designed and built a specialized cell-growing device and have applied for five patents.

Khalid Kader, assistant professor, was commissioned ensign in the U.S. Naval Reserve during a special ceremony Oct. 7 in Iowa City. The Hon. Gordon R. England, U.S. Secretary of the Navy, U.S. Representative James Leach from the First District of Iowa, other Navy and Congressional staff, and UI administrators attended the event.

Michael A. Mackey, associate professor of biomedical engineering, was awarded a $1.25 million grant from the National Institutes of Health to develop the Large Scale Digital Cell Analysis System as a tool for the quantitative analysis of a variety of cell biological systems.

Karen Reed, graduate student, received the Clinical Biomechanics Award Aug. 7 at the IV World Congress of Biomechanics in Calgary, Canada, for her work with thermal FEA of cryoinsults in the emu model of osteonecrosis.

Karsten Temme, senior, received a National Science Foundation Graduate Fellowship. He was also named recipient of the Rita Shaffer Young Investigator Award from the Biomedical Engineering Society. Diane T. Tran, sophomore, was named a Goldwater Scholar for the 2002–2003 academic year. This is the second consecutive year that a UI biomedical engineering student won the award.

Chemical and Biochemical Engineering
The UI student chapter of the American Institute of Chemical Engineers (AIChE) received the Outstanding Student Chapter Award at the National AIChE meeting, Nov. 3–8 in Indianapolis. This is the tenth consecutive year that the chapter has won this award. They also won third place for Outstanding Student Chapter Website. The chapter hosted the 2002 AIChE Mid America Regional conference April 19–20 in Iowa City. During the conference the UI chapter placed first in the chemical engineering car competition.

Gregory R. Carmichael, Karl Kamermeyer Professor of Chemical and Biochemical Engineering, received a $2.3 million five-year grant from the National Science Foundation to use information technology to develop pollution “weather forecasts” and expand the frontiers of atmospheric chemistry and air pollution science. He also received a $310,000 three-year grant from the National Oceanic and Atmospheric Administration to study the increasing effects of Asian pollution on air quality in California and the rest of the western United States.

Vicki Grassian, professor of chemistry and professor of chemical and biochemical engineering, was elected to the National Council of Iota Sigma Pi, a national honor society for women in chemistry, at the National Triennial Convention held June 12-14 in Berkeley, Calif. She will serve a three-year term as national director of student awards.

C. Allan Guymon, assistant professor, received a Presidential Early Career Award for Scientists and Engineers (PECASE) at a special ceremony held July 12 at the White House. He was one of 20 researchers honored by the National Science Foundation.

Julie L. P. Jessop, assistant professor, received a Faculty Early Career Development Award from the National Science Foundation for polymerization research.

Tonya Peeples, professor of chemical and biochemical engineering, was selected to participate in the National Academy of Engineering’s Frontiers of Engineering Symposium, held Sept. 19–21 in Irvine, Calif. Eighty-four of the nation’s top young engineers performing leading-edge engineering research and technical work were selected to participate.

Civil and Environmental Engineering
Professor Pedro J. Alvarez received Project of the Year Award in the Clean-up Division from the Strategic Environmental Research and Development Program on Dec. 3 in Washington, D.C. Co-principal investigators are Gene Parkin, Donald E. Bentley Professor of Engineering, Richard Valentine, professor, and Michelle Scherer, assistant professor.

Jasbir S. Arora, F. Wendell Miller Distinguished Professor of Engineering, was elected Fellow of the American Society of Mechanical Engineers.

David J. Forckenbrock, professor of urban and regional planning, civil and environmental engineering, and director of The University of Iowa Public Policy Center, was elected Fellow of the American Institute of Certified Planners.

Junior Lindsay Kaufmann received the Society of Women Engineers (SWE) Chevron Texaco Corporation Scholarship at the SWE national conference held Oct. 9–12 in Detroit, Mich.

Witold F. Krajewski, Joseph and Rose Summers Professor of Water Resources Engineering and research engineer, IHHR-Hydroscience & Engineering, was appointed to a four-year term as one of two U.S. representatives on the Executive Committee of the Standing International Road Weather Conference. He also was appointed chair of the Transportation Research Board Panel on “Winter Highway Operations.”

Jerald Schnoor, Allen S. Henry Chair of Engineering, professor, and research engineer, IHHR-Hydroscience & Engineering, was appointed to a four-year term as one of two U.S. representatives on the Executive Committee of the Standing International Road Weather Conference. He spoke before the House Resources Committee March 7 on managing nutrient and sediment losses in the Upper Mississippi River Basin. Schnoor and Ori Sivan, undergraduate research assistant, attended Earth Summit 2002, the World Summit on Sustainable Development, Aug. 26–Sept. 6 in Johannesburg, South Africa. Schnoor was a delegate to the summit.

Richard Valentine, professor, was awarded a $134,900, two-year grant from the U.S. Geological Survey for studying the relationship of nitroso compound formation potential to drinking source water quality and organic nitrogen precursor source characteristics.

Electrical and Computer Engineering
Thomas Casavant, professor and director of the Center for Bioinformatics and Computational Biology, became a member of the National Institutes of Health Genome Study Section for the Center for Scientific Review.

Gary E. Christensen, assistant professor, served as a member of the conference committee, a session chair, and a presenter at the First Institute of Electrical and Electronics Engineers International Symposium on Biomedical Imaging held July 7–10 in Washington, D.C.

Jon G. Kuhl, professor and departmental executive officer, testified July 16 before the Subcommittee on Highways and Transit of the U.S. House Committee on Transportation and Infrastructure.

Freshman Kevin Jener holds the title of computer-programming champion after placing first at the state level, and second nationally among contenders from 47 states. The competitions are sponsored by Vocational Industrial Clubs of America.

Graduate Steve M. Mitchell received the Michael B. Merickel Award for Best Student Paper of the Medical Imaging 2002 Symposium held Feb. 23-28 in San Diego, Calif.

Milan Sonka, professor, was one of five team members to receive U.S. Patent 6,466,687 for “method and apparatus for analyzing CT images to determine the presence of pulmonary tissue pathology.”

Mechanical and Industrial Engineering
Kurt Anstreicher, professor of management sciences, and mechanical and industrial engineering, was named recipient of the Society for Industrial and Applied Mathematics Activity Group on Optimization Prize.

Senior Laura Breeher was awarded a National Science Foundation Graduate Fellowship. The Institute of Environmental Sciences and Technology named K.K. Choi, professor and director of the Center for Computer-Aided Design, recipient of the 2002 Maurice Simpson Technical Editors Award for Design, Test, and Evaluation April 30 during the 48th Institute of Environmental Sciences and Technology Annual Technical Meeting and Exposition in Anaheim, Calif.
Ray Han, professor and associate editor of the Journal of Vibration and Acoustics, was elected incoming chair of the American Society of Mechanical Engineers Technical Committee on Vibration and Sound.

Edward J. Haug, University of Iowa Carver Distinguished Professor of Mechanical Engineering and director of the National Science Foundation Industry/University Cooperative Research Center for Virtual Proving Ground Simulation, gave a presentation May 23, 2002, in Washington, D.C., on technologies involved in vehicle driving simulation.

The University of Iowa Human Factors and Ergonomics Society (HFES) student chapter received the Outstanding Student Chapter Award at the Annual HFES Conference Sept. 30-Oct. 4 in Baltimore, Md.

Senior Forrest M. Meggers was awarded a John & Elsa Gracik Scholarship from the American Society of Mechanical Engineers.

Peter O'Grady, professor, gave the keynote address to the European Union Workshop on Collaborative Business June 13 in Brussels, Belgium.

V.C. Patel, Edwin B. Green Chair in Hydraulics, and director of IIHR-Hydroscience & Engineering, was appointed honorary professor and international consultant at Dharmsinh Desai Institute of Technology (Deemed University), Nadiad, India.

In recognition of exemplary service as a reviewer for the Journal of Heat Transfer, Ted Smith, professor emeritus, was chosen as an outstanding reviewer for 2002.

Smith was recognized Nov. 19 at the International Mechanical Engineering Congress 2002 in New Orleans.

Frederick Stern, professor and research engineer IIHR–Hydroscience & Engineering, and his research colleagues received a $180,000 three-year grant from the National Science Foundation to improve undergraduate engineering curriculum.

Geb Thomas, assistant professor and researcher at the Center for Computer-Aided Design, received a $525,000 three-year grant from NASA for his research proposal, “Data-Centric Analysis of Science Return for Human-Directed Robotic Geology.” He was also awarded $330,000 by the National Science Foundation for continued research on “Using Force Feedback Devices to Train and Assess Recognition of Force Signals as a Component of Professional Skill.”

Center for Computer-Aided Design


IIHR–Hydroscience & Engineering

Tatsuki Nakato, associate director and research engineer IIHR–Hydroscience & Engineering, was named associate director of the Lucille A. Carver Mississippi Riverside Environmental Research Station.

Maria Laura Beninati, graduate student, was awarded a $6,000 Zonta International Amelia Earhart Fellowship Award from the Zonta International Foundation.

Center for Bioinformatics and Computational Biology

The Center for Bioinformatics and Computational Biology is a new joint research center of the University of Iowa College of Engineering and Roy J. and Lucille A. Carver College of Medicine, received a $150,000 three-year contract with Integrated DNA Technologies, Inc., of Coralville, Iowa, to explore collaborative projects that will help researchers achieve their scientific goals more rapidly and effectively.

UI inducts nine new members

The University of Iowa College of Engineering inducted nine new members into its Distinguished Engineering Alumni Academy last June for contributions toward personal engineering achievement, leadership, and service to the profession and society. They are:


John J. Cassidy, who received his doctorate in mechanics and hydraulics from the UI in 1964, has spent more than 48 years in hydraulic and hydrologic engineering and design studies for dams and hydroelectric projects, and water resource development projects. He currently is an independent consultant specializing in hydraulic and hydrologic engineering on projects including the San Rocque Dam in the Philippines.

Lt. Gen. (Ret.) William F. Cassidy graduated from the U.S. Military Academy in 1931 before earning his master's degree in mechanics and hydraulics from the UI in 1934 and being commissioned in the U.S. Army Corps of Engineers. Lt. Gen. Cassidy became Chief of Engineers in 1965 and was awarded the Distinguished Service Medal for his work.

Lt. Gen. Cassidy died in April 2002, shortly after he was notified of his induction into the Academy.

Edmund Y. S. Chao earned his doctorate in mechanics and hydraulics from the UI in 1971. He currently holds the Riley Chair in Orthopedic Surgery with a joint appointment as professor in biomedical engineering and mechanical engineering at the Johns Hopkins University in Baltimore. He is a Fellow of the American Society of Mechanical Engineers and the American Institute for Medical and Biological Engineering.

John P. Craven, who earned his doctorate in mechanics and hydraulics from the UI in 1951, has had more than 40 years of experience in the innovation, development, design, construction, and operational deployment
of major oceanic systems. At age 34, he was Chief Scientist of the Navy Special Projects Office for the development of the Polaris Fleet Ballistic Missile Submarine System. Following the loss of the submarine Thresher, he became project manager of the Navy Deep Submergence Program. In 1990, he established the Common Heritage Corporation for the management of innovation.

Lt. Gen. Carroll H. Dunn began his 35-year Army Engineering career in 1938, before earning his master's degree in civil engineering from the UI in 1947. His career included construction supervision of projects such as the National Aeronautics and Space Administration (NASA) Manned Spacecraft Center at Houston, Arkansas River Navigation and Flood Control Project, Titan II Missile Base and Ballistic Missile Early Warning System for the Air Force. Upon his retirement from the Army in 1973, he began a second career, serving as senior vice president for Construction, Engineering, and Environmental Affairs for Consolidated Edison Company of New York until his retirement in 1981, when he became a consultant to the Business Roundtable's Construction Committee. His many awards include the Distinguished Service Medal with two oak leaf clusters, Silver Star, and the Purple Heart.

Abdel-Aziz A. Fouad, who earned his master's degree in electrical engineering from the UI in 1953, is Distinguished Professor Emeritus of Engineering at Iowa State University. Prior to his retirement in June 1996, he pursued a 50-year career as an electrical power engineer in both academia and industry. His industrial experience includes engineering assignments with Cairo Gas and Electricity Administration, Rio de Janeiro Light and Traction Company, Jersey Production Research Company, and Atomics International. In 1997-1998, he was asked by the Strategic Science and Technology Program of the same institute to conduct a study on the future power delivery systems for the North American Interconnected Electrical Power Network. Because of his involvement with the issue of technology and social change, Dr. Fouad was asked to serve as a member of the Commission on International Relations of the U.S. National Research Council from 1975-78.

Donald A. Gurnett, who earned his bachelor's degree from the UI College of Engineering in electrical engineering in 1962, is Carver/James A. Van Allen Professor of Physics at the University of Iowa and a world leader in the field of space plasma physics. In 1993, Gurnett and his colleagues reported the first direct evidence of the distance to the heliopause, the boundary between our solar system and interstellar space. He was a principal investigator or co-investigator on more than 25 major spacecraft projects, including the Voyager 1 and Voyager 2 flights to the outer planets, the Galileo mission to Jupiter, and the Cassini mission to Saturn. He is the author or co-author of more than 320 scientific publications.

Michel Hug earned his doctorate in mechanics and hydraulics from the UI in 1956 prior to joining the French National Electricity Board, where he conducted research into hydraulics and fluid mechanics at the Chatou Test Center. His scientific contribution was recognized by the French Academy of Sciences, which awarded him the 1964 Laboratories Prize. During the oil crisis in 1973, he carried out an industrial mobilization and restructuring program that included a yearly budget of $4 billion, covering up to 250,000 workers and 3,000 firms in the nuclear field and in conventional and new sources of energy. In 1982, he was appointed president of the French National Coal Board and chairman of CdF Chimie, the associated chemical group, where he defined new objectives and managed the technical, commercial, financial, and social impact on this sector of the French Economy. From 1992 to 2000, as Administrateur Délégué in charge of OPEN (Organization of Nuclear Energy Producers), he helped develop a new understanding of the relationships among European utilities faced with deregulation.

Nelson L. de Sousa-Pinto, who earned his master's degree in mechanics and hydraulics from the UI in 1959, has been professor at the University of Parana, Brazil, since 1956. He currently serves as chairman of the Advisory Council of CENPAR, University of Parana, and is a consulting engineer in civil and hydraulic engineering, and waterpower. He directed engineering and construction of the Capivaricachoeira groundwater power plant for seven years, and directed hydraulic model studies of the Parana Uruguai and Sao Francisco rivers, and the Upper Parana and Amazon River Basins.

The 2002 induction ceremony, held June 8 in Iowa City, brings the Academy's membership to 43.
During a speech several years ago, the former president of Exxon Company, U.S.A., quoted Winston Churchill's aphorism, "We make a living by what we get. We make a life by what we give." The former Exxon president is University of Iowa engineering alumnus Randall Meyer and the aphorism is the guiding principle by which he lives.

Since earning a bachelor's degree in mechanical engineering in 1948, Meyer has built a professional life that has followed an upward trajectory to the highest echelons of one of the world's largest corporations. The Iowa native attributes that success to his small-town childhood and engineering education, as well as to his "good fortune to take advantage of opportunities as they arise." Throughout his career, Meyer has worked tirelessly to help others seize their own educational and professional opportunities.

"Every one of us who attended The University of Iowa has had a more fulfilling, rewarding, and satisfying life than if we had not been able to attend college," he says. "And public universities are, philosophically and practically, a three-way partnership between the people of the state, students and their families, and alumni and other friends."

Meyer believes that when students begin studying at state-funded educational institutions such as Iowa, they actually are "borrowing" financial support because their education is subsidized by taxpayers. By entering a public institution, students also enter into an implied contract—a moral obligation to repay what they have borrowed by reinvesting a part of the educational and professional benefits they have received.

"Each of us therefore owes a large debt of gratitude to all who made our public school education affordable," Meyer says. "The best way to repay that obligation is to reinvest in the University so that future generations of students also will be able to reap the benefits of an affordable education."

Meyer practices what he preaches. In addition to offering financial support for the UI, he has served on the College of Engineering Development Council and its Campaign Steering Committee. He also has volunteered as a primary fundraiser for the International Writing Program, as a distinguished visiting executive at the Henry B. Tippie College of Business, as a board member of the University of Iowa Foundation, and as a member of two Iowa Endowment 2000 Campaign steering committees. A speech he presented at Iowa was published in an anthology that also included speeches by President Jimmy Carter and United States Supreme Court Chief Justice Warren Burger.

Meyer's mission to succeed and then "give something back" took root in his Mount Union, Iowa, childhood and flourished during his years at Iowa. He is proud of his working-class immigrant roots and the fact that he earned money for college with a dizzying array of odd jobs, including raising popcorn, slopping hogs, reporting sports results to The Des Moines Register, and helping in his grandmother's hotel, his uncle's blacksmith shop, and his father's car-repair business. He says his engineering bent was inspired by his
Meyer's high school grades earned him a tuition scholarship at Iowa. To help cover the $8 monthly rent ("dorm rooms were too expensive," he says), he took on odd jobs. He also worked at the UI hospital's record room—three hours a day for three meals a day. To make the occasional trip home, he hitchhiked.

While many of Meyer's engineering classmates joined the military in 1941, a past encounter with polio redirected his war effort to the Iowa Ordinance Plant in Burlington. Four years designing equipment for loading and testing heavy ammunition served him well when he returned to campus in 1945, and his savings and a Westinghouse Scholarship finally enabled him to move into the dorms.

"I brought some of the designs I did at the Ordnance Plant, and professors Fred Higbee and John Russ excused me from the required third semester course," Meyer says. "Then they hired me to grade the drawings of freshmen."

Among the drawings Meyer recalls grading were several prepared by Don Bently, whose own professional achievements were profiled in the Spring 2002 issue of Iowa Engineer.

During Meyer's final years at Iowa, he met two fellow engineering students who would become lifelong friends. Classmate Joe Summers (BS 1948 in civil engineering) roomed down the hall from Meyer in Hillcrest Dorm; upperclassman Phil Hubbard (BS 1946 in electrical engineering, MS 1949 and PhD 1954 in mechanics and hydraulics) helped welcome him to Tau Beta Pi.

Following graduation and with encouragement from Engineering Dean Francis M. Dawson, Meyer began working for Standard Oil of New Jersey, which later became part of ExxonMobil Corporation.

"That began a 40-year career with a company that was a perfect fit for me," he says. "There were many stressful moments, but the American oil industry is a well-managed institution and I was thankful to have been part of it."

Through a series of technical and managerial positions in four cities, Meyer rose through the ranks to become the CEO of the corporation's U.S. business in 1976. He found time for active involvement in a number of philanthropic and nonprofit organizations, including serving as a trustee of the American Enterprise Institute and chairing the Board of Visitors for the University of Texas M.D. Anderson Cancer Center. Meyer also organized and chaired a number of successful annual giving committees and a non-alumni parents' committee for Princeton University, the alma mater of his three children.

Meyer retired from Exxon in 1988. Despite his academic and professional success, when the College of Engineering selected Meyer as a charter member of its Distinguished Engineering alumni academy in 1996, he demurred.

"I told [former engineering dean] Rick Miller that I had never actually practiced engineering," Meyer says. "After all, I devoted my whole life to the business side of the industry."

Miller convinced the former Exxon CEO that he was worthy of the honor, which was established to recognize engineering alumni who have succeeded in diverse fields.

Since his retirement, Meyer has turned his sights to a variety of volunteer efforts, including several institutions in the Texas Medical Center, The Greater Houston Community Foundation, and The University of Iowa.

"My concept of meaningful and constructive involvement with The University of Iowa demands both intellectual activism and hands-on activism," Meyer says. "Iowa engineering alumni should be eager to mentor students and provide wise strategic guidance for the College, in addition to help with the 'heavy lifting'—notably development."

Meyer argues that Iowa is no different from most other public educational institutions—only 10-20 percent of public university alumni offer their financial support or energies on a regular basis. Through his letters, lectures, and networking, he hopes to change that statistic at the UI to reflect a new, vigorous, and committed involvement by a majority of engineering alumni. Meyer says he hopes his class of 1948 will begin a trend of giving back to the college, not only financially but also through networking, recruiting, and mentoring.

"I will always be grateful for my college education," Meyer says, "and forever indebted to the many people who encouraged me to pursue it and gave me all the jobs that let me help pay for it. I graduated with a decent wardrobe, an excellent education, and a great appreciation for The University of Iowa."
New UI center helps researchers go hunting for genetic causes of disease

The University of Iowa has a new center designed to help researchers learn about the genetic basis of human disease and other biomedical phenomena.

The Center for Bioinformatics and Computational Biology (CBCB), located in the Seamans Center for the Engineering Arts and Sciences, is a high-performance computational and informational resource, which also works to develop interdisciplinary programs of study to teach professionals the skills of biomedical problem solving using modern computational methods.

“This is interdisciplinary work taken to the second power,” says Thomas Casavant, CBCB director and professor of electrical and computer engineering, as well as biomedical engineering. “The CBCB will play a leading role in expanding the work across campus, making the boundaries as transparent as possible for medical researchers in such fields as autism, hypertension, cystic fibrosis, cancer, and vision-related diseases.”

For more information, access the CBCB web site at http://genome.uiowa.edu

1930s

Forrest G. Baker (BS 1937 in electrical engineering) is retired and living in Davenport, Iowa. His hobbies include railroads and restoring antique radios.

Franklin C. Kiesling (BS 1938, MS 1939 in chemical engineering) lives in Sun City, Ariz. He was employed by Kodak, Rochester, N.Y. for his 36-year professional career.

Eugene C. Lister (BS 1939 in electrical engineering) is retired and living in Muscatine, Iowa.

1940s

Harold C. Bice (MS 1941 in chemical engineering) is retired and living in Wilmington, Del.

John Dawson (BS 1941 in civil engineering), a retired senior systems engineer with Rockwell International, lives in Downey, Calif. He is the son of the late Professor Francis M. Dawson, dean of the College of Engineering.

Irving Brown (BS 1947 in electrical engineering) retired after a 35-year career with RCA Corporation. He still teaches engineering courses at various NASA centers. He reports that he enjoyed attending the 2002 Engineering Alumni Reunion and meeting fellow 1947 graduates.

John T. Hogle (BS 1947 in mechanical engineering) is retired and living in Fayetteville, Ark. He is active in church, the Lions Club, Ozark Society, and exercise activities. He published The First Five Hogle Families in America and their Descendants in October 2001.

Howard S. Patterson, (BS 1947 in electrical engineering) retired division operations manager with AT&T—Long Lines Department, lives in Arlington Heights, Ill.

Thomas E. Daniels (BS 1948 in electrical engineering, MBA 1975 Monmouth University) was honored at Monmouth University’s 67th commencement with the Doctor of Service degree, Honoris Causa. He is president of Management Business Support Services, Oakhurst, N.J.

John T. Engel (BS 1948 in chemical engineering) lives in Williamsburg, Iowa. He was owner of Peterson Drug Company in Williamsburg from 1952–1987.

James W. Nilsson (BS 1948 in engineering) is Anson Marston professor emeritus at Iowa State University, Ames, Iowa. Nilsson and Susan Reidel, associate professor of electrical and computer engineering at Marquette University, co-authored Introductory Circuits for Electrical and Computer Engineering published by Prentice Hall in 2002. The University of Iowa Alumni Association honored Joseph B. Summers (BS 1948 in civil engineering) with a Distinguished Alumni Award for Service during its annual awards luncheon held June 8, 2002, in Iowa City.

Charles B. Thompson (MS 1948 in mechanics and hydraulics) is retired and living in Fountain Hills, Ariz. He was on campus in September.

Cecil M. O’Day (BS 1949 in civil engineering), retired president and CEO of California-American Water Company, lives in Millbrook, Ala.

Donald E. Bently (BS 1949, MS 1950 in electrical engineering) was elected a Fellow of the American Society of Mechanical Engineers (ASME).

1950s

Richard A. Bogue (BS 1950 in civil engineering) was elected chairman of the board of the First State Bank in Ida Grove, Iowa, Battle Creek, Iowa, and Danbury, Iowa. He is also chairman of the board of Hi-Way Products, Inc., and Hawkeye Fabrication, Inc.

Donald A. Edwards (BS 1950 in electrical engineering), retired national account manager for General Electric, is living in Sunriver, Ore. He is active playing golf in the summer and skiing in the winter. He writes, “Thanks for the great education – it has given me a good life!”

Carl F. Reeder (BS 1950 in chemical engineering) retired director of Technical Services, Corn Processing Division, Archer Daniels Midland, lives in Cedar Rapids, Iowa. He served for five years as chairman of the technical committee of the Renewable Fuels Association.

Richard R. Azeltine, (BS 1952 in mechanical engineering), retired design engineer with Boeing Corporation, Rocketdyne Division, lives in Chatsworth, Calif.

Raleigh J. Birch (BS 1952 in mechanical engineering) is owner of Birch Industrial Products Company in Media, Penn.

Jack W. Clemens (BS 1952, MS 1954 in civil engineering), retired environmental supervisor, Iowa Department of Natural Resources, lives in Des Moines, Iowa.

Russell F. Colton (BS 1952 in mechanical engineering) is retired and living in Cedar Rapids, Iowa.

Robert W. Daykin (BS 1952 in mechanical engineering), retired operations manager, nuclear products division of TRW, lives in Mentor, Ohio.

Marvin F. Gade (BS 1952 in chemical engineering), retired, vice chairman of the board, Kimberly-Clark Corporation, lives in Naples, Fla.

Theodore C. Gilles (BS 1952 in engineering) retired in September 2000 after 42 years with Lennox Industries, Inc. While serving as the director, Advanced Energy Systems was granted ten patents related to air conditioning.

George M. Griffith (BS 1952, MS 1953 in civil engineering) is president of Griffith Management Group, New Market, Va.

Donald B. Hamer (BS 1952 in mechanical engineering), retired chief technology engineer with McDonnell-Douglas, lives in St. Charles, Mo.

Valdis Lapsins (BS 1952, MS 1953 in civil engineering) is owner of VL Associates, Kettering, Ohio.

Francis B. McDaniel (BS 1952 in chemical engineering) lives in Yorba Linda, Calif.

Clarence D. Miller (BS 1952 in civil engineering) is an engineer consultant in Bloomington, Ind. He has authored more than 80 papers and chapters in books related to strength and stability of shell structures.

Russell E. Pierson (BS 1952 in chemical engineering), retired director of mechanical engineering at CPC International, lives in Lockport, Ill.

Charles E. Small (BS 1952 in electrical engineering) is owner of Professional Engineering Services, Westford, Mass.

David C. Willer (BS 1952 in civil engineering) is director of Valley of the Moon Water District, Sonoma, Calif.

Robert W. Burkhardt (BS 1953, MS 1955 in chemical engineering) is retired and lives in Rancho Palos Verdes, Calif.

Kenneth E. Lindley (PhD 1953 in electrical engineering), professor emeritus of physics and math-
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UI alumna serving as president of national engineering society

Rachel A.B. McQuillen (BS 1982 in civil engineering, MS 1984 in civil engineering) is currently serving as national president of the Society of Women Engineers (SWE).

Her election marks the third time in the past 20 years the organization has been headed by a UI College of Engineering alumna. The other two UI leaders are Maggie B. Hickel (BS 1975 in industrial engineering), manager of administrative services for 3M Company, St. Paul, Minn., and Barbara B. Wollmershauser (BS 1975 in mechanical engineering), a retired team leader for Warren Petroleum, Division of Chevron Corporation, Tulsa, Okla.

UI College of Engineering Dean Barry Butler noted that the record of UI leadership at SWE underscores the fact that more than 25 percent of undergraduate students at UI are women—well above the 19 percent national average.

McQuillen, originally from Iowa City, is the Transportation and Engineering Division Manager at URS Corporation.
neering) live in Elk River, Minn. Jason is a patent attorney practicing at Shumaker & Sieffert. Kimberly is an engineer-at-home with their two children.

Stephen C. Wilkinson-Gruber (BS 1997 in electrical engineering) has joined JDS Uniphase Corporation through that company's acquisition of IBM's optical transceiver business, which is based in Rochester, Minn. Wilkinson-Gruber is an Engineer II on the group's product integration team.

Matthew J. Bielawski (BS 1998 in chemical engineering) is a consulting engineer with Lockhead Martin, Inc., Northbrook, Ill.

David J. Bohmann (BS 1998 in civil engineering) is project engineer, Health and Safety Coordinator with GeoTrans, Inc., Waukesha, Wis. He spent 2.5 months in Washington, D.C. last fall/winter working on the anthrax cases. He worked with the EPA, FBI, Capitol Hill Police and other agencies to accomplish the cleanup. Response to the attack included characterizing the spread of the anthrax, decontamination activities and chlorine dioxide gassing to kill it.

Susan Walker Colsch (BS 1998 in electrical engineering) is an electrical/electronic design engineer with Schneider Electric in Cedar Rapids, Iowa. She also serves as secretary for the East Central Iowa Section of the Society of Women Engineers (SWE).

Andrew W. Anderson (BS 1999 in civil engineering) was promoted to product manager for General Motors Electromotive Division in LaGrange, Ill.

Margaret L. Begalle (BS 1999 in civil engineering) is an associate with the intellectual property law firm of Fitzpatrick, Cella, Harper & Scinto in New York, N.Y.

Amanda Ennis Mikhail (BS 1999 in mechanical engineering) is the Power, Mechanical Packaging, and Cooling Project Lead Engineer for a high-end UNIX-based server program at IBM. She lives in Rochester, Minn., and leads a team both in Rochester and in Poughkeepsie, N.Y. She is also the IBM-Rochester site owner of the Co-op/Senior Design Project Initiative, which links IBM co-ops with IBM engineers to assist them with their senior design projects once the co-ops return to their respective campuses for their final semesters.

Mark D. Graesser (BS 1999 in civil engineering) is a structural engineer at J.F. Sato and Associates, Littleton, Colo. He received a master of science degree in structural engineering from the University of Minnesota in 2001.

Michael W. Larson (BS 1999 in biomedical engineering) is an enterprise architect with Cerner Corporation, Kansas City, Mo. He is implementing computerized physician order entry systems in hospitals across the country.

Todd W. Penisten (BS 1999 in Civil Engineering) is a civil/environmental engineer with Veenstra & Kim, Inc., West Des Moines, Iowa, was elected president of the American Society of Civil Engineers Younger Member Group in Central Iowa. Typical activities include a tailgate for the Iowa/Iowa State football game, golf tournaments, Habitat for Humanity projects, engineering project tours, study groups for the licensing exam, and general business meetings.

Nam Ho Kim (PhD 1999 in mechanical engineering) is assistant professor in the Department of Mechanical and Aerospace Engineering at the University of Florida, Gainesville.

2000s

Jennifer R. Belbis (BS 2000 in chemical engineering) is a corporate facilities engineer with Watson Pharmaceuticals, Inc. She manages projects for nicotine gum product expansion facilities in Copiague, N.Y., and Salt Lake City, Utah.

Stephanie Homewood (BS 2000 in mechanical engineering) is a design engineer with John Deere Vehicle Group, Horicon, Wis.

Kristina Kuraitis (BS 2000 in mechanical engineering) is a vehicle research engineer at Honda R & D Americas, Raymond, Ohio. She does noise and vibration testing, and has been assigned her own vehicle—a 2004 Acura MDX and the 2004 Honda Pilot. She also conducts test driving research on a 10-mile-loop test track at speeds up to 150 m.p.h.

John S. Pacha (BS 2000 in mechanical engineering) has been elected chairman of the Northeast Iowa Section of the American Society of Manufacturing Engineers (ASME).

Sara E. Durch (Carlson) (BS 2001 in mechanical engineering) is a quality engineer with Lockehead Martin, St. Paul, Minn.

Daniel J. Gries (BS 2001 in biomedical engineering) is a consultant engineer with FM Global in Park Ridge, Ill.

Kendra McCoy (BS 2001 in industrial engineering) is a manufacturing engineer with Caterpillar, Inc., Peoria, Ill. She is participating in Caterpillar's Manufacturing Professionals Development Program which provides one-year rotations in process engineering, supervision, and logistics procurement.

Darci Noelting (BS 2001 in industrial engineering) is a pharmaceutical sales representative for Ortho-McNeil Pharmaceutical.

Amanda White (BS 2001 in electrical and computer engineering) is an integrated circuit design engineer in verification at LSI Logic, Colorado Springs, Colo.

Jaron Christoph (BS 2002 in industrial engineering) is a distribution engineer with Walgreen Co., in Deerfield, Ill.

You can contact us and send us your class notes by visiting the web site. Or you can learn more about the special programs and people that are making the College an even stronger leader in advancing engineering education.

Much of the credit for design and construction goes to Brian O'Leary, a UI senior in electrical and computer engineering from Des Moines, Iowa, whose web development skills contributed heavily to the new look.


Dudley H. Robinson (MS 1932 in chemical engineering) of San Diego, Calif., 1987.


Earl H. Sorg (BS 1933 in chemical engineering) of Willow Street, Pa., April 27, 2000.


Howard L. James (BS 1939 in chemical engineering) of Milwaukee, Wis., Aug. 15, 2002.

The College of Engineering lost three faculty in the past year—all of whom formed a legacy of teaching, research, and service to thousands of alumni while serving the College.

**James O. Osburn**, professor emeritus of chemical engineering, died Dec. 26, 2001, at Coventry Village, Sterling, Ill., after a long illness. Osburn joined The University of Iowa in 1946 as an instructor after obtaining industrial experience with the Werner G. Smith Company, Detroit and serving in the U.S. Navy. He was appointed full professor in 1957 and served as program chair from 1974 to 1978. His research interests were in mass transfer, modeling of dynamic systems, and process control. He co-authored two textbooks with UI faculty colleague Karl Kammermeier, published 62 papers, and served as thesis advisor for 21 PhD and 45 master's degree students. He was a member of numerous professional organizations. In 1974, Osburn was presented with the Citizen Chemical Engineering Award from the Iowa Section of the American Institute of Chemical Engineers. He also was a registered professional engineer in the state of Iowa.

**Dong H. Chyung**, professor of electrical and computer engineering, died Sept. 13 in Houston, Tex., where he was hospitalized. Chyung came to The University of Iowa in 1968 and was appointed full professor in 1973. He served 34 years on the faculty until his death. His special fields of knowledge centered on control theory and robotics. In 1992, he was honored as the Outstanding Electrical and Computer Engineering Professor for Excellence in Teaching,Eta Kappa Nu. During his career, he supervised 10 PhD students and 25 master's degree students. He authored more than 100 technical papers in leading journals and conference proceedings, including seminal contributions to the field of optimal control systems.

Remembering Chyung's many contributions as an educator, Norb Malik, an electrical and computer engineering colleague, noted, "Professor Chyung was without peer in the undergraduate student laboratories. He started with capacitance. Not the usual approach to selecting one from a parts list, he had his students actually make their own capacitor from wax paper and tin foil, then test it to make sure it satisfied specifications. Next he taught inductance. Students wound their own coils on cardboard forms. On lab days, student antenna wires protruded from windows of the lab and covered all approaches to the faculty parking lot, perhaps not the safest environment, but generating whoops and hollers from the students as they somehow managed to get all parts to work together to produce a newscast or music over their crude radios."

**Edward M. Mielnik**, professor emeritus of mechanical and industrial engineering, also touched thousands of students' lives during the 37 years he taught at The University of Iowa. He came to the University on a football scholarship in 1939, received his BS degree in mechanical engineering in 1943, and served in the U.S. Army during World War II. Joining the College faculty in 1946, Mielnik taught chemical and materials engineering and industrial engineering until his "official" retirement in 1983. However, as professor emeritus he spent every morning, except Christmas, at the College—working on a multitude of projects, from coordinating research on use of neural network analysis in diagnosing low-back disorders, to authoring a graduate-level textbook on nondestructive testing, to playing a leadership role in organizing annual spring College alumni reunion activities and programs. In 2001, Mielnik celebrated his 85th birthday among dozens of fellow alumni and faculty, former and current students, and friends—during Spring Reunion activities, of course!

If you would like to contribute to scholarships in memory of Profs. Osburn, Chyung, and Mielnik, please send your gift to the University of Iowa Foundation, P.O. Box 4550, Iowa City, IA 52244-4550.
Honor Roll of Contributors

This honor roll gratefully recognizes graduates, faculty, and friends who contributed $100 or more to the College of Engineering through The University of Iowa Foundation in 2001. High-level annual contributors to the college’s Engineering Excellence Fund and other college-wide funds are acknowledged in several recognition clubs followed by a list of all other contributors to the college.

Contributors to the College of Engineering who were members of The Presidents Club by December 31, 2001, are listed in bold type. The Presidents Club permanently recognizes the most generous contributors to The University of Iowa. All contributors of $100 or more to any one area of The University of Iowa in 2001 were recognized in the UI Foundation’s 2001 Annual Report on Giving.

Dean’s Club

The UI College of Engineering Dean’s Club recognizes alumni and friends who contribute (individually or jointly with their spouses) $1,000 or more annually to the Engineering Excellence Fund or other college-wide funds. The following contributors provided support at the Dean’s Club level in 2001:
The Transit Club recognizes those who contribute (individually or jointly with their spouses) from $500 through $999 annually to the Engineering Excellence Fund or other college-wide funds. The following alumni and friends provided support at the Transit Club level in 2001.
The MECCA Club recognizes those who contribute (individually or jointly with their spouses) from $250 through $499 annually to the Engineering Excellence Fund or other college-wide funds. The following alumni and friends provided support at the MECCA Club level in 2001.
The Engineering Associates includes corporations, foundations, and other organizations that contribute $1,000 or more annually to the Engineering Excellence Fund or other college-wide funds. The following contributors provided support at the Engineering Associates level in 2001:

Additional contributors to the College of Engineering in 2001:
The recognition extended to those listed in this honor roll is one small way to thank contributors. Every effort has been made to ensure that this honor roll is accurate. If your name has been omitted, misspelled, or misplaced, we apologize. Please contact the UI Foundation with any questions or corrections.

Thank you!
To Send Your Gift
The Engineering Excellence Fund is a college-wide resource that strengthens a variety of educational programs and activities for undergraduate and graduate students and helps to maintain excellence throughout the UI College of Engineering.

To contribute to the Engineering Excellence Fund, please send your check, payable to The University of Iowa Foundation, with your completed contribution form to the address shown. Thank you.

For More Information
If you would like more information about private support for the College of Engineering, Kevin Collins, the UI Foundation's director of development for the College of Engineering, would be happy to work with you. You may contact him at:

The University of Iowa Foundation
Levitt Center for University Advancement
P.O. Box 4550
Iowa City, Iowa 52244-4550
(319) 335-3305 or toll-free (800) 648-6973

E-mail address: kevin-c-collins@uiowa.edu

Web page: www.uiowa.edu/~uifdn/
Why should you support the College of Engineering?

I had an engaging conversation with an engineering alum recently who inquired about the level of participation in annual giving from our alumni. I responded that 8 percent of our engineering alumni make a yearly gift to the College. The alum was surprised in this number. This led to a dialogue about ways to communicate the importance of why alumni should consider making annual gifts to the College. As I hung up the phone, I penned a few thoughts I would like to share:

Perhaps graduates feel that it is the responsibility of the state and its taxpayers to fund the university, not alumni. As a public university, The University of Iowa does receive a fifth of its operating funds from the state of Iowa—a very significant level. Parents and students pay tuition, room, board, and fees that generate revenues to pay for the partial cost of a college education. But the cost of an education goes beyond salaries for faculty, textbooks, and equipment. Facilities improvements and maintenance, for example, are imperative and costly. And the programs that support an engineering education at Iowa are unique. Programs like the new Center for Technical Communication, and the Technological Entrepreneurship Certificate Program are extras that complement our outstanding curriculum.

The role private philanthropy plays in enhancing a college education is increasingly important here at the UI. Over 70 percent of our students in the College of Engineering receive financial aid from the UI and the College. This helps them afford the cost of attending college. Currently, the College of Engineering provides over $400,000 annually to students in the form of scholarships. These funds are a combination of annual gifts and earnings from invested endowments that have been contributed by UI Engineering alumni like you, along with gifts from corporations and friends.

Simply put, annual gifts to the College of Engineering make the difference.

Kevin Collins is at The University of Iowa Foundation.

Pave the way!

Since the completion of the Seamans Center for the Engineering Arts and Sciences, many alumni have been asking how they can have their names added to the paving stones in the John Deere Plaza at the south entrance to the Seamans Center. Due to this continuing interest, we are offering one last chance for alumni and friends of the college to add their names to one of these permanent “honor stones.”

If you contribute $4,000 or more to the UI College of Engineering, your name (or that of a family member or friend) will be engraved on an honor stone to be placed in the Plaza. Best of all, your contribution will help the college continue to offer the finest education to tomorrow’s engineers.

Show your support for the UI College of Engineering. Pave the way for future engineering students as you join other alumni and friends of the college in celebrating our college’s success.

For more information, contact:
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The University of Iowa Foundation
(319) 335-3305 or (800) 648-6973
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Or, to reserve your honor stone online, please visit http://www.givetoiowa.org/stone
The face of hydraulic and hydroscience engineering is changing on The University of Iowa campus. Two milestones in 2002 marked the beginning of new river research for IIHR—Hydroscience & Engineering. A Mississippi River station opened, and a long-overdue renovation of the 74-year-old Hydraulics Laboratory was completed. IIHR—Hydroscience & Engineering, located on the banks of the Iowa River in Iowa City, has completed a much-needed and long-awaited renovation, which provides for staff and student offices, a modern conference room and classroom, and an undergraduate fluids laboratory. Throughout the building, the riveted steel beams and walls of the original construction are featured as a daily reminder of the rich tradition and of generations of students and staff who have begun or made their careers here.

The Hydraulics Laboratory dedication ceremony will be held June 6 in Iowa City. All alumni and friends associated with IIHR—Hydroscience & Engineering are invited to attend.

The Lucille A. Carver Mississippi Riverside Environmental Research Station (MRERS) was dedicated with a ceremony last May. See story and photos on page 7.

More photos can be found at: www.iihr.uiowa.edu/current/renovation.html