Ripple Effect
PCBs, the Great Lakes, and the greater good
Iowa Institute for Biomedical Imaging Approved by Board of Regents

At its Oct. 31 meeting in Iowa City, the Board of Regents, State of Iowa, approved the establishment of the Iowa Institute for Biomedical Imaging at The University of Iowa.

The Iowa Institute for Biomedical Imaging is a collaborative venture between the UI Roy J. and Lucille A. Carver College of Medicine and the UI College of Engineering that aims to foster multidisciplinary and cross-college research and discovery in biomedical imaging, and improve training and education.

Biomedical imaging and image analysis play a critical role in modern medicine, both in the diagnosis and, increasingly, in the treatment of disease. A primary aim of the institute is to translate the advances in imaging research to the clinic, where they can improve health care for patients. The collaborative nature of the institute will also ensure that insight from the “bedside” informs and helps direct fundamental imaging research at the “bench.”

Geoffrey McLennan, M.D., Ph.D., UI professor of internal medicine, radiology, and biomedical engineering, is the director, and Milan Sonka, Ph.D., UI professor of electrical and computer engineering, ophthalmology, and visual sciences, and radiation oncology, is the co-director of the institute. The institute’s leadership will report to the deans of the College of Engineering and the Carver College of Medicine.

“The active, cross-discipline collaborations in biomedical imaging that we have at The University of Iowa are essentially unparalleled anywhere else in the nation,” McLennan says. “Establishing this institute will further enhance cooperation and communication between researchers from many disciplines, making already productive relationships even more efficient and providing health and economic benefits to Iowans and to people around the world.”

“The institute provides a home for the campus’s entire biomedical imaging community, whose research interests span a diverse and varied range of disciplines,” Sonka adds. “This breadth and scope of research is the key to our strength and success, and the institute’s infrastructure and organization will help focus that talent and keep us at the forefront of the field of biomedical imaging.”

Interdisciplinary biomedical imaging groups at the university have a long-standing and successful track record of securing external funding—more than $33 million in the past five years—and biomedical imaging at The University of Iowa is one of the nation’s largest programs focused on this important area of research. More than 110 UI faculty from four colleges—medicine, engineering, liberal arts and sciences, and public health—are involved in biomedical imaging, with projects in such diverse areas of medicine and engineering as image acquisition, pulmonary, cardiovascular, orthopaedic and ophthalmologic image analysis, radiation treatment, and virtual surgery planning.

The Iowa Institute for Biomedical Imaging also is expected to form collaborative ties with many existing UI research centers and institutes, including the Center for Computer-Aided Design and IIHR—Hydroscience & Engineering.

Another anticipated benefit of the institute is its role in helping create new jobs and attracting high-tech companies to Iowa. University of Iowa bio-imaging researchers have already established two companies locally—VIDA Diagnostics, Inc. and Medical Imaging Applications, LLC—that provide medical image analysis software. Many of the institute’s scientific leaders also participate in research collaborations with major multinational corporations, including Siemens, General Electric, Philips, and Olympus, to develop advanced imaging technologies.
Message from the Dean

In January, we were so saddened to learn that Engineering alumnus Jin Wu had passed away in Taiwan. It was only in the last issue of Iowa Engineer that we featured the amazing career voyages for Dr. Wu.

Graduating from the UI in the mid-1960s, he subsequently served as research scientist, faculty member at the University of Delaware, president of National Cheng Kung University, minister of education for Taiwan, and, most recently, Distinguished Senior Kluge Visiting Scholar at the US Library of Congress. He was a member of the College’s Distinguished Engineering Alumni Academy (http://www.engineering.uiowa.edu/honor-wall/alumni-academy/members/wu.php) and a member of the National Academy of Engineering.

A student of Dr. Hunter Rouse (the father of modern hydraulics), Dr. Wu left an indelible mark on the field of international fluid dynamics, education reform, and historical perspectives regarding his research and his country. In our view, he was an early example of the College’s educational pursuit to be among the best at teaching “the engineer…and something more.” Dr. Wu’s experience, counsel, and continual encouragement will be missed deeply, yet long remembered and admired.

It’s no coincidence that this issue of Iowa Engineer applauds the same level of leadership that Dr. Wu inspired. You will discover how Black & Veatch Energy president and Engineering alumnus Dean Oskvig integrated his engineering and business skills to lead one of the world’s major technical, consulting, and construction companies. You will also learn how faculty member and new civil and environmental engineering departmental executive officer Keri Hornbuckle and her students are tackling the alarming fate and transport of pollutants in the Great Lakes.

UI Engineering students, alumni, faculty, and staff are solving some of society’s toughest and most fundamental problems. These and thousands more achievements among us are solid examples that we truly are making a difference in the world.

P. Barry Butler, Dean
Bently, Wheeler Faculty Fellows Named

The College of Engineering has named four faculty members to Donald E. Bently or Robert and Virginia Wheeler Faculty Fellowships.

C. Allan Guymon, associate professor of chemical and biochemical engineering, and Joseph M. Reinhardt, associate professor of biomedical engineering, were named Bently Faculty Fellows.

Those named to Wheeler Faculty Fellowships are Keri Hornbuckle, professor and departmental executive officer of civil and environmental engineering, and Thanos Papanicolaou, associate professor of civil and environmental engineering and associate research engineer at IIHR—Hydroscience & Engineering.

Guymon joined the faculty in 2002. In 2001 he received a prestigious National Science Foundation CAREER Award. In 2003 he co-founded VIDA Diagnostics, Inc. of Iowa City, Iowa, which develops medical imaging and analysis software for assessing lung structure and function. In 2006, he received a grant from the National Institutes of Health to study lung mechanics.

Hornbuckle joined the college in 1998. Her honors include a prestigious National Science Foundation CAREER Award, an International Association for Great Lakes Appreciation Award, and a UI CAREER Development Award.

Papanicolaou joined the College in 2003. He is a member of numerous professional and scientific societies, is registered as a Professional Engineer in the state of Washington, and was a 2005-2006 recipient of the Iowa Obermann Center Research Award.

The Bently Faculty Fellowships were established in June 2002 to support the research of junior faculty through a gift to the UI Foundation from UI engineering graduate Donald E. Bently. A member of the college’s Distinguished Engineering Alumni Academy, Bently is an internationally recognized authority on rotor dynamics, vibration monitoring, and diagnostics. Born in Pleasant Prairie, Iowa, he earned UI bachelor’s and master’s degrees in electrical engineering in 1949 and 1950, respectively. He is currently the owner, chairman of the board, and chief executive officer of Bently Pressurized Bearing Company, a manufacturer of bearings that control stability in rotating machinery. He also owns Bently Agrodynamics, an agricultural firm, and Bently Biofuels Company, a producer of low sulfur biodiesel fuel from waste vegetable and virgin seed oils.

The Robert and Virginia Wheeler Faculty Fellowships were established in 2003 through a gift to the UI Foundation from the estate of Robert Wheeler and his wife, Virginia. Born in New York in 1922, Wheeler earned a bachelor’s degree in 1948, a master’s degree in 1949, and a doctorate in 1958, all in civil engineering from the UI College of Engineering. He was a UI instructor in civil engineering from 1953 to 1958 and served as assistant professor from 1958-1961. He later taught at Macalester College, Michigan Technical University, and the University of Akron before retiring from the University of Missouri-Columbia.

Young Alumni Advisory Board Formed

The University of Iowa College of Engineering has formed a Young Alumni Advisory Board to assist the College of Engineering with achieving its strategic plan and vision by sharing perspectives, knowledge, and experiences as a student and as a new engineer in the workplace; engaging young alumni in the life of the college; supporting the University of Iowa Alumni Association goal to engage more students and young (age 30 and younger) alumni, as well as increase opportunities for young alumni participation; creating in young alumni a strong interest and commitment to the college and developing a network of mutually beneficial relationships among alumni, students, and faculty; and developing a loyalty to the College so alumni will want to invest in the college with volunteer and financial support. The board’s 11 inaugural members are: Abby Anderegg, Accenture, Chicago, Ill.; Jacob Cannon, Shive-Hattery, Moline, Ill.; Katie Coates, Rockwell Collins, Inc., Cedar Rapids, Iowa; Josh Gersten, Clipper Wind Turbine, Cedar Rapids, Iowa; Samantha Lane, Stryker Orthopaedics, Mahwah, N.J.; Andy McCoy, HDR Engineering, Des Moines, Iowa; Jarrod Moss, Caterpillar, Inc., Peoria, Ill.; Brian O’Leary, Bio::Neos, Inc., Coralville, Iowa; Anne Ryerson, John Deere Harverster Works, East Moline, Ill.; Ori Sivan, Greenmaker Supply Co., Chicago, Ill.; Jeffrey Skrentner, Boston Scientific, Plymouth, Minn.; and Jerry Steele, doctoral candidate, College of Engineering, University of Iowa, Iowa City, Iowa.
UI Engineer’s Papers Chronicle Early Days Of Testing Research

Every spring, schoolchildren around the country fill in the bubbles on the score sheets of standardized tests, which were pioneered by Everett F. Lindquist in the University of Iowa College of Education. Now, the public can see some of the early documents and designs for the machines used to score the tests.

The UI Archives has acquired the papers of John V. McMillin, who was part of a small group of engineers that Lindquist employed to create the first high-speed optical mark reader in the early 1950s. The Iowa Testing Program and other standardized tests would eventually use the technology.

McMillin, who graduated in 1957 with high distinction from the UI College of Engineering, was project engineer at the UI Measurement Research Center, the first to design solid-state circuitry for updating Lindquist’s vacuum-tube era scoring machines.

After his retirement, McMillin donated his papers to the UI Archives. The documents include an original copy of the 1952 proposal for the design of the first large-scale, high-speed scoring machine, with a one-page analysis written by Lindquist. Original photographs of early scanning equipment are also included in the collection.

“This collection documents the long history of innovation at The University of Iowa,” says Meredith Hay, UI Vice President for Research. “Lindquist and his team took applied research and created a revolutionary system that has benefited the education of millions of children.”

In the early 1950s the test-answer sheets were fed through a machine that Lindquist called an “electronic brain.” But the technology, which relied upon vacuum tubes, was fast becoming obsolete. Taking its place was transistorized, or solid-state, circuitry, permitting even faster scoring and in much greater quantities. McMillin’s papers document this critical period in the development of large-scale test scoring.

The papers will be available for public research in the University Archives, Department of Special Collections, located on the third floor of the Main Library. To learn more about the contents of the collection, see http://www.lib.uiowa.edu/spec-coll/archives/guides/ RG99.0023.htm.
When Keri Hornbuckle talks about her research on the fate and transport of pollutants in the Great Lakes, she leans forward, gestures broadly, and begins to pepper her speech with words like “opportunity,” “pride,” and “public good.” The professor of civil and environmental engineering and newly minted departmental executive officer of the Department of Civil and Environmental Engineering articulates an explicitly humanistic vision of the 21st-century engineer.

“Whether it’s designing stronger buildings, more effective water treatment, safer roads and bridges, or environmentally friendly fish ladders, all civil engineers work for the public good,” says Hornbuckle, recently appointed Robert and Virginia Wheeler Faculty Fellow. “While each individual faculty member must decide his or her own research mission, we still share a fundamental commitment to improve the lives of others.”

Hornbuckle’s own commitment to the common good is reflected in her research on persistent organic pollutants, including the synthetic musk fragrances added to many household products, fluorinated compounds used as surface protectants such as Scotchgard™, and polychlorinated biphenyls (PCBs), a class of about 200 chemicals used widely in the manufacture of paints, caulking compounds, and electrical transformers. All these chemicals are common contaminants in surface water, and PCBs in particular have been linked to carcinogenic effects in humans.

In 2006 Hornbuckle and other researchers—16 from The University of Iowa and three from other schools—formed the Iowa Superfund Basic Research Program (isbprp) to study the consequences of atmospheric sources and exposures to PCBs. The team is attempting to determine the sources, transport mechanisms, distribution, and environmental exposure of PCBs
PCB
as well as their metabolism and toxicity in humans and other animals. The group also will research novel methods of phytoremediation—the use of plants to clean contaminated sites. Funded by a $12 million ($18 million including indirect costs), four-year grant from the National Institute of Environmental Health Sciences (National Institutes of Health), the program focuses on PCBs associated with contaminated bodies of water, former industrial sites, and atmospheric sources.

"The project harnesses the expertise of researchers from an array of disciplines to tackle a complex environmental, health, and engineering problem," Hornbuckle says about isbrp, which is directed by Professor of Occupational and Environmental Health, Larry Robertson.

"Existing data indicate that PCBs and other semivolatile pollutants can be found in the air of many big cities, including Chicago," Robertson says. "But where these pollutants come from, how much of them people breathe, and the impact of exposure are challenging questions."

Six isbrp research teams focus on individual but related research problems, including the genetic impact of PCBs in lab rats, the processes by which humans inhale and metabolize PCBs, and whether poplar trees can be used to clean up sites contaminated by PCBs. Hornbuckle and her team of two postdoctoral fellows, three graduate students, and two undergraduate students are conducting a major field study to determine the prevalence, distribution, and sources of atmospheric PCBs in the Chicago area. Hornbuckle believes that atmospheric modeling will provide a critical key to answer those research questions.

"The level of these toxins in the Great Lakes fish is so high that the federal government has banned commercial fisheries there," Hornbuckle says. "And yet the manufacture of PCBs has been banned for 30 years. So where are they coming from?"

Her answer: "off-gassing" into the atmosphere from the soil of former PCB production and dump sites that may remain unidentified and continue to throw PCBs into the atmosphere.
“Polar bears exhibit considerably elevated concentrations of PCBs,” Hornbuckle says, “even though they of course live nowhere near industrial operations. These chemicals tend to concentrate particularly well in cold water, where they are taken up by the fish, which are eaten by the polar bears.”

The PCBs in Great Lakes fish also come from the atmosphere. Hornbuckle notes that left to its own devices, water will release PCBs, so “if we can stop the atmospheric source of PCBs, the Great Lakes will cleanse themselves quickly.”

But researchers must first identify the sources of the PCBs. Using an innovative sample technique, Hornbuckle’s team will collect more than 2,000 air samples during the four-year study.

“PCBs are measured in air around the world,” she says, “but it’s expensive to install and operate a single monitoring device in one place. So we designed and installed devices on two mobile health clinic vans that visit 40 Chicago area public schools each month. Because the vans move around, we’ll get better geographic range, as well as increased sample size.”

Describing this novel idea as “a real breakthrough,” Hornbuckle adds that it epitomizes her vision of good science. It is hard to believe, then, that years ago she came very close to abandoning PCB research entirely.

After earning a Bachelor of Arts degree in chemistry from Grinnell College (1987), the Cedar Rapids, Iowa, native worked for a year analyzing PCBs as a lab technician. Far from challenging the young woman who had a penchant for math and science, lab work bored her.

“Analyzing PCBs was a real pain,” Hornbuckle says. “And at the end of the year, I swore I would never have anything to do with them again.”

The experience, however, did allow her to observe environmental engineers solving real-world problems, collecting and analyzing data, talking to clients, and conducting fieldwork—all of which intrigued her. Her mentor at the University of Minnesota was working on PCBs in the Great Lakes and her graduate studies in environmental engineering (Ph.D. 1996) gave her the opportunity to apply the full panoply of critical thinking skills to tease apart real problems and create real solutions.

“I had a fantastic experience apprenticing in graduate school,” Hornbuckle says. “Now that I’m a professor myself, I understand that one of the great privileges of being a faculty member is serving as a mentor to students.”

Hornbuckle’s latest role as department executive officer for civil and environmental engineering has given her another new perspective on the discipline, particularly in light of the collegiate reaccreditation process, which begins with departmental self-appraisals and includes a site visit from members of the accreditation team in 2008.

“I’ve thought a lot about who we are at Iowa and where the department and the college should be heading,” she says, “and one of the things we must do is find a way to tell our success stories better. “And, of course, we focus our efforts on research for the public good—something we must continue to say loudly and often.”

David Wethington (MS 2002), a Project Manager with the U.S. Army Corps of Engineers, collects sediment in East Chicago. The samples were analyzed for PCBs by the Hornbuckle research group as part of the study of potential sources of PCBs in the Chicago area.

Photo by Keri Hornbuckle
The countdown to careers starts on day one

Text by Jean Florman
As part of the Student Development Center team, Engineering Professional Development Director Phil Jordan and Associate Director Kelli Delfosse provide an array of services and resources to help Iowa engineering students and alumni find employment and to help companies, government organizations, and universities find and employ Iowa engineers. These connections are created and nurtured through the Engineering Professional Development Web site (www.engineering.uiowa.edu/epd), two annual employment fairs, experiential education, and on-campus recruiting by companies.

Delfosse plans and coordinates the college’s fall Engineering Career Fair and spring Engineering Job & Internship Fair. The two events have seen dramatic increases in the number of participating employers during the last several years. Large corporations, small consulting firms, government agencies, and non-profit organizations set up booths in a downtown Iowa City hotel to discuss full-time, co-op, and internship opportunities with more than 600 Iowa engineering students and alumni.

“The fairs enable us to meet with students and explain what we do, as well as the opportunities we offer for engineers,” says Robert Kress, partner in Accenture, a global management consulting, technology services, and outsourcing company. Kress, who earned an M.B.A. at Iowa (1981) and is a member of the College of Engineering Advisory Board, adds that almost 200 Iowa alumni work for the company, about a third of them engineers.

The college particularly encourages first-year students to attend the Career and Internship Fairs so they can begin exploring career options and networking with engineering professionals. This attention to students in the beginning of their college careers is a hallmark of the Engineering Professional Development office.

“We devote considerable time to first-year students,” Jordan says. “In fact, even before students enter the college, we impress upon them that once they’re engineering students, it will be important not only for them to keep up their grade point averages but also to get their hands dirty.”

“Getting their hands dirty” means applying what they learn through experiential education, be that a co-op, internship, or study-abroad experience. Professional practice during engineering education not only enhances students’ classroom experiences but also enables them to explore various work settings and forge professional relationships that may benefit them when it comes time to leave the academic world.

Experiential education is particularly important in helping students nab the
Iowa Engineer / 2008, Number 1

CareerConnection

“In addition to participating in the career and internship fairs, we have used a variety of forums to remain connected to the college,” Robert Kress, partner in Accenture and a member of the College of Engineering Advisory Board, says. “We present to classes and seminars, provide internship and co-op experiences, sponsor engineering student organizations and events, offer scholarships, and participate on college and departmental advisory boards.”

But “engineering professional development” does not end on graduation day, and to help support the University's engineering alumni, the office now offers a new service for its alumni and corporate partners.

CareerConnection for Engineering Alumni helps match UI engineering alumni outside Iowa with technology career opportunities at companies and agencies that partner with the college. Alumni learn about career opportunities with companies and agencies, and the college’s corporate partners can find and attract well-qualified Iowa engineering alumni—a win-win for everyone.

Alumni interested in companies needing seasoned engineers can access information on www.engineering.uiowa.edu/alumni-friends/career/.

Companies wanting more information on how to participate in CareerConnection for Engineering Alumni can contact:
Marketing and Communications Office
College of Engineering
The University of Iowa
fred-streicher@uiowa.edu

By the time they graduate, between 80 and 85 percent of Iowa engineering students have completed some form of experiential education, including work in research labs.

Several UI engineering summer students intern with the Iowa DNR Pollution Prevention (P2) Program.
It’s a long way as the crow flies from Williams, Iowa, population 427, to Kuala Lumpur, Malaysia, a city whose regional population approaches 7 million.

Dean Oskvig spanned that distance—and many others—en route to an illustrious career in engineering and business. But unlike a crow’s route, Oskvig’s path was anything but straight or predictable. During a 32-year tenure with Black & Veatch, Oskvig has managed major energy development and delivery projects on four
He also traveled up the corporate ladder to become the president and CEO of the energy business of one of the world’s leading engineering, consulting, and construction companies.

In 2006 Oskvig took the helm of the energy portion of the employee-owned company that earned $3 billion annually in the development of energy, water, telecommunications, government, and environmental infrastructures. Black & Veatch currently employs 9,600 professionals in a global workforce located in 100 offices, including approximately 3,700 employees in the Kansas City area headquarters. Since unfurling its first blueprint paper in 1915 as Black & Veatch, the company has completed projects in more than 100 countries on six continents.

He is proud of the Malaysia project, which entailed the design and construction of a 500,000 kilovolt backbone electrical transmission system along a north-south axis of the peninsula. Starting in 1993, Oskvig and his Black & Veatch team designed and built nine massive, high-voltage substations and 510 kilometers of double-circuit transmission lines that traversed rivers, high mountains, and rubber plantations. Despite many challenges, the project “was done well, on schedule, and under budget.”

Thanks to the Black & Veatch system, Malaysia now has reliable electric power and the ability to transfer electricity from areas where there is a surplus to areas of need. The project also enabled the country to become part of a developing Southeast Asian transmission grid that will move electrical power around the countries of Thailand, Malaysia, Indonesia—and eventually, via undersea cable, Borneo and the Philippines.

“It was a terrific project with a great team of people who had many diverse talents and interests,” Oskvig says. “Some of them spent four or five years in Malaysia, and given the opportunity today, many would drop what they’re doing and go back.”

As the company’s top energy professional, Oskvig no longer leads on-the-ground engineering projects, but he continues to cut a global swath. The pages of his July 2007 day planner, for instance, indicate that he traveled to California, Wisconsin, New York, North Carolina, England, Scotland, and Russia—a long way from his start on a Midwestern farm.

Although Oskvig attributes much of his success to serendipity, it’s clear that initiative, organizational skills, and smarts had a lot more to do with it. And he believes his engineering education at Iowa established a crucial foundation that allowed him to take advantage of the good opportunities that came his way.

“When I first came to Iowa City, I was straight off the farm,” Oskvig says, “and The University of Iowa—The university in Iowa—was the biggest deal I’d ever seen.”

After a year studying liberal arts, Oskvig spent a summer working as a survey rod man and technician in Hamilton County.

“The very last day of the summer, the county engineer stopped by,” Oskvig recalls. “We hadn’t seen him all summer, and he started asking me what I wanted to do and what I was majoring in. When I said political science with an eye toward law school, he wrinkled his nose. Then he said, ‘You should go into engineering,’ and I did.”

Making up for lost time meant almost doubling his course load, but Oskvig performed well and graduated in 1972 with a bachelor’s degree in civil engineering. Among his many excellent instructors, he counts Lane Mashaw and Dan Branson, who somehow “managed to mix reinforced concrete with philosophy and baseball.”

While fulfilling his postgraduation military commitment at Holloman Air Force Base, N.M.—where he served as a base civil engineering officer for three years—Oskvig decided to pursue a Master’s degree in business administration from the University of Utah (1975). He joined Black & Veatch in 1975.

From time to time, Oskvig visits Iowa to share his wisdom and experience...
with engineering students, most recently as an invited speaker in the “Grabbing the Globe” series.

“I try to encourage engineering students to think about how they can prepare themselves to work in a global context,” Oskvig says. “It’s important that they get involved in more than the engineering curriculum. Being a good 21st-century engineer means being culturally aware, developing business savvy, and becoming politically astute. Before they even get into their technical bag of tricks, engineers must understand what drives the business and public policy that shape the design, creation, and maintenance of our infrastructure.”

While he and his wife, Tammy, have traveled to many countries around the world, Oskvig still has the heart of a Hawkeye.

“If you could see my office,” he says, “you’d know immediately where I went to school.”
The College of Engineering launched a new collegiate Web site in August. Created by Bill Easton, college webmaster, the new site (www.engineering.uiowa.edu) provides several new features and tools that make accessing information easier for those who visit.


A graduate research focus in the emerging area of wind power management was recently added to the Mechanical and Industrial Engineering Master’s curriculum. Graduates will be able to fully understand the system and management of wind power facilities and their interactions with other alternative and conventional power generation systems.

Adrian E. LaTrace, vice president and general manager, Acciona Energy North America Corporation, Chicago, Ill., and R. Kelly Orrberg, (B.S. 1982 mechanical engineering) executive vice president and chief operating officer for Commercial Systems at Rockwell Collins, Inc., Cedar Rapids, Iowa, have been appointed to the College of Engineering Advisory Board.

Six new freshmen in the College of Engineering won UI Presidential Scholarships. Awarded are Allison Bruggeman, engineering major from Inwood, Iowa; Ben Dilger, biomedical engineering major from Garwin, Iowa; Anthony Melchiorri, biomedical engineering major from Normal, Ill.; Peter Montag, mechanical engineering major from Iowa City, Iowa; Vijay Permeswaran, engineering major from Le Mars, Iowa; and Ran Zhang, biomedical engineering major from Iowa City, Iowa. The Presidential Scholarship package is worth $52,000 over four years.

John Caudy, freshman, of Winnetka, Ill., won the 2007 Best High School Engineered Live Performance Recording Award from Down Beat magazine. He was recognized in the June issue of the magazine.

Engineering faculty recognized for obtaining $1 million or more in external funding for 2006–2007 are Fred Stern, professor of mechanical and industrial engineering; Karim Abdel-Malek, professor of biomedical engineering and director of the Center for Computer-Aided Design; Nicole Grosland, associate professor of biomedical engineering and orthopaedic surgery; and Milan Sonka, professor of electrical and computer engineering. Ryan Baumberg joined the College of Engineering Dean’s Office in July. He is administrative assistant to Dean P. Barry Butler. Baumberg came from the Tippecanoe College of Business, and prior to that he worked at IIHR—Hydroscience & Engineering.

The College of Engineering hosted a June 14 ceremony to formally sign an agreement between the UI and Dharmshil Desai University, Gujarat, India, establishing a joint bachelor’s/master’s degree program for students of the Indian university.

Thirty-four engineering students were among some 346 undergraduates at The University of Iowa named to the president’s list for the 2007 spring semester. To be included on the list a student must have a minimum 4.0 grade point average in all academic subjects for the preceding two semesters, with a total of at least 12 semester hours of credit per semester.

Engineering Dean P. Barry Butler was a keynote speaker May 30 at groundbreaking ceremonies for the new Acciona Energia North America Corporation windpower manufacturing facility in West Branch, Iowa. The College played a supportive role in attracting the company to locate in the Iowa City area.

Biomedical Engineering
Nicole DeVries, graduate student, was awarded a 2007–2008 National Science Foundation Graduate Research Fellowship. Edwin Dove, professor, was appointed interim departmental executive officer. He succeeds K.B. Chandran who completed his term in leading the department.

Alexa Keenan, a sophomore biomedical engineering and international studies major in the College of Liberal Arts and Sciences, was awarded a 2007 Goldwater Scholarship. The $7,500 scholarship was awarded to 317 students nationally and is administered by the federally endowed Goldwater Foundation.

Madhavan L. Raghavan, associate professor, received a five-year, $2.74 million grant from the National Heart, Lung, and Blood Institutes, a section of the National Institutes of Health, to study the biomechanics of brain aneurysms. The study will help physicians diagnose the severity of brain aneurysms and better ascertain their rupture risk.

Sara Vignostad, graduate student, won first place in the biotechnology section of a student presentation competition at the U.S. National Congress on Computational Mechanics held in San Francisco, Calif., for her presentation, “Development and Validation of a Strongly Coupled Approach for Heart Valve Simulations.”

David G. Wilder, associate professor, received a $52,908 research grant from Palmer College of Chiropractic, Davenport, Iowa, to study the effect of spinal manipulation on sensorimotor functions in back pain patients.

Chemical and Biochemical Engineering
Gregory Carmichael, Karl Kamermeyer Professor of Chemical and Biochemical Engineering, was appointed to the National Research Council’s Committee on Developing Mesoscale Meteorological Observational Capabilities.

Tim Mattes, assistant professor, received a $73,656 Small Grant for Exploratory Research from the NSF. He will study whether specific proteins can be detected and quantified in soil using proteomics techniques.

Holly Moriarty, a senior from Peosta, Iowa, was honored with an Innovative Waste Management Project Award from the Iowa Society of Solid Waste Operations at the Ninth Annual Iowa Recycling and Solid Waste Management Conference held October 9 in Iowa City, Iowa. Moriarty initiated “The University of Iowa Compost Project” that used 17.36 tons of preconsumer food waste from the Hillcrest Dining Room.

Wifl Nixon, professor, was named the 2007 Outstanding Civil Engineer (Government) by the Iowa section of the American Society of Civil Engineers. He was cited for his contribution toward civil engineering research in winter highway maintenance, his service to ASCE, and his efforts in civil and environmental engineering education.

A. Jacob Odgaard, professor and research engineer at IIHR—Hydroscience & Engineering, received a $99,228 research contract from Lutz, Daily & Brain Consulting Engineers, Overland Park, Kan., to conduct a hydra-
lic model study for the Thomas Hill Power Plant Pump Stations, Clifton Hill, Mo.

Thanos Papanicolaou, Robert and Virginia Wheeler Faculty Fellow of Engineering and associate professor, received a $112,000 research grant from the Iowa Department of Transportation.

Salam Rahmatalla, assistant professor and researcher at the Center for Computer-Aided Design, joined the faculty in August. He earned his Ph.D. in civil and environmental engineering in 2004; a Master’s degree in civil and environmental engineering in 2002; and a Master’s degree in mechanical engineering in 2005, all from The University of Iowa. He earned his B.S. in mechanical engineering from the University of Baghdad in 1981. His special fields of knowledge include structure optimization and motion analysis. He recently received a $90,144 research contract from Caterpillar Corporation to study human response to select vibratory conditions on Caterpillar equipment.

Michelle Scherer, associate professor and researcher at the UI Center for Global and Regional Environmental Research, received a $71,443 grant from the U.S. Department of Energy’s Argonne National Laboratories. She will study coupled microbial, geochemical, and mineralogical controls on biogenic fell speciation and reactivity.

Jenny Schnoor, Allen S. Henry Chair in Engineering and professor, was appointed by Governor Chet Culver to the state of Iowa Climate Change Advisory Council.

Dana Weir, a senior from Rockford, Ill., received the Outstanding Senior Student Award from the Iowa section of the American Society of Civil Engineers.

Electrical and Computer Engineering

Er-Wei Bai, professor, received a three-year $239,993 grant from the NSF to develop modeling methods for nontraditional engineering systems and, in particular, bio/biomedical systems. Bai also received a two-year, $279,697 subcontract from Virginia Tech, Blacksburg, Va., to help improve CT angiography image quality and to demonstrate its applicability to clinical settings.

Gary Christensen, Robert and Virginia Wheeler Faculty Fellow of Engineering and associate professor, received an $84,214 National Institutes of Health research grant through a collaborative effort with Virginia Commonwealth University. He will conduct research on image registration for image-guided adaptive radiation therapy.

Soura Dasgupta, professor, received a $67,131 research grant from the NSF to study globally convergent localization in sensor networks.

Catherine Kern joined the departmental staff in July. Previously, she was employed with the UI Center for Teaching.

Anton Kruger, associate professor and associate research engineer at IIHR—Hydroscience & Engineering, received a $59,406 research grant from the Department of Defense-Air Force to conduct a rainfield characterization study.

Sudhakar Reddy, University of Iowa Foundation Distinguished Professor of Electrical and Computer Engineering, received a one-year, $55,000 research contract from Semiconductor Research Corporation, Durham, N.C., to conduct high-quality tests on DSM Designs.

Andreas Wahle, adjunct associate professor and associate research engineer, received a $71,500 one-year research grant from the American Heart Association Heartland Affiliate to study 4-D ultrasound segmentation and statistical modeling of the left ventricle for mechanical dyssynchrony assessment.

Mechanical and Industrial Engineering

Christoph Beckermann, University of Iowa Foundation Distinguished Professor of Mechanical and Industrial Engineering and director of the Solidification Laboratory, was appointed a member of the Advisory and Board of Review of a new journal, International Journal of Metalcasting, published by the American Foundry Society. Beckermann will be the keynote speaker at the 6th International Conference on Computational Fluid Dynamics in the Oil & Gas, Metallurgical and Process Industries June 10–12 in Trondheim, Norway.

Linda Ng Boyle, assistant professor, and Tim Brown, senior team leader of cognitive systems at the National Advanced Driving Simulator, were co-hosts of the Driving Simulation Conference – North American 2007 held September 12–14 in Iowa City. Boyle also received a $275,000 grant from the National Institute on Child Health and Human Development to study the driving performance of people with traumatic brain injuries.

Daniel McGehee, director of the Human Factors and Vehicle Safety Research Division of the UI Public Policy Center, will serve as co-principal investigator.

Center for Bioinformatics and Computational Biology

The Center signed a five-year, $1.5 million contract with Alcon Research, Ltd. of Fort Worth, Texas, for research aimed at helping to prevent blindness. Principal investigators on the contract are Terry Braun, assistant professor of biomedical engineering and ophthalmology and visual sciences and director of the Coordinated Laboratory for Computational Genomics, and Robert Mullins, associate professor of ophthalmology and visual sciences in the UI Carver Family Center for Macular Degeneration.

Center for Computer-Aided Design

Laura Frey-Law, assistant professor of physical therapy and rehabilitation science, director of the Neuromuscular Biomechanics Laboratory, and researcher at CCAD, received a $144,600 research grant from the Department of Defense. Her research will focus on advancing digital human modeling to accommodate vibration environments.

Tim Marler, senior research scientist in the Virtual Soldier Research program, in collaboration with Jingzhou Yang, Salam Rahmatalla, Karim Abdel-Malek, and Chad Harrison (of Honda R&D Americas, Inc.) won the SAE Digital Human Modeling 2007 Most Outstanding Group Presentation Award at the Society of Automotive Engineers conference held in Seattle, Wash., for the paper, “Validation Methodology Development for Predicted Posture.” The Virtual Soldier Research program received a one-year, $1.77 million contract with the U.S. Army Tank Automotive Command Center. In May, the U.S. Council for Automotive Research, an organization composed of Chrysler, Ford Motor Company, and General Motors Corporation,
awarded a $1.5 million contract for manufacturing ergonomics research to the VSR program.

Computer Systems Support
Sheila Britton, secretary, was recognized in August for 25 years of service to The University of Iowa.
Doug Eltoft, director, was recognized in June for 30 years of service to The University of Iowa.
Diana Harris, project and communications manager, won a UI Outstanding Staff Award for her project management skills as a member of the CSS team, her efforts on behalf of the Engineering Staff Council, and her commitment to diversity and issues of concern to women in the university.

IIHR—Hydroscience & Engineering
Tatsuki Nakoto, research engineer, was recognized as a Life Member of the American Society of Civil Engineers for his long-term continued membership and his contributions to the society. He also was awarded a $100,000 one-year research contract from Camp, Dresser & McKee, Inc., Bellevue, Wash.
Witold Krajewski, Rose and Joseph Summers Chair in Water Resources Engineering and professor of civil and environmental engineering, and Anton Kruger, associate professor of electrical and computer engineering, received a $1.36 million grant from the NSF to improve rainfall and flood forecasting. They plan to develop a mobile radar network to better understand relationships between storms and the dynamics of watersheds.

Student Development Center
Scott Hansen joined the staff in August as office coordinator.
Rebecca Whitaker joined the staff in July as coordinator for K–12 outreach. She coordinates programs such as Project Lead the Way; Junior Engineering Technical Society (JETS); Tests of Engineering Aptitude, Mathematics, and Science (TEAMS); and Invent Iowa that introduce K–12 students to engineering and science career opportunities.

All College of Engineering alumni are invited to attend the Alumni Reunion Weekend, June 6–7, 2008. Seminar speakers are Milan Sonka, professor of electrical and computer engineering and co-director of the new Iowa Institute for Biomedical Imaging (see the inside front cover), and Ahmad Omar, co-director of the National Advanced Driving Simulator.

We will honor the classes of 1958, 1963, and 1968. For more information, go to http://www.engineering.uiowa.edu/reunion.

1950s
Roger Norman Coe (B.S. 1957 chemical engineering) of Hilton Head Island, S.C., is the author of “Short Short Stories,” a collection of thirty-five stories ranging from fewer than 1000 to 3000 words. One of the stories, “An Old Master Comes to Life,” was awarded Honorable Mention in the Genre Short Story category of the 76th annual Writer’s Digest Writing Competition. In 2006 his story “Double Trouble” from his book “A Month Plus of Short Stories” was a finalist in the mystery category of the Writer’s Digest’s Popular Fiction Competition. Both publications are available from Amazon.com.

1960s
Thomas R. Hanson (B.S. 1960 mechanical engineering) of Hinsdale, Ill., was elected to serve on the UI Foundation’s Executive Committee for 2007-2008. He was also re-elected to a three-year term on the board.
Charles “Chuck” Bendixen (B.S. 1961 mechanical engineering, M.D. 1966) of Flagstaff, Ariz., is a lieutenant colonel in the Civil Air Patrol, the civilian auxiliary branch of the United States Air Force.
Thomas J. Lowenberg (B.S. 1962, M.S. 1963 civil engineering) of Pine Springs, Minn., has been named chair-elect of the UI Alumni Association Board of Directors. He has represented the College of Engineering on the board since 2002.

Ernest Marsolais (M.D. 1963, M.S. 1967, Ph.D. 1969) of Cleveland, Ohio, was inducted into the Creston, Iowa, High School Hall of Fame on September 20. Marsolais is the medical director of Cleveland Veterans Affairs Functional Electrical Stimulation Center of Excellence, as well as the director of the Division of Rehabilitation in the Department of Orthopaedics at Case Western Reserve University School of Medicine. He was noted as one of the pioneers in the research of functional electrical stimulation in which electrodes implanted in the body stimulate muscles, allowing some restoration of function of muscles and limbs in paraplegic patients.
Phil Mayberry (B.S. 1967 industrial engineering) was elected to the VSR program.

1970s
Gary F. Seamans (B.S. 1971 electrical engineering) of Galena, Ill., was elected to serve on the UI Foundation’s Executive Committee for 2007–2008.
Randall Beavers (B.S. 1972, M.S. 1973 civil engineering) is interim chief executive officer of the Des Moines Water Works. He succeeds L.D. McMullen (B.S. 1968 civil engineering, M.S. 1972, Ph.D. 1975, civil and environmental engineering) who retired after 30 years with the utility, 21 as general manager and CEO.
Lilia Abron (Ph.D. 1972 chemical engineering) of Rockville, Md., was one of four engineers invited to elaborate on “Professional Engineer: What It Means to Me,” in a special issue of Professional Engineer magazine in June.
Patricia Coleman (B.S. 1978 civil engineering) was promoted to principal at Thornton Tomasetti, Dallas, Texas. Coleman joined Thornton Tomasetti in 1993. Her accomplishments include project manager for design and construction of the 500,000-square-foot Acute Care Expansion of Presbyterian Hospital of Dallas and project manager for the Azure Tower Condominium in Dallas, Tex.

1980s
David Dechant (M.S. 1980 civil and environmental engineering) was promoted to vice president of HDR Engineering, Cedar Rapids, Iowa.
Robert Campbell (B.S. 1981 electrical engineering) was promoted to chief technology officer of the consumer desktop computer division of Hewlett-Packard Corporation, Palo Alto, Calif.
Gregory J. Kirsch (B.S. 1987 electrical engineering) was recognized as one of Georgia’s Super Lawyers. Kirsch leads the firm’s software, electronics and communications technology patent practice. He serves as patent counsel to numerous technology and Internet companies, ranging from large multinational corporations to small startups. He was also co-chair of the American Bar Association’s Intellectual Property Law Section.
David J. Fisher (M.S. 1988, Ph.D. 1990 electrical and computer engineering) is a neuroradiologist at St. Nicholas Hospital, Sheboygan, Wis.
Alexander N. Cartwright (B.S. 1989 electrical engineering, Ph.D. 1995 electrical and computer engineering), professor of electrical engineering in the School of Engineering and Applied Sciences at the University of Buffalo, Buffalo, N.Y., has been appointed vice provost for strategic initiatives, a new position in which he will serve as the point person in the Provost’s Office for the UB 2020 strategic strengths initiatives.

1990s
John Crowley (B.S. 1990 chemical engineering) is a manufacturing engineer with ATK–Federal Premium Ammunition, Anoka, Minn. His areas of responsibility include industrial copper and nickel plating and explosive primer composition manufacture.
Michael L. Nelson (B.S. 1990 chemical engineering) is a project design engineer at Whirlpool Corp., Newton, Iowa.
Joel Burken (B.S. 1991 civil engineering, M.S. 1993, Ph.D. 1996 civil and environmental engineering), associate professor and coordinator of the environmental engineering undergraduate program at the University of Missouri-Rolla, was awarded the 2007 Rudolph Hering Medal for the Most Valuable Contribution to the Environmental Branch of Engineering, American Society of Civil Engineers, for the paper, “Impacts of Component-ion Molar Ratios and pH in Solute Precipitation,” which appeared in the Journal of Environmental Engineering. Burken is also the 2007 recipient of the Excellence in Teaching Award for the Association of Environmental Engineering and Science Professors.

From an OnIowa.com Hawkeye Note posted October 6, 2007, Jennifer (Doran) Garfield (B.S. 1991 chemical engineering) writes, “Since graduation I have been working for Exxon/ExonMobil in various technical and management positions, including a three-year assignment in Singapore for a chemical plant startup.”

Jim Griffin (B.S. 1994 electrical engineering) is executive vice president-research and development for Xata Corporation, Burnsville, Minn. Xata Corporation is a leader in onboard fleet management systems for private fleet transportation.

Robert J. Schwan (B.S. 1994 mechanical engineering) is the operations manager at Blue Wave Ultrasonics, Inc. in Davenport, Iowa.

From an OnIowa.com Hawkeye Note posted October 3, 2007, Eric Bauswell (B.S. 1995 mechanical engineering) writes, “I co-founded Surfacedek Corp in 1999 in San Jose, Calif. Four of our 30 engineers are UI alums! In September 2007 we opened a branch office in Bettendorf, Iowa. Keep an eye out for us, as we’ll be looking for great people and partnerships.”

Kathryn Q. Streeby (B.S. 1995 biomedical engineering) earned her executive M.B.A. from the J.L. Kellogg Graduate School of Management at Northwestern University, Evanston, Ill. She is the director of marketing at Kohler Company, Kohler, Wis.

Blair Greimann (Ph.D. 1996 civil engineering) has been selected as the Bureau of Reclamation’s Engineer of the Year. Greimann is the lead hydraulic engineer for Reclamation on the Matilija Dam Ecosystem Restoration Project in Ventura County, Calif., which will improve the endangered steelhead trout populations and restore a natural sediment transport regime to the Ventura River. In February he was recognized by the National Society of Professional Engineers as one of the top 10 federal engineers.

Sanjiv Sinha (Ph.D. 1996 civil and environmental engineering) was promoted to vice president and an officer of Environmental Consulting and Technology, Inc., Detroit, Mich. In addition, he is corporate director of water resources.

April Privett (B.S. 1997 civil engineering) of Morton, Ill., has been named campus coordinator for Caterpillar Corporation to oversee recruitment efforts at Texas A&M University. Privett previously served as campus coordinator for The University of Iowa. Because of her skills and experience on the Texas program, Caterpillar assigned her to Texas A&M to enhance its overall recruitment efforts.

Richard Ney (M.S. 1997, Ph.D. 2001 civil and environmental engineering), president of Essential Science located in the UI Technology Innovation Center, Coralville, Iowa, was appointed by Governor Chet Culver to the Iowa Climate Change Advisory Council.

Renuka Uppaluri (Ph.D. 1997 electrical and computer engineering) was promoted to general manager for X-Ray Engineering at GE Healthcare, Waukesha, Wis.

Shawn Cullen (B.S. 1998 chemical engineering) was appointed environmental superintendent for Lyondell Chemical Company’s Clinton, Iowa, facility. Lyondell is a global producer of chemicals, fuels, and plastics.

Robert P. Fuhrmann (B.S. 1998 industrial engineering) was recently appointed the new Accenture marketing lead for the UI College of Engineering. Fuhrmann has been employed with Accenture for over nine years, specializing in supply chain consulting.

Cory Phillips (Ph.D. 1999 chemical and biochemical engineering) is a leader in onboard fleet management for Xata Corporation, Rock Island, Ill.

2000s

Aaron Granquist (B.S. 2000 civil engineering) is project engineer with Howard R. Green, Cedar Rapids, Iowa.

Brian Jamie Johll (B.S. 2000 civil engineering) is assistant county engineer for Webster County, Iowa. He was featured in the October 1, 2007, edition of The Messenger, a Fort Dodge, Iowa, newspaper.

Michelle J. Hall (B.S. 2001 biomedical engineering) of Iowa City, Iowa, a prosthetist and certified orthotist with American Prosthetics & Orthotics, received a Thranhardt Lecture Series award from the American Academy of Orthotist and Prosthetists last March for her research titled, “Dermatological Problems with Prosthetic Roll-on-Liners.”

Hannah Lundberg (B.S. 2002, Ph.D. 2006 biomedical engineering) of Chicago, Ill., was awarded the 2006 Predoctoral Young Scientist Award from the American Society of Biomechanics.

Heather A. Cross (B.S. 2003 civil engineering) of Muscatine, Iowa, a water resources engineer with Stanley Consultants, received the 2006 Norton Award from the Society of American Military Engineers, Rock Island Post.

James D. Borchardt (B.S. 2004 biomedical engineering) is an associate with Foley & Lardner. He is a member of the firm’s mechanical and electromechanical technologies practice. Prior to joining Foley, Borchardt was a research assistant at the UI Carver College of Medicine, where he studied gene mutations using single strand conformational polymorphism screening and analyzed gene expression microarray data. Borchardt obtained his law degree from the UI College of Law, with highest distinction, in 2007. While in law school, Borchardt was a student writer for The Journal of Corporation Law, and he was the recipient of the 2007 UI College of Law ABA/BNA Award for Excellence in the Study of Intellectual Property. Borchardt is practicing under the supervision of members of the Wisconsin Bar while his application is pending.

Natalie Danaher (B.S. 2004 biomedical engineering) and Kevin Brown (B.S. 2004 industrial engineering) were married September 2001.
1930s
Frank J. Fisher (B.S. 1934 chemical engineering) of Iowa City, Iowa, October 6, 2007.
Eugene C. Lister (B.S. 1939 electrical engineering) of Muscatine, Iowa, August 9, 2007.

1940s
Clyde M. Gerry (M.S. 1940 chemical engineering) of Hendersonville, N.C., July 16, 2007.
Fred W. West (B.S. 1941 chemical engineering) of Skillman, N.J., August 8, 2007.
Stanley W. Dylewski (B.S. 1943 chemical engineering) of Loudon, Tenn., June 17, 2007.

1950s
Donald J. Lynch (B.S. 1950 chemical engineering) of Fond du Lac, Wis., September 14, 2007.
Paul T. Matthes (B.S. 1950 civil engineering) of Atlanta, Ga., April 6, 2007.

1960s

1970s
Engineering Hawkeyes flock together online!

Engineering Hawkeyes are really flocking together online. Since its inception last spring, OnIowa.com, the UI’s official online community, has connected hundreds of Engineering alumni to friends, former classmates, and the College. It’s free, exclusive, and secure.

OnIowa.com features:
• A secure Alumni Directory. Find friends and classmates. Update your information.
• A personal Hawk Page. Display your news. Keep track of contacts. Stay up to date with friends’ postings.
• Hawkeye Notes. Catch up with old friends. Share news about family, career, and interests.
• An Alumni Events Calendar. Search and register for alumni events in your area.
• An e-mail Forwarding Service. Enjoy a free, personalized UI alumni e-mail address.

OnIowa.com is safe and private! Exclusive features are password-protected and available to alumni only. Plus, you control your personal information displayed in the directory.

Simply visit www.OnIowa.com, click on “register now,” and follow the registration instructions.