Dean's Message

New President, Laser Facility, Faculty, and Policies Announced

It has been an extraordinarily eventful period for the College of Engineering since my last message. Elsewhere in the newsletter you will be apprised of the college's progress in many areas and of the major awards our faculty, students, and alumni continue to earn. Here I will take this opportunity to share with you other recent and important events affecting the college.

On August 1, 1988, Dr. Hunter R. Rawlings III became the seventeenth president of The University of Iowa. Dr. Rawlings is a scholar in classics who was educated at Haverford College and Princeton University. He came to Iowa from his position as vice president for academic affairs and research and dean of the System Graduate School at the University of Colorado where he spent his entire academic career.

Construction of a $25-million building to house the interdisciplinary (engineering, chemistry, physics) activities of faculty, staff, and students of the Center for Laser Science and Engineering is under way. Dr. Arthur Smirl of North Texas State University accepted the Engineering Endowed Professorship in Laser Science and Engineering and joined the University on September 1. Professor Smirl is an internationally recognized scholar who will have his primary academic appointment in the Department of Electrical and Computer Engineering.

University policy requires that each college undergo a review every six years. The review committee consists of University faculty not in engineering and an eminent engineering faculty member from another university. The review committee focused on four principal areas: instruction and students, research, management and outreach, and facilities. The committee concluded that the college carries out its mission with an obvious commitment to excellence, that the college is a true credit to the University, and that the college's greatest problem is a substantial space deficiency.

Construction of the $2.2-million Engineering Research Facility (ERF) is under way with a scheduled completion date of August 1, 1989. The ERF will provide about 16,000 net square feet of space for engineering research. Meanwhile, planning funds of $1 million, which the Iowa State Board of Regents requested of the legislature for the Engineering Building addition, were not approved.

The emphasis on the commonality of early engineering education that has characterized the undergraduate curriculum at Iowa for two decades was reaffirmed by the faculty of the college last academic year. However, the core curriculum is being modernized through new introductory courses in the freshman year, expanded in flexibility so that departmental curricula can provide a broader and/or deeper educational experience in the disciplines, and altered so that basic science education conforms more closely with that at other engineering colleges.

Eight Korean engineering undergraduates from the Korean Institute of Technology (KIT) enrolled in the 1988 summer session to obtain engineering research experience. Engineering faculty members served as research supervisors for these students, who also toured U.S.
The Iowa Computer-Aided Engineering Network (ICAEN) continued its impressive growth during the past year. Substantial purchases of both hardware and software and enhancement of the system's internal and external communication capabilities have kept the system one of the most advanced in the nation.

One-hundred ten Apollo workstations (up from 65 in the fall of 1986), 190 recently upgraded Macintosh personal computers, and a wide array of plotters and printers are now linked by over 3.5 miles of coaxial and fiber optic cable. The system makes possible an instantaneous flow of information between classrooms, laboratories, and offices.

Since last fall, ICAEN has added links to the UI's Weeg Computing Center, the Institute for Hydraulic Research, the Center for Computer-Aided Design, and research computing facilities at the University High-Speed Computing Facility as well as the Departments of Electrical and Computer Engineering, Mechanical Engineering, Civil Engineering, and Biomedical Engineering. More than 50 engineering classes, including two new core courses, Engineering I and II, are now using ICAEN. A third ICAEN student laboratory facility, open 24 hours a day, offers students access to workstations with advanced computational and graphics capabilities.

Recently acquired software purchases are also helping to keep faculty and students abreast of state-of-the-art techniques in fields such as three-dimensional drawing, computer-aided modeling, integrated circuit design and analysis, structural analysis, control system design, dynamic system simulation, and process control modeling.

This new capability is enhanced by the system's 15 gigabytes of hard-disk storage capacity, almost twice the capacity available just a year ago.

Enhanced communication with other networks has also become an exciting and promising area of growth for ICAEN. During the past year, the University-wide Ethernet system went into operation providing a high-speed communications network between computers in offices and research facilities throughout the campus.

In addition, the UI is now connected to the National Science Foundation's MidNet system, a wide-area network connecting major universities in the Midwest. The link to MidNet also gives ICAEN access to Internet, a nationwide network, which can link far-flung research and computer centers, including the National Supercomputing Centers. Access to these networks means that UI faculty and student engineers can communicate with researchers anywhere, draw on remote databases and information sources, and gain transparent access to remote supercomputing centers from any Apollo workstation or Macintosh.

ICAEN's faculty director Jon G. Kuhl, associate professor of electrical and computer engineering, has coordinated the system's development since its inception. Kuhl now chairs the faculty/student committee that oversees ICAEN's operations and development. Douglas A. Eltoft serves as the network's operations director, supervising four professional staff members. Both are confident that ICAEN's development will keep the UI a national leader in computer-supported engineering education.

Helen Raffety, a senior in biomedical engineering from La Crosse, Wis. (right), studies with Cindy Myers, a junior chemical engineering major from Clinton.
CCAD Fulfills Promise as U.S. Leader

In its first 12 months the new Industry-University Cooperative Research Center established by the Center for Computer-Aided Design (CCAD) has progressed rapidly, fulfilling the center's early promise to be a national leader in the field.

CCAD's Industry/University Cooperative Research Center (IUCRC) for Simulation and Design Optimization of Mechanical Systems now has 24 industrial or federal organization members from around the country, all drawn to Iowa by the state-of-the-art hardware and software assembled at the center. Research at the cooperative center has already produced 19 technical reports as well as an initial software system that integrates programs necessary for dynamic stress and life prediction.

In addition, the associated Graphics Facility, partly funded by the Iowa Department of Economic Development, has added another $240,000 worth of equipment to support center research. This includes several powerful color graphics workstations, a color printer, video equipment, and workstation furniture.

An additional programmer has been hired, bringing the center's professional staff to 11 members. Nine faculty and over 35 students from three departments participate in its research programs.

Professor Edward J. Haug, the center's director, cites six areas in which research is focused: multibody dynamics, real-time dynamic simulation, controls, dynamic stress and life prediction, structural design sensitivity analysis, and CAE software system integration.

The accomplishments of the first year are more than initially expected—most of the projects are exciting and many are ground breaking.

University Research Foundation Helps Businesses License Patents

Two new businesses have been licensed to market technology developed by College of Engineering faculty and covered by patents that have been assigned to the UI Research Foundation.

Computer-Aided Design Software, Inc. (CADSI), the older of the two, is located at the UI's Technology Innovation Center at the Oakdale campus. The company is marketing the sophisticated and user-friendly Dynamic Analysis and Design System (DADS), which was invented by Professor Edward J. Haug and his colleagues at the college's Center for Computer-Aided Design (CCAD). The company is currently attempting to expand its marketing of the product to Scandinavia, China, and Japan.

The second company, River Engineering International, Inc., is marketing the "Iowa Vane," a curved, flow-training structure that can be embedded in riverbeds in designed arrays to minimize bank erosion and control sediment transport in rivers. The inventors are Professors A. Jacob Odgaard and John F. Kennedy, both of the Institute for Hydraulic Research and civil and environmental engineering.

The invention was awarded a patent on December 8, 1987, and the company's first installation was made on the Wapsipinicon River this year.
Engineering Students Receive University Awards and Scholarships

Beth J. Godwin, a senior chemical engineering major from Bettendorf, received the 1988 Virgil M. Hancher Memorial Scholarship, awarded annually to a junior who has achieved a high level of scholarship and exhibited evidence of maturity and social responsibility. She was also one of six students in the country to receive a Materials Processing Center Scholarship to cover expenses at the summer program at MIT's Materials Processing Center. Godwin also received a national 1988 award for scholastic achievement from the AIChE.

Valerie A. Cardenas (B.S.E. in BME, '88) received the 1988 Susan B. Hancher Award, given annually to the outstanding woman in the senior class. She was also listed as an honorable mention for an NSF Minority Graduate Fellowship Award.

Deborah J. McKechnie, a graduate student in civil and environmental engineering, was one of two graduate/professional students to receive a 1988 UI Hancher-Finkbine Medallion. The medallion is the UI's highest award for student leadership.

Rosemarie Lara (B.S.E. in BME, '88), of Iowa City, received an NSF Minority Graduate Fellowship beginning fall 1988. She is attending the University of California at Berkeley.

James A. Haack (B.S.E. in ME, '87), a graduate student in mechanical engineering, was awarded an NSF Graduate Fellowship. He plans to use it to continue his studies at the UI.

Cheryl A. MacLeod (B.S.E. in BME '88), of Knoxville, received an NSF Graduate Fellowship and plans to attend the University of California at Berkeley.

Robert C. Barry (B.S.E. in ME, '87), a graduate student in civil and environmental engineering, was awarded a four-year UI Doctoral Fellowship.

Nikolas P. Nikolaidis (Ph.D. in civil and environmental engineering, '87) received the 1987 prize for the best student paper in the nation by the Water Pollution Control Foundation. The award and a cash prize were presented at the annual meeting last October.

Dean Hering (above) with award-winning students Rosemarie Lara (left) and Cheryl MacLeod; Dean Hering (below) with additional award winners (from left to right) Valerie Cardenas, Beth Godwin, and Deborah McKechnie.
Hydraulic Institute Continues to Excel

Like the great river formed by the drainage basin it has studied from its earliest days, the Iowa Institute of Hydraulic Research (IIHR) keeps on rolling along. River mechanics, however, is only one of many exciting fields under investigation at Iowa's prestigious fluid research laboratory.

The institute is a self-supporting research unit of the College of Engineering, under institute director John F. Kennedy, recipient of the recently established Hunter Rouse Chair in Hydraulics. Research facilities are housed in five buildings on campus, and research expenditures exceeded $1.3 million last fiscal year.

The institute's staff comprise 20 senior research engineers, many of whom hold joint appointments and teaching responsibilities in the Departments of Mechanical or Civil and Environmental Engineering and are involved on a daily basis with basic research, applied engineering, and classroom instruction. Their subject matter includes such frontier areas of fluid dynamics and hydraulics as ice engineering, hydraulic structures, fish diversion around hydraulic structures, water quality, computational hydraulics, ship hydrodynamics, hydrology, and water resource systems.

Professor Robert Ettema, the institute's associate director, points out the increasing role that technological advances are playing at IIHR. "We have had models and wind tunnels and test tanks here for a long time," he says. "They are still at the heart of much of our research, but the computers we have now, as well as sophisticated measurement equipment like our three-component fiber optic laser Doppler anemometer, give us the capacity to do research that we couldn't do before and can't be done in many other places."

IIHR has been at the forefront of cold-regions engineering and geophysics for more than a decade. Its activities have included laboratory, field, and theoretical investigations; a graduate-level course entitled Ice Engineering; short courses on cold-regions engineering; and consulting services for private and governmental organizations.

IIHR is the only United States university unit that is staffed and equipped with its own cold-regions research facilities to offer broadly based programs of postgraduate and postdoctoral research in cold-regions engineering. IIHR already operates two refrigerated research laboratories, and a third one is under construction.

Another example of the area of work being pursued at IIHR is Professor Konstantine Georgakakos' research in stochastic hydrology. Georgakakos came to the UI a year ago after receiving his Ph.D. from MIT and working at the Hydrologic Research Laboratory of the National Weather Service. He has done ground-breaking work in producing mathematical models for the prediction of flash floods.

Georgakakos and his colleagues, Drs. Witold Krajewski and Forrest Holly, are currently involved in developing a center for the study of real-time hydrometeorology. The proposed center would coordinate various public and private agencies and use new computer and radar technologies to enhance flood prediction and forecasting in the United States. This mix of pure science, practical engineering, and public service in an academic context is what the Iowa Institute of Hydraulic Research has stood for since its inception.

College of Engineering Alumni Continue to Receive Awards

Richard E. Emmert (BSChE, '51), a retired vice president of E.I. duPont de Nemours and Company, Inc., has been named executive director of the American Institute of Chemical Engineers (AIChE). Emmert was a member of the UI College of Engineering Advisory Board from 1973 to 1978. He has been named by the UI Alumni Association as a recipient of a 1988 Distinguished Alumni Achievement Award.

Norman A. Hunstad (BSME, '49), who works at the General Motors Research Laboratories of Warren, Michigan, has been elected a fellow of the Society of Automotive Engineers. Hunstad was a member of the UI College of Engineering Advisory Board from 1976 to 1980.

Barbara J. Sines (BSIE, '80), plant manager for the Square D Company of Cedar Rapids, was named by the Des Moines Register as one of Iowa's "Up and Comers" for 1988. Sines was also featured in the "Money" section of the Cedar Rapids Gazette as the first woman to manage a manufacturing plant for Square D.

James C. I. Dooge (M.S., mechanics and hydraulics, '65) received a 1988 Distinguished Alumni Achievement Award from the UI Alumni Association. He is a founding father of modern computer-based statistical hydrology, has been a professor at two of Ireland's leading universities, and has had a distinguished political career in that country.

Shang-Gyoo Shim (Ph.D., chemical and materials engineering, '87) received a 1988 Environmental Science and Engineering Fellowship from the American Association for the Advancement of Science. Shim was one of ten selected nationally for the honor.
Departmental Highlights:
A Sampling of Recent Activities and Accomplishments

Biomedical Engineering

Last year saw the installation of the Biomedical Engineering Real-time Computer System, overseen by Professor Edwin L. Dove. The system includes four microcomputers and a new image processing facility consisting of a Vax and Gould/DeAnza image processing hardware. It is linked to the college's ICAEN network which provides access to national and international data networks.

Faculty Activities

Professor K. B. Chandran was named chair of the Bioengineering Committee of the Engineering Mechanics Division of the American Society of Civil Engineers for two years beginning October 1988. Last year he organized two sessions on in vitro testing of prosthetic heart valves at the Annual Conference of Engineering in Medicine and Biology held at Niagara Falls. He also organized a session on experimental methods in biofluid mechanics at the Engineering Mechanics Specialty Conference in Blacksburg, Virginia. In August, Chandran presented a paper on artificial heart valves at the International Conference on Engineering in Medicine and Biology in San Antonio.

Professor Roderic S. Lakes furthered the development of his foam materials with negative Poisson ratios. A large group of undergraduate students experimented with Lakes's invention in connection with their senior design projects. Lakes also did research in viscoelastic and microelastic materials and studied the research and teaching applications of holography, receiving a contract from Rockwell International in this area. In addition to the Burlington Northern Award for Faculty Achievement mentioned elsewhere, he also received, for the third time, the Outstanding Faculty Award of the Student Society of Biomedical Engineering.

Professor Dove was awarded the Laura Spelman Rockefeller Seed Grant for Research to develop a mathematical model of heat regulation in the premature human infant. He will collaborate with physicians in the Department of Pediatrics at the UI. Dove received an NIH Junior Faculty Research Grant to study the nonlinear behavior of cardiovascular and respiratory responses to inhaled oxygen. He also presented an invited paper on the control of ventilation to the IEEE Engineering in Medicine and Biology conference in Boston. Dove developed two new courses: Biological Sciences, an addition to the college's core curriculum, and Biomedical Engineering Laboratory, which is required of all incoming BME graduate students.

Professor Vijay K. Goel has been appointed to the Joint Biomechanics Committee of the American Society of Mechanical Engineers. He was awarded a contract with Acromed, Inc., to design and develop a modified spinal plate system and has been working with Wilson Foods Corporation to measure vibration transmitted to workers from a nearby conveyor belt. This work is being done in connection with the newly established Vibration Laboratory in the department.

The department was awarded a $1.3-million project grant from the UI and the Iowa Department of Economic Development for a Biomedical Engineering Institute. The institute will accelerate the development of innovative biomedical and health products from faculty research results, secure patents, and transfer them to interested Iowa industries.

In the fall of 1987, Professor Kwan Rim accompanied UI officials on a trip to Korea and Japan to promote international cooperative projects. In the spring of 1988, he returned to Korea to discuss specific projects with the Korea Institute of Technology and the Research Institute for Industrial Science and Technology.

Student Activities

Douglas E. Henrich (B.S.E. in BME, '88) received one of two 1988 Distinguished Student Leader Awards presented to students for excellence in leadership, learning, and loyalty. Henrich, from Missouri Valley, also received a 1988 NIH Summer Research Fellowship to work on a bone cement project with Dr. Albert Cram of the UI College of Medicine. Ruth A. Nicholson, a senior from Dubuque, received a scholarship for this academic year from the Iowa Consulting Engineers Council in recognition of her outstanding scholarship and promise as a future consulting engineer.

Chemical and Materials Engineering

Professors Randall A. Yoshisato and David G. Rethwisch received a $20,000 grant from the Camille and Henry Dreyfus Foundation to implement the integrated Chemical Engineering Laboratory Program. This grant, coupled with $73,000 from the Office of Educational Development and Research and the College of Engineering, is being used to buy analytical instrumentation, develop new experiments, and obtain data acquisition equipment. The three-year program will provide hands-on laboratory experience in each of the undergraduate chemical engineering courses. New experiments are being developed in microbial fermentation, enzyme technology, polymer characterization and processing, membranes, and surface science.

Faculty Activities


Professor Gregory R. Carmichael has been named to the EPA Chemistry and Physics Review Panel. Carmichael presented numerous seminars and lectures on a trip to South Korea, Japan, and China in April 1988. The trip was made to initiate a collaborative research project on the long-range transport of pollutants in the Pacific Rim region, an area of study for which Carmichael recently received a National Science Foundation Japan-U.S. Cooperative Research Grant. He also traveled to Rome to present a week-long series of lectures on air pollution modeling to ENEA, the Italian Commission for Nuclear and Alternative Energy Sources. While in Europe, he also conducted seminars in Munich and London.

Professor Carmichael also was a visiting scientist at the Center for Computations at the University of Kentucky during July.
Professor Ravindra Datta spent four months in Australia last year on a developmental assignment in the Chemical Engineering Department at the University of Queensland, Brisbane, working on hybridoma and catalyst coking projects. Datta has collaborated with Professor Darrell Eyman (chemistry) in forming a company at the UI's Technology Innovation Center. The firm is involved in catalysis research.

The research efforts of Professor Jonathan S. Dordick were highlighted in a recent issue of Chemical and Engineering News. Dordick has been named to the editorial board of the Journal of Applied Biochemistry and was also named program chair for the Microbial and Biochemical Technology Division of the American Chemical Society's spring national meeting in Dallas. He was also invited to present his research at a number of national and international meetings including the American Chemical Society meeting in Toronto, the West German Atomic Energy Commission, and a Department of Energy workshop on the bioprocessing of coals. Dordick has received grants from the NSF, the Petroleum Research Fund, the Whitaker Foundation, the Mead Corporation, and an NIH Junior Faculty Seed Grant for the next three years. He also was the recipient of an Old Gold Faculty Fellowship for the summer of 1988.

Professor David W. Luerkens traveled to Sydney, Australia, to present two invited seminars, "Morphological Characterization of Particles in Image Analysis" and "Applications of Image Analysis" at the University of South Wales and the University of Sydney.

Professor David G. Rethwisch attended the Fifth North American Chemical Congress in Toronto where he chaired a symposium and presented a paper entitled "Direct Catalyzed Reactions of Silicon Metal."

Professors Rethwisch and Dordick received a three-year grant from the Whitaker Foundation to develop an enzyme-containing liquid membrane system for separation of biological materials.

Student Awards

Danny L. Bottoms (B.S.E. in ChE, '88), of Leavenworth, Kansas, received a 1988 award from the American Institute of Chemists Foundation.

Brandon P. Engler (B.S.E. in ChE, '88), from Shawnee, Kansas, received a second-place award in the regional paper contest at the AIChE Midwest Region Student Conference.

David am Ende received a third-place award in the national student design contest sponsored by Omega Xi Epsilon, the National Chemical Engineering Honor Society.

Civil and Environmental Engineering

A specialty conference on acid precipitation was cosponsored by the department last May in Hartford, Connecticut. The conference explored the effects of acid rain in the northeastern United States and Canada.

Professors Jerald L. Schnoor and Gene F. Parkin are cochairing the program of a meeting of the Society of Environmental Toxicology and Chemistry in November 1988.

Professor Witold Krajewski joined the faculty this year from Utah State University. Krajewski received his Ph.D. from the Technical University of Warsaw, Poland. His research interest is in hydrometeorology and remote sensing.

Professor Gene Parkin was promoted to professor effective August 1988.

Faculty Activities

Professor Jasbir S. Arora and graduate student Greg Baenziger have received a NASA fellowship to study expert systems for structural design and optimization. Arora chaired a session on expert systems at the International Conference for Computational Engineering Science in Atlanta.

Professor Dan E. Branson presented lectures on long span bridges at the Union of Scientific and Engineering Societies of the U.S.S.R. in Moscow and at the Technical University in Budapest. Branson also visited various universities and construction sites in Leningrad, Moscow, Warsaw, and Budapest.

Professor Robert Ettema received a grant from the National Science Foundation to develop a joint project on river ice formation on the Danube River. Ettema was appointed to the ice committee of both the International Towing Tank Conference and the American Towing Tank Conference. He is serving as a consultant on sedimentation problems to the Honduran Electricity Corporation.

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Professor Konstantine Georgakakos was named to the committee on precipitation of the hydrology section of the American Geophysical Union and the committee on Hydrology of the American Meteorological Society. Georgakakos was also an invited lecturer at the NATO Advanced Study Institute in Sintra, Portugal.

Professor Forrest M. Holly, Jr. was elected to the council of the International Association of Hydraulic Research and attended the council meeting in Budapest. He also served as a visiting professor at Colorado State University for a part of last spring semester. Holly continues as associate editor of the Journal of Hydraulic Engineering.

Professor Krajewski was appointed to the American Geophysical Union committee on precipitation and attended the International Symposium on Tropical Precipitation Measurements in Tokyo.

Professor Parkin is chair of the Center for Health Effects of Environmental Contamination. Parkin was also appointed a member of the specialist group on anaerobic digestion for the International Association on Water Pollution Research and Control.

Professor Schnoor was an invited speaker to both the Gordon Research Conference on Environmental Science in New Hampshire and the Society for Occupational Environmental Health Conference in Washington, D.C. Schnoor also presented invited seminars at the International Institute for Applied System Analysis in Warsaw, the Geological Survey in Prague, and the National Academy of Biological Sciences in Puschino, U.S.S.R.

Professor Richard Valentine was appointed to the ASCE committees on water supply and radionucleids in drinking water.

Professor Han C. Wu gave a series of lectures on endochronic theory of plasticity and its application to metals and geotechnical material at National Taiwan University.

Student Awards

Mohammed Sharifi was awarded an expense-paid trip to the annual conference on precipitation processes at the Massachusetts Institute of Technology.

William Carberry, a junior in civil engineering from Winfield, Iowa, received a national scholarship from the Associated General Contractors Education and Research Foundation.

Linda S. Nichols, a graduate student in civil and environmental engineering, received the first William Kersten-Iowa Water Pollution Control Association (IWPCA) Environmental Engineering Scholarship.

Vicki S. Nikolaides, a graduate student in civil and environmental engineering, received an honorable mention in the 1987 American Society of Civil Engineers Photo Contest.

Electrical and Computer Engineering

Dr. Arthur Lee Smirl recently accepted an endowed chair for laser science and engineering and an appointment as professor of electrical and computer engineering. He comes to the UI from North Texas State University where he was Distinguished Research Professor of Physics and chair of the Center for Applied Quantum Electronics. He has also served as a senior staff physicist for Hughes Research Laboratories in California.

Smirl earned a B.S. (electrical engineering) and B.S. (mathematics) from Lamar University in 1968, an M.S.E. (electrical engineering) from the University of Michigan in 1969, an M.S. (optical sciences) from the University of Arizona in 1974, and a Ph.D. (optical sciences) from the University of Arizona in 1975.

He has been involved in researching the use of picosecond and femtosecond spectroscopy to measure nonlinear optical properties and the dynamics of fundamental excitations in semiconductor materials and structures. He is currently involved in optical research involving thin film alloys, multiple quantum well structures, picosecond photorefractive mechanisms in various materials, and the development of an amplified, hybridly mode-locked femtosecond dye laser system.

Tarek S. Abdelrahman joined the department as visiting assistant professor in electrical and computer engineering this fall. Abdelrahman received his Ph.D. in electrical engineering from the University of Michigan in 1988 and has done research in computer systems architecture with emphasis on parallel and distributed systems.

Mark Andersland has accepted a position as assistant professor in electrical and computer engineering, beginning spring semester. Andersland received his Ph.D. from the University of Michigan in 1988. His research interests are in stochastic control.

Hyun S. Yang, formerly assistant professor of electrical and computer engineering, has returned to his native country, South Korea, where he has accepted a similar position.

Faculty Activities

Professor Adrian Korpel was elected a foreign associate member of the Royal Academy of Belgium, Division of Sciences, in 1988. His book, Acousto-Optics, was published last summer by Marcel Dekker.

Professor Sudhakar M. Reddy has been appointed as the technical program committee chair of the nineteenth International Symposium on Fault-Tolerant Computing to be held in Chicago in June 1989.

Professor Steve M. Collins was appointed to the Advisory Committee of the Center for Biomedical Engineering at the University of Kentucky and to three special NIH study sections formed to review grant applications. Collins was also recently elected secretary-treasurer of the Iowa City-Cedar Rapids section of the IEEE Computer Society.

Professor David R. Andersen served on an NSF review panel for the Research Initiation Award Program of the lightwave technology section.

Professor Karl E. Longnern's textbook, Introduction to Physical Electronics, was recently published by Allyn & Bacon.

Professor Earl D. Eyman's textbook, Modeling, Simulation and Control, was published by West Publishing Company.

Student Activities

David J. Fisher (B.S.E. in BME, '85), a Ph.D. student in electrical and computer engineering from Rockford, Illinois, received a 1988 Distinguished Student-Leader Award for graduate-professional students in recognition of meritorious qualities in leadership, learning, and loyalty.

Alexander N. Cartwright, a junior electrical and computer engineering student from Tipton, received the Most Promising Student Award from the NCR Corporation.

Jeffrey S. Garnett (B.S.E. in EE, '86), a Ph.D. student in electrical and computer engineering from Dubuque, received an IBM predoctoral fellowship for 1988-89.

Barry D. Brown (B.S.E. in ECE, '88), of Muscatine, received the 1988 Kurtz Award for outstanding scholarship and service.

Industrial and Management Engineering

Professor Andrew Kusiak joined the department as visiting professor and interim chair in August. Kusiak comes to
us from the mechanical and industrial engineering department at the University of Manitoba. His specialties are artificial intelligence and manufacturing systems. He has published several books and monographs and numerous technical papers.

The Manufacturing Laboratory in the west basement of the Engineering Building continues to evolve under the supervision of Professor Gary N. Fischer. This space now has an operational computer-aided process planning section with a complete computer-controlled turning center and a semiautomatic welding operation. Faculty and students may now download computer programs directly into machine tools.

The student chapter of the Institute of Industrial Engineers made a field trip to St. Louis, to visit the McDonnell Douglas plant, and to Milwaukee, where members attended the IIE's regional conference.

The department had seven Ph.D. graduates last year, the most in its history.

Faculty Activities

Professor James R. Buck, currently on developmental leave at Texas Tech University and working on a new book for teaching work design, has been accepted as a visiting scientist at the Joint European Research Center in Ispra, Italy, for next summer. He will do research on diagnostics and corrections of process malfunctions. His book *Economic Decisions in Engineering* is in its final production phase at Iowa State University Press.

Professor Voratas Kachitvichyanukul was awarded a Rockwell Corporation research grant for his work on hierarchically integrated manufacturing operations and controls.

Professors Buck and Kachitvichyanukul recently completed their three-year NSF project on performance times and accuracy in performing cognitive tasks. Professor Tzvi Raz, along with Professor Jon Kuhl of the computer and electrical engineering department, was recently featured in an Apple Computer Company publication, *Engineering Curriculum Software Guide*. The publication showed the microcomputer computational activities at the UI with specific emphasis on the department's new computer installation. Raz spent last spring on developmental leave at the University of Arizona, working with former UI faculty members Ronald Askin and John Ramberg.

Professor John M. Liittschwager has been active in developing a focus on reliability in the UI's quality and productivity programs. He recently addressed the local section of the American Society for Quality Control on innovations in the field of reliability engineering.

Professor emeritus Edward M. Mielnik reports that he is hard at work on his manufacturing and materials textbook.

Adjunct Professor Paul Peterschmidt passed away this summer. His wife, Dorothy, died earlier this year. The department will miss both. Prior to his death, Paul was working on ethanol and biomass projects funded by three different state agencies.

Mechanical Engineering

Hamm-Ching Chen has been promoted to adjunct associate professor in the department. He also serves as a research engineer with the Iowa Institute of Hydraulic Research.

Assistant Professor Sang Sup Kim joined the department in August. He obtained his Ph.D. in mechanical engineering from The University of Iowa in 1985. Since then he worked at the General Motors Research Lab.

Professor Christoph Beckermann has established a new departmental laboratory in material processing and transport phenomena. Beckermann is also teaching a new course in engineering optics. Professor Ching-Jen Chen has also established a new laboratory for quantitative flow visualization and imaging. This work is supported by an NSF Creative Engineering Award given to graduate student Joel A. Walter (B.S.E. in ME, '87).

Professor Allen T. Chwang is the acting chair of the department while Professor Ching-Jen Chen is on developmental leave for the fall semester 1988.

Professor W. N. Patten departed from the UI after the 1988 summer semester.

Faculty Activities

Professor P. B. Butler did research work at Sandia National Laboratories in Albuquerque, New Mexico, this summer. Professor Beckermann received a 1988 Old Gold Summer Faculty Fellowship, a 1988 UI Instructional Improvement Award, and a 1988-89 NSF Research Initiation Award.

Professor C-J Chen received a semester research assignment to

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Alumni Generously Contribute to Engineering College Programs

Once again the generosity of alumni and friends will make an impact on the quality of the engineering program at the UI. Development Fund gifts from over 600 alumni strengthened every aspect of the college by providing scholarships and other financial aid, by purchasing books and laboratory materials, and by helping to enhance our physical plant.

Class gifts from the reunion classes of 1938 and 1948 contributed $6,400 for the conference room. Reunions for the classes of 1963 and 1978 were scheduled for the fall, and similar fund-raising efforts were planned.

In addition, four major gifts continued a long tradition of generosity by alumni and friends of Iowa engineering:

Robert L. Smith (B.S.C.E., '47; M.S., '48) and Lucille J. Smith (B.A., '48) established a trust for special acquisitions and other needs of the engineering library. The gift is in honor of Norma Englert. Englert, who died in 1976, was a librarian at the engineering library for over 50 years. Robert Smith was a professor of civil engineering at the University of Kansas until his retirement in 1986. He and his wife have provided support for the UI Foundation for many years.

Jeannine Sloan Kersten, widow of William Warren Kersten (B.S.C.E., '52; M.S., '56), and the Kersten family have made a substantial contribution to the William W. Kersten Iowa Water Pollution and Control Association Scholarship Fund. The scholarship provides aid for a deserving graduate student studying wastewater treatment. William Kersten, who was a sales manager of Lakeside Equipment Corporation of Bartlett, Illinois, was made an in memoriam member of the UI's Presidents Club. The Kersten family has a long tradition of support for the College of Engineering.

Tom Dimond (B.E., '26), who established the Thomas L. Dimond Excellence in Engineering Fund in 1980 died last year. His fondness for the UI was expressed again by a bequest to endow a fellowship in electrical engineering. Dimond, a brilliant inventor who worked for Bell Laboratories in New York for 41 years, also donated his working papers, patents, and models to the college. "Tom loved everything about the University," said his widow, Ruth Dimond. "From the minute he arrived on campus he had a great affinity for the place and the people."

George Sterba, a lifetime resident of Iowa City who left over $1 million to various charities when he died last year, specified that a portion of his estate go to the College of Engineering in memory of his brother Ernest. Ernest Sterba received an industrial engineering degree from Iowa in 1920 and an electrical engineering degree in 1936. He then worked for American Telephone and Telegraph until his death at about age 40.

Alumni or friends who would like to make a donation or bequest to the college are invited to call Jim Graham at the UI Foundation. The foundation's telephone number is 1-800-648-6973.

Banner Year for Recruiting Iowa Engineering Graduates

This past year, 1987-88, was a banner year for engineering placement at the UI. A surge in hiring, reflected by a sharp rise in on- and off-campus recruiting, made the year an especially good one for graduating engineers.

By the middle of the spring semester, plant visits and job offers had more than doubled the figures for the previous year on the same date. Salary offers for graduating Iowa engineers continued to climb and remain substantially higher than the national average. Placement director Leslie Andersen reports that many employers return to Iowa each year to recruit, citing the school's excellent academic reputation, the high performance of Iowa alumni already working in their organizations, and "the strong Iowa work ethic" as their motivation.

An early glance at this year's recruiting calendar indicates that the on-campus recruiting schedule will be even busier. As always, alumni with information about employment opportunities are invited to contact the placement office by calling 319/335-5774.

INTERNATIONAL DISCUSSION  Top Soviet and American environmental scientists met at the UI on Oct. 12-16, 1987, for a symposium titled "Fate of Chemicals and Pesticides in the Environment." Experts from East and West shared research on chemical contamination and water pollution problems due to high intensity agriculture in their respective countries. Representatives agreed that the four days of discussion were of major importance, both scientifically and historically. Jerald L. Schnoor (left), UI professor and chair of civil and environmental engineering, organized the event. He is shown here with Ivan Gogotov of the U.S.S.R. National Academy of Sciences and Mikhail Novitsky, head of the Soviet delegation from HYDROMET.
Faculty Garner
Both State, National Honors

Krishnan B. Chandran, professor of biomedical engineering, has been named the winner of the 1988 Borelli Award by the American Society of Biomechanics. The award is given annually in recognition of outstanding biomechanics research. As recipient of the award, Chandran gave the Borelli Lecture at the annual meeting of the society this fall in Champaign-Urbana.

Roderic S. Lakes, professor of biomedical engineering, was named a winner of a Burlington Northern Foundation Faculty Achievement Award. The award recognizes excellence in classroom teaching and professional scholarship.

Lea-Der Chen, professor of mechanical engineering, received a one-year appointment for 1988-89 as a visiting professor at the Air Force’s Wright Aeronautical Labs/Aero Propulsion Laboratory at Wright-Patterson Air Force Base in Ohio.

Allen T. Chwang, professor of mechanical engineering, was awarded a 1988 Navy-ASEE Distinguished Summer Faculty Fellowship. He spent the fellowship period at the Naval Surface Warfare Center (NSWC) in Silver Spring, Maryland.

Konstantine Georgakakos, professor of civil and environmental engineering, received a UI Faculty Scholars Award for 1989-92. Georgakakos also holds a National Science Foundation Presidential Young Investigator Award.

Adrian Korpel, professor of electrical and computer engineering, was named last year as a foreign associate member of the Royal Academy of Belgium (Division of Sciences).

V. C. Patel, professor of mechanical engineering, was recently named a fellow of the American Society of Mechanical Engineers.

This issue was written by Bob Hinck, a free-lance writer from Iowa City. Editing and production provided by Lesanne Brenneman, Office of University Relations, The University of Iowa.
complete his book *Prediction of Turbulent Flows*. He traveled to Japan in July to give a short course at Tokai University and was also invited to lecture at the third International Symposium on Refined Flow Modeling and Turbulent Measurements. Chen has been elected chair of the turbulence committee of the ASCE Engineering Mechanics Division for 1989.

Professor Lea-Der Chen has been granted a semester research assignment to work on turbulent jet diffusion flames. He was also appointed an Air Force Faculty Research Fellow for 1989.

Professor Allen T. Chwang received a 1988 UI Instructional Improvement Award and a Navy-ASEE Distinguished Summer Faculty Fellowship. He is also the advisory editor of the *Journal of Advances in Hydrodynamics*.

Professor Kyung K. Choi has become a regular consultant for the General Motors Research Laboratories. Last year he gave a series of lectures at the Instituto Superior Technico of Lisbon and did joint research work at the University of Nice, France, under an NSF grant. Professor Edward J. Haug delivered the Plenum Structures Design Lecture on "Dynamics of Articulated Structures" at the twenty-ninth Structures, Structural Dynamics, and Material Conference in April. He also was the recipient of a semester research assignment for the fall semester 1988.

Professor Virendra C. Patel spent 11 weeks last spring as Jubilee Professor at Chalmers University of Technology, Gothenburg, Sweden. Patel was recently elected an ASME fellow.

Professors J. Kirk Wu and Kwang H. Yae, two of our newer faculty members, won Old Gold Summer Faculty Fellowships for summer session 1988.