Computer Science & Engineering Students—Ready for Anything!
Novel opportunities and challenges face tomorrow’s engineers! Everything is changing. A diverse range of internships, co-ops, and study abroad experiences chart new pathways into engineering careers. The methods for finding a job and the tools available to job-hunters have changed; there is more of a focus on career development all along the way. New fields are opening up that didn’t exist until recently—biomedical engineering, cybersecurity, nanotechnology. Certainly after the horrific crash of the Columbia space shuttle in February, there will be ongoing opportunities for people with understanding of the thermal properties of materials and for people who understand how the nano- and micro-mechanical aspects of a material affect its structural mechanics.

Even with all these new opportunities and tools, finding a job today in the field of engineering is more difficult than it was just a few years ago. Before the advent of the Internet, we sent out résumés via U.S. mail. In the ’90s, we were attaching résumés to e-mail and posting them to Internet sites. Using this method exclusively, most engineering students had at least one job offer—and sometimes several from which to choose—well before commencement ceremonies.

This past year, one month before graduation, many engineering students across the country had no job offers and no possibilities in sight. Merely putting a résumé up on the Web is no longer a viable means of finding a job. Fortunately, many resources are available to the students in the College of Engineering at Michigan State University. Jim Novak, Engineering Career Field Consultant for MSU’s Career Services & Placement, provides valuable information to students, alumni, and employers in the article beginning on page 10.

And what do today’s engineers do? Just about everything. They are software designers, astronauts, professors, product developers, attorneys, technical writers, and presidents of large corporations. They work in the field of medicine, in the defense industry, even in the sports domain. A myriad of career options are open to today’s engineers.

Some will select engineering as a major, decide exactly what they want to do, graduate four years later, and get a job doing precisely what they’d planned. Others may select engineering as a major, start out on one path and then find themselves in careers far different than they had planned, yet more rewarding than they’d ever thought possible.

In this issue you’ll meet six future engineers. They’ll tell us who they are, where they are from, and where they see themselves heading. Over the next several issues of Currents Magazine, we’ll get regular updates from them, allowing us to walk down their career paths with them, discovering together where those paths will lead.

You’ll also hear from three alums who’ll share with us where their career paths have led.

But engineers are not “all work and no play.” On pages 28–29, you’ll see a sample of the range of talents of our undergrads—students who excel in playing MSU sports in addition to designing the best projects and posters for mechanical engineering Design Day, or winning top honors in the American Institute of Chemical Engineers (AIChe) national competition.

I hope you’ll enjoy reading in this issue about our diverse alumni, faculty, staff, and students who are engineering tomorrow—today.

Janie M. Fouke, Dean

Dedicated to the crew of the space shuttle Columbia who gave their lives on February 1, 2003, to benefit humanity and advance space exploration.

• RICK HUSBAND, Commander. Age 45, Amarillo, TX, Air Force colonel and former space shuttle pilot
• WILLIAM McCool, Pilot. Age 41, San Diego, CA, test pilot, computer scientist, and aeronautical engineer
• MICHAEL ANDERSON, Payload Commander. Age 43, Spokane, WA, Air Force pilot and scientist
• KALPANA CHAWLA, Mission Specialist. Age 41, Seabrook, TX, aerospace engineer
• DAVID BROWN, Mission Specialist. Age 46, Arlington, VA, fighter pilot and flight surgeon
• LAUREL CLARK, Mission Specialist. Age 41, Racine, WI, physician and medical/biological researcher
• ILAN RAMON, Payload Specialist. Age 48, Tel Aviv, Israel, seasoned combat pilot and the first Israeli in space
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ABOUT THE COVER
Counterclockwise from top, left: a Personal Digital Assistant (PDA) used by medical students to record findings on simulated breast lump exams; a Boeing F/A-18E/F Super Hornet; a CSE 498 student team conferring with Bob Feldmann of Boeing; a CSE 498 student team with MSU men’s varsity basketball coach, Tom Izzo. The F/A-18 photo was provided courtesy of Boeing. Other photos are by Harley J. Seeley. Cover composition by Sharp Designs.
Agricultural Engineering

MSU’s Department of Agricultural Engineering is one of the oldest and most highly ranked departments of its kind in the United States. The department offers innovative undergraduate and graduate degree programs in Biosystems Engineering (BE), combining the knowledge of biology with engineering to solve problems in the broad field of food, agriculture, natural resources, and environmental systems.

Faculty & Staff Faculty: 21; academic specialists and support staff: 15

Research Areas

Food quality and safety, biosensors for early and rapid detection of pathogens, agricultural waste management, nutrient transport and water quality, air quality and odor control, precision agriculture, biobased energy and products

Undergraduate Degree Programs

The department offers a bachelor’s degree in Biosystems Engineering. BE is an excellent career choice for students interested in ensuring food quality, safety, and biosecurity; conserving and protecting land and water resources; solving rural waste problems; minimizing air and water pollution; and seeking to develop energy and materials from biobased renewable resources. Students interested in the biomedical cognate often select BE as a major; those interested in medical and veterinary school may also major in BE.

The department also offers a two-year certificate in Electrical Technology (ET). Last year, 90 undergraduates were enrolled in BE and 30 in ET. Additionally, the department is developing a new undergraduate major—Technology Systems Management (TSM)—and expects to offer it in fall 2003. TSM is based on the application of technologies such as Global Positioning Systems (GPS), Geographic Information Systems (GIS), Remote Sensing, and Information Technology (IT) to manage food, agriculture, and environmental systems.

Graduate Degree Programs

Graduate programs are available in BE and Agricultural Technology and Systems Management (ATM). ATM emphasizes the application of systems science to the planning, application, and management of technology for optimum agriculture production and the preservation and utilization of natural resources. Thirty-nine graduate students were enrolled last year.

Employment Opportunities

Students find employment with food manufacturing companies, agricultural and food processing equipment manufacturers, environmental consulting firms, and governmental regulatory agencies with highly competitive salaries.

For More Information

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Chemical Engineering & Materials Science

The merging of two departments in 2001 formed the Department of Chemical Engineering & Materials Science. This opens up new opportunities in microelectronics, biomaterials, environmentally friendly materials, and nanotechnology.

The department offers three unique interdisciplinary courses, funded by the National Science Foundation: one course in biotechnology, one in multiphase transport, and one in composite materials processing. Two new courses were also added last year—one in green chemistry, and one in entrepreneurship. In addition, the department holds the nation’s best record for placing in the AIChE (American Institute of Chemical Engineers) National Design Competition over the last 35 years.

Faculty & Staff Faculty: 24; research associates: 13; academic specialists and support staff: 15

Research Areas

Advanced metallic systems, biotechnology and biomaterials, colloid and interface science, polymers and composites, multiphase transport phenomena, electronic and ceramic materials, biobased material resource utilization

Labs & Facilities include the Composite Materials and Structures Center (one of the largest integrated facilities for polymer and composites research and development in a nonindustrial environment), electron microscopy facilities (includes a scanning electron microscope and a 200kV transmission electron microscope), and the Protein Expression Laboratory (uses genetically engineered microbes to manufacture proteins needed for research).

Undergraduate Degree Programs

Undergraduate students have the opportunity to work on research projects with faculty, and have access to outstanding laboratories for biochemical engineering, composite materials processing, and characterization of metals, ceramics, and polymers. Last year, 382 students were enrolled.

Graduate Degree Programs

Students can expect a highly stimulating environment due to new collaborations and shared experimental facilities between chemical engineering faculty and materials science.
Cooperative education opportunities, a technical communications program, and popular study-abroad programs in Russia and England are available.

**FACULTY & STAFF** Faculty: 19; academic specialists and support staff: 13  
**RESEARCH AREAS** Solid and hazardous waste treatment, environmental hydrology, pavement engineering, intelligent transportation, construction materials and structures  
**LABS & FACILITIES** include the Civil Infrastructure Laboratory (for testing of large-scale structural and pavement components, as well as construction materials) and environmental engineering laboratories (with sophisticated instrumentation for studying chemical and biological remediation techniques).

**UNDERGRADUATE DEGREE PROGRAMS** Each year, approximately 350 undergraduate students enroll. They learn to integrate experimentation, analysis, and design; solve engineering problems; and develop the communication, interpersonal, and social skills required for teamwork within an organization.

**GRADUATE DEGREE PROGRAMS** The department offers graduate degrees in environmental engineering, civil infrastructure engineering, and transportation engineering. Each year, approximately 100 graduate students are enrolled.

**EMPLOYMENT OPPORTUNITIES** Graduates are prepared to enter careers as planners, designers, builders, researchers, plant operators, government employees, lawyers, teachers, and administrators.

**FOR MORE INFORMATION** Martin Hawley, Chairperson, Department of Chemical Engineering and Materials Science, 2527 Engineering Building, MSU, East Lansing, MI 48824-1226; TEL (517) 355-5135; E-MAIL chems@egr.msu.edu; WEB www.chems.msu.edu

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**Computer Science & Engineering**

The Department of Computer Science and Engineering was founded in 1967, with a faculty of four and an undergraduate class of 31. Today, the CSE faculty are internationally renowned for excellence and regularly win large competitive grants from national funding agencies. Last year, the department was awarded a five-year $3.1 million grant from the Office of Naval Research to conduct research in protecting the nation’s critical infrastructure including command and control networks, electric power grids, and nuclear facilities. In partnering with Microsoft...
Corporation, the department became the first major research institution to provide students with Microsoft’s state-of-the-art computing environment, .NET.

**FACULTY & STAFF** Faculty: 24; academic specialists and support staff: 12

**RESEARCH LABS** Biometrics Research Group (BIOMETRICS); Embodied Intelligence (EI); Experimental Lab for Advanced Networks & Systems (ELANS); Genetic Algorithms Research & Application Group (GARAGe); Intelligent Systems Group; Media and Entertainment Technologies Lab (METLAB); Pattern Recognition & Image Processing (PRIP); Software Engineering and Network Systems (SENS); Wireless Communications & High Speed Networks (WCHSN). For more information about the research labs, visit [www.cse.msu.edu/rgroups/](http://www.cse.msu.edu/rgroups/)

**UNDERGRADUATE DEGREE PROGRAMS** The curriculum is evaluated and updated continually to reflect new advances in both the theory and practice of computer science and engineering. The computing facilities are upgraded regularly to provide students with diverse, state-of-the-art computing platforms and environments. CSE enrolled 600 computer science majors and 375 computer engineering majors in 2002.

**GRADUATE DEGREE PROGRAMS** Advanced studies are available in many areas, including artificial intelligence and knowledge-based systems, genetic algorithms, compilers and programming languages, pattern recognition and image processing, software engineering and formal methods, multimedia and graphics, machine learning, bioinformatics, evolutionary computing, and robotics. Approximately 150 master’s and doctoral students are enrolled each year.

**EMPLOYMENT OPPORTUNITIES** CSE graduates are recruited aggressively by multinational and Michigan-based organizations ranging in size from small startups to Fortune 500 companies.

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**Electrical & Computer Engineering**

The Department of Electrical and Computer Engineering at Michigan State University has a long tradition of excellence in teaching and research and is viewed as one of the premier programs in electrical and computer engineering. ECE is continually investigating new areas of research and specialization. The department also offers a study-abroad program in Kaiserslautern, Germany.
FACULTY & STAFF  Faculty: 35; academic specialists and support staff: 17

RESEARCH AREAS  Circuits and systems, biomedical engineering, communications and signal processing, computer engineering and VLSI, control systems and robotics, and electromagnetics and electronic materials.

Research grants received this year exceed $5 million.

UNDERGRADUATE DEGREE PROGRAMS  Each year, approximately 900 undergraduates are enrolled. Students have ready access to ECE faculty and state-of-the-art facilities. Through a redesigned capstone class, students engage in cross-functional teaming and open-ended problem solving. More than ever, ECE graduates are prepared for the real world.

GRADUATE DEGREE PROGRAMS  ECE has the largest number of under-represented minority graduate students among Big Ten engineering schools. More than 200 graduate students are enrolled. Financial support is provided through teaching and research assistantships.

EMPLOYMENT OPPORTUNITIES  ECE graduates go on to careers in many fields, including automotive, aerospace, computer, energy and electric power, and telecommunications. They may find themselves designing and developing communication systems, diagnostic and therapeutic tools for use in medicine, and new materials.

FOR MORE INFORMATION  Satish Udpa, Chairperson, Department of Electrical and Computer Engineering, 2120 Engineering Building, MSU, East Lansing, MI 48824-1226; TEL (517) 355-5066; E-MAIL ECE_Mailbox@egr.msu.edu; WEB www.egr.msu.edu/ece/

Mechanical Engineering

Established in 1885, the Department of Mechanical Engineering is the oldest department in the College of Engineering. In 2001, two programs—manufacturing and engineering mechanics—were transferred to the department as the result of a reorganization within the College. In 2002, the department added two new labs—the Computational Fluid Dynamics Lab and the Design/Manufacturing Learning Center.

A department highlight is the Student Design Conference, better known as Design Day. At the end of every fall and spring semester, teams of students present their innovative solutions to “real-world” problems presented by Michigan’s manufacturing industries.

FACULTY & STAFF  Faculty: 34; academic specialists and support staff: 11

RESEARCH AREAS  Fluid mechanics, heat transfer, and combustion; automotive engineering and turbomachinery; bioengineering; engineering mechanics; design and manufacturing; mechanical dynamics and vibrations; mechatronic systems modeling and control

UNDERGRADUATE DEGREE PROGRAMS  Last year, 847 students were enrolled. The undergraduate program integrates a strong science base with an excellent design core. Students develop skills in written and oral communication through an integrated communications program. The department’s international program offers options for study around the globe and brings in a diverse group of foreign students to study at MSU.

GRADUATE DEGREE PROGRAMS  The department offers master’s and doctoral degrees in mechanical engineering and in engineering mechanics; 146 graduate students were enrolled last year.

EMPLOYMENT OPPORTUNITIES  Graduates are prepared for work in many fields, including automotive engineering, biomedical engineering, combustion, experimental and computational fluid mechanics, design and manufacturing, computational solid mechanics, mechatronics, and turbomachinery.

FOR MORE INFORMATION  Manooch Koochesfahani, Interim Chairperson, Department of Mechanical Engineering, 2555 Engineering Building, MSU, East Lansing, MI 48824-1226; TEL (517) 355-5131; E-MAIL bishop@egr.msu.edu; WEB www.egr.msu.edu/me/
CSE Students – READY FOR ANYTHING
After graduation, computer science and engineering students will find themselves in careers in a variety of areas, including the defense industry, the medical field, or even the sports arena. And they’ll be prepared, thanks to CSE 498 and the capstone course experience.

CSE 498, Senior Capstone Course, is a “synthesis experience,” bringing together all the knowledge acquired from previous CSE courses. Matt Mutka, associate professor, now teaches the class, which was originally designed and taught by William Punch, associate professor.

The student teams work with clients to develop comprehensive software and/or hardware solutions to a problem. The clients are people from industry, nonprofits, and within MSU. The projects are real-life problems.

The course isn’t just about developing software. It’s about working with clients who may not know what they need and don’t know how to tell you what they need.

“Students gain much-needed experience in organizing themselves in groups to meet the needs of a client,” says Mutka. “They need to learn how to acquire project specifications from someone who may not be an expert in computer software. They need to learn how to adjust to changes in requirements that might be made by a client. All of this experience is relevant to the environment that many of the students will find themselves in when they enter the work force as computer scientists. Furthermore, they need to learn how to integrate a variety of tools that are available for solving problems relevant to a specific project.”

The student teams participate in a design cycle including specification, design, implementation, testing, maintenance, and documentation. Each team is responsible for managing its own machine—installing the operating system, setting up the Web server and database server, installing the software, doing backups, and maintaining security.

Each project is required to be of “reasonable complexity.” The team and the client meet and decide what can be accomplished in the 15 weeks available. Then they put a project together, develop it, integrate it, test it, deploy it, and write up the documentation.

Students are advised to use the “spiral model” of development for designing, coding, and testing. Using this method, the project is partially developed, focusing on the highest priority features, then brought to the users for feedback before any further development is undertaken.

The course is run as if it were a business, and student teams are viewed as companies trying to build a software product. Mutka assigns each student to a “company,” distributing the talent so that each team is even in skills and capabilities. Students find themselves...
Aircraft Memory Unit Data Visualization Project

**CLIENT** Don Akers, Boeing Integrated Defense Systems, St. Louis, Missouri

**STUDENT TEAM** James Dennig, Nicholas Clark, David Korthuis, Michael Prince, Hyun-Soo Kim

**THE PROBLEM** The F/A-18 Hornet has an on-board memory unit (MU) that records data such as speed, direction, pitch, altitude, roll, maintenance codes, and weapons inventory. The Boeing Company needs to establish a visualization tool that will help determine the cause of failure conditions during the flight of an F/A-18.

**THE SOLUTION** The student team designed a visualization tool that graphically displays the aircraft during flight, using information from the memory unit. A 3-D graphics model of the aircraft reflects the movement and status of the aircraft, as recorded by the memory management unit. During playback, the current record’s timestamp is displayed on the screen with the corresponding parameter values. In addition, a 3-D visualization of the plane rotates according to heading, roll, and pitch values. The user can replay an entire flight and view specific events as they transpired.

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MSU Men’s Basketball Seating Assignment System

**CLIENT** Richard Bader, Director of Basketball Operations

**STUDENT TEAM** Eric Blackwell, Paul Dahn, Jung-Eun Lee, Gonzalo Mogollon, Michael Buchanon

**THE PROBLEM** When recruits, coaches, and friends request tickets to a basketball game, the seating is assigned manually. Every new request for seating may require that multiple groups be moved to other blocks of seats. Thus, this entails erasing and “re-penciling” in the information, possibly many times for each basketball game. With a computer program, these seating changes could be accomplished with a “point and click.” To complicate matters, NCAA rules require strict record-keeping procedures for providing tickets.

**THE SOLUTION** The student team developed a tool that automates the seating process. It includes a database that holds all pertinent guest information, a user interface to obtain and alter this information and develop seating charts, and a way to assemble and print the information to comply with NCAA regulations. As a request is entered into the computer, a representation of the seating chart appears on the screen. The user is also able to print out reports, forms that meet the NCAA requirements, envelopes, and labels. The client hopes to use this as part of a larger database that will guide the entire recruiting process.
LEFT TO RIGHT: Paul Heyniger and Dr. Henry Barry.

Breast Lump Detection Exam Scoring System

CLIENT  Henry Barry, M.D., Department of Family Practice, MSU Clinical Center

STUDENT TEAM  Paul Heyniger, Jason Dirkx, Kristina Johnson, Chris Kondos, Shunte McMillian

THE PROBLEM  Medical students are tested on their abilities to detect breast lumps, as well as areas where no lumps are present. Standardized silicone breast models are utilized, which contain 0 to 5 lumps, and 6 different lump patterns. A tedious, manual method of grading these exams is now being used; it is time consuming and prone to error.

THE SOLUTION  The student team developed a system to automatically score breast lump detection exams using a Personal Digital Assistant (PDA). Specific characteristics of each of the breast models used in the exam are entered into a database on a desktop PC, and then downloaded to the PDA. The medical student uses the actual silicone breast models to feel for lumps and then marks those findings on a corresponding grid on the PDA's screen. As required by the client, the system functions in three modes—practice, learning, and exam—and provides appropriate levels of feedback in each mode. In exam mode, scores are uploaded to a database on a desktop PC. This allows pooled feedback to be presented to directors of residency programs around the state who want to know how well a group is doing over time.

As each team forms, students are advised to get organized; have regular meetings; set ground rules for how those meetings will be run; and make sure everyone has something to do, working with people they don’t know very well, much like in the real world.

The class is graded 65 percent on the group project, and 35 percent on individual effort. Each group is required to write a bid document, provide technical specifications, prepare a user's guide, and give two demos and two presentations. To fulfill the individual effort portion of the grade, each student is required to keep a Web log of weekly activities; maintain an individual “technical page” that reflects what was learned technically during the course; and complete an evaluation of each team member's contribution to the project.

The objectives of the course, established by Punch when he set up the class in the fall of 2000, are to develop software in a group environment using available software tools and standard engineering techniques; learn more about computer science tools, especially topical tools; communicate with clients in a real-world setting; and work in a team environment to produce a product to show to prospective employers. “In particular, the course helps students develop better group work skills,” says Punch. “Being able to work in a group is especially important in today’s environment, and it is the most challenging part of the course.”

Due to its emphasis on technology and teamwork, the course is supported externally by Microsoft with both hardware and software. “MSU is a strategic university for Microsoft,” says Revi Sterling of Microsoft Research. She adds, “The senior capstone course provides MSU students with valuable experiences that make them very attractive to companies like Microsoft.”

The course prepares students for the broad range of opportunities they will encounter after they receive their degrees.

“Computer scientists are employed in diverse environments, often where they do not expect they will work,” Mutka says.

Indeed. How many software engineers would expect to rub shoulders with a Big Ten university basketball coach?
Engineering students used to simply post their résumés to the Internet, then sit back and wait for job offers to pour in. It was not unusual to have multiple job offers, with signing bonuses, weeks before graduation.

That was between 1995 and 1999, in the midst of a booming economy and boundless job opportunities. Some students depended on posting résumés to the Internet alone. And that method worked for them.

But things have changed in today's economy, according to James Novak, Engineering Career Field Consultant for MSU’s Career Services & Placement. Now, a month before graduation, many don’t have any job offers. “When I ask them how they are looking for jobs, they tell me they are searching the job postings via the Internet—exclusively. That’s a very limited job search focus,” Novak says.

“Instead, we want our students to build a culture of networking, of preparedness. We want them to start focusing their opportunities before they’re sitting down with someone and asking for a job, pointblank,” he says.

“For years, we were really about placing students in job opportunities. But as career services evolved, we started to recognize more of a need for career development. You can’t just see students in their senior year and place them very well when they haven’t done a lot of up-front work.”

Posting a résumé on the Internet is still a good idea; Novak does not advocate giving that up. But job seekers need to work harder and take advantage of the many other opportunities the Internet has opened up to them—and to future employers.

“The Internet’s really become our lifeline here,” he says. All students are strongly urged to register, through MSU’s Career Services & Placement, with an online interview scheduling program called InterviewTRAK. “It is the way students are going to be informed of internships and full-time positions with employers who are interested in MSU students.” (For registration instructions, see “Resources for Students, Alumni & Employers” on pages 12–13.) The student fills out a user profile and uploads a résumé. “It’s really important for a student to have a résumé on the system,” Novak says. “When an employer requests résumés, I can deliver them.”

Novak also organizes and presents workshops and seminars to assist engineering students in their job searches and connect them with potential employers. Students who attend these sessions learn how to use online interviewing and job-listing services. They are able to meet face-to-face with industry representatives who will critique résumés and conduct mock interviews. “I could really use the help of alums here,” Novak says.

“Primarily, I’m looking at diversity of work experience.” For example, when organizing a session for mechanical engineering students, he would like to see a broad range of industry representatives come forward, from the automotive industry to the food industry.

Students, alumni, and employers will also want to take advantage of MonsterTRAK, an exclusive job-listing service, through monster.com, for employers seeking to hire MSU students and alumni for on-campus, off-campus, part-time, full-time, internship, and co-op positions.

Yet, according to Novak, about 75 percent of jobs are never posted. “It’s ‘who you know,’” he says, “that will get you where you want to go.”

That’s where alums come in, interacting with students, giving them career guidance, being mentors. “It allows students to talk with someone who is doing what they want to do,” Novak says. “We’d really like students to hammer out, ‘Is mechanical engineering for me? Is the automotive industry for me, or is aerospace the direction I should go?’”

A recent report by MSU’s Collegiate Research Institute ranks the top 10 average starting salaries for graduates with bachelor’s degrees. Mechanical engineering students come in second, with average earnings of $49,821. Electrical engineers also place near the top, at $49,736. Computer science average starting salaries rank seventh, at $47,624.
Mentoring and networking are just as important today as ever. Maybe more so. “The person you talk with today might be the person who is going to open all sorts of doors of opportunity to you tomorrow,” says Novak. “You can never tell.”

While the principle is the same, technology has certainly changed the method of connecting.

The MSU Alumni Career Advisory Network, available through MSU’s Career Services & Placement, is an online database designed to connect MSU students with alumni in their career fields.

MentorNet is an e-mail mentoring network for women in engineering and science. The MentorNet One-on-One Mentoring Program matches community college, undergraduate, and graduate women students with engineers and scientists working in corporations, national laboratories, and government.

Philip Gardner, director of MSU’s Collegiate Employment Research Institute, echoes the importance of networking. And that networking may include a student’s own parents. “Parents are a real asset in today’s job search, because of their contacts,” he said in a Wall Street Journal article on December 10, 2002.

Well-rounded graduates are what employers are looking for. Students must have the technical background and the knowledge base, but communication skills are critical. And this year, Gardner says, add to that an increased emphasis on ethics and integrity.

He also notes that job opportunities will not be as plentiful for engineering majors in 2003.

Wayne Dyksen, chair of the Department of Computer Science and Engineering, says, “While the job market in computer science is less robust than in previous years, opportunities still exist. Naturally, students must dedicate more of their time and energy to their job searches. They need to take advantage of all the resources available to them both on and off campus. The good news is that our good students continue to receive good job offers.”

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Engineering Career Field Consultant

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Tom Wolff
Associate Dean for Undergraduate Studies

“Having a career services rep physically in the building has had a phenomenal impact on how our students and their advisers interact with MSU’s Career Services & Placement office. Students looking for work experience are easily referred between Jim’s office and the Cooperative Engineering Education office—up and down a staircase. Jim, the co-op staff, the advising staff, and I are constantly in communication in the hallway. As described in this article, this personal contact is where real things happen.”
Career Development Workshops

Many career development workshops and seminars are available to help engineering students learn valuable skills and to connect with alumni and employers. Students will: learn how to use MonsterTRAK and InterviewTRAK in their job searches; meet with actual employers who will critique résumés; participate in “mock interviews” with actual employers who will help polish interviewing skills. These sessions are held in Anthony Hall and the Engineering Building and are free of charge. For a list of upcoming workshops and seminars, connect at www.csp.msu.edu/events.cfm.

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MonsterTRAK and InterviewTRAK

Both MonsterTRAK and InterviewTRAK are powered by monster.com.

MonsterTRAK is the official job-listing service for employers seeking to hire MSU students and alumni for on-campus, off-campus, part-time, full-time, internship, and co-op positions.

InterviewTRAK is the official on-campus recruiting tool. Students are strongly encouraged to register and post their résumés to this system.

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MSU Alumni Career Advisory Network

Designed to connect students and alumni, this networking/mentoring program helps students build networks with professionals in their fields, and provides them with valuable insights into career opportunities. All College of Engineering alumni are invited to register now with the Alumni Career Advisory Network in order to provide valuable career advice to our future engineers. The database, available through monstertrak.com, is maintained by MSU’s Career Services & Placement and the Lear Corporation Career Services Center in the College of Business.

CONTACT Carmen Boak, Project Coordinator, Career Services & Placement, 113 Student Services Building; TEL (517) 355-9510, ext. 126; E-MAIL boakc@msu.edu; WEB www.csp.msu.edu

MentorNet

MentorNet is an e-mentoring network for women in engineering and the sciences. The MentorNet One-on-One Mentoring Program matches undergraduate and graduate women students with engineers and scientists working in corporations, national laboratories, and government. This one-on-one, electronic mentoring program provides training and coaching to facilitate the development of online mentoring relationships.

CONTACT Judy Cordes, Academic Adviser, 1424 Engineering Building; TEL (517) 355-6616, ext. 3; E-MAIL cordes@egr.msu.edu; WEB www.mentornet.net/

Cooperative Engineering Education Program

This academic program offers opportunities for students to be employed in positions directly related to their major fields of study. Approximately 200 employers—locally, regionally, and nationally—and nearly 500 students each year participate in the Cooperative Engineering Education Program. The co-op education experience boosts graduates’ employment opportunities. National studies indicate that approximately 80 percent of co-op students receive an offer for permanent employment from organizations that participate in co-op.

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Les L. Leone
Receives Alvah K. Borman Award

Les L. Leone, Ph.D., who has directed the Cooperative Engineering Education Program since 1987, received an Alvah K. Borman Meritorious Service Award on January 30, 2003, in Tucson, Arizona. The Cooperative Education Division (CED) of the American Society of Engineering Education (ASEE) annually recognizes an individual who has “made sustained, honorable, and meritorious contributions to the promotion of the philosophy and practice of cooperative education and in engineering practice.”

Leone was chair of the CED division of ASEE (2001–2002) and currently serves on the executive board. He received a Chair’s Award from the association in 1997, and was honored with two Best Session Awards (1988 and 1997) at ASEE conferences. He is described as “an experienced, passionate, collegial, and affable professional who carries out his tasks with dignity and integrity.” He has been with MSU’s College of Engineering since 1971.

Internships

Internships available exclusively to MSU students are listed with MonsterTRAK.

- **CONTACT** Jim Novak, Engineering Career Field Consultant, 2465 Engineering Building; TEL (517) 432-0750, or (517) 355-9510, ext. 335, for appointments; E-MAIL novakja@msu.edu; WEB www.csp.msu.edu

ROSES

Residential Option for Science and Engineering Students (ROSES) is designed to provide a strong sense of community and academic support for freshmen in engineering and science majors. They share a common living environment (Bailey Hall), common classes (ROSES sections of math, chemistry, computer science, writing, bio-science), and a one-credit seminar. This interaction promotes collaborative learning and an atmosphere similar to that of a small college. Applicants must meet minimum criteria for selection.

- **CONTACT** Anne Hornak, Academic Adviser, 1422 Engineering Building; TEL (517) 355-6616, ext. 2; E-MAIL hornakan@egr.msu.edu; WEB www.ns.msu.edu/roses/index.htm

Engineering Study Abroad

Preparing students to be “global engineers” is the aim of the Engineering Study Abroad Program.

Typically, more than 100 students participate each year in a study-abroad experience. Program locations are: Surrey, England; Aachen, Germany; Kaiserslautern, Germany; Volgograd, Russia; and China and Thailand. A study abroad experience ensures that MSU engineering graduates will be strong candidates for engineering positions around the world. Scholarships are available.

- **CONTACT** Maggie Blair-Ramsey, Coordinator, Engineering Study Abroad, 1108-D Engineering Building; TEL (517) 432-2012; E-MAIL blairram@egr.msu.edu; WEB www.egr.msu.edu/egr/programs/specialprograms/esa/

Diversity Programs Office (DPO)

The Diversity Programs Office provides academic assistance for underrepresented minority students in all engineering majors. Weekly supplemental academic assistance is available free of charge through the Guided Learning Center, which currently serves 200 academic requests with 21 volunteers and 5 paid graduate students covering approximately 45 engineering courses. DPO offers an academic and corporate orientation course, EGR 160, which allows minority students to network with faculty, staff, and career professionals. A Wireless Integrated Microsystems (WIMS) Project Lab located in the DPO provides research opportunities for undergraduate students. Minority students maintaining at least a 3.0 grade point average are invited to a Showcase of Stars breakfast where they can network with corporate representatives.

- **CONTACT** Aurles U. Wiggins, Director, Diversity Programs Office, 1108 Engineering Building; TEL (517) 355-8310; E-MAIL dpo@egr.msu.edu; WEB www.egr.msu.edu/egr/departments/dpo/
Academic Advisers

Advisers provide the following general services: academic advising; life skills advising; programming for events geared toward student recruitment and retention; career counseling; job search info; e-mail updates; input to curriculum committees; certification of seniors for graduation; support for student chapters of academic/professional organizations; updates for students on internship, research, and scholarship opportunities; and letters of recommendation for students.

Judy Cordes
Academic adviser for freshman and sophomore engineering students, as well as prospective students and their families; faculty adviser to the Society of Women Engineers; coordinates two study abroad opportunities in Australia.

Jane L. Evarian
Academic adviser for juniors and seniors in Computer Science and Engineering (CSE); co-instructor for CSE freshman/senior seminars; provides support for the MSU student chapters of the Association for Computing Machinery and Upsilon Pi Epsilon, a computer science honorary society; works with CSE curriculum committee.

Gaile Griffore
Academic adviser for Mechanical Engineering (ME) majors and for prospective ME students; produces several publications, including the undergraduate newsletter and the department’s annual report.

Jennifer P. Hodges
Academic adviser for freshman and sophomore engineering students, as well as prospective students and their families; director of the High School Engineering Institute; coordinator for Engineering Ambassadors.

Anne Hornak
Academic adviser for freshman and sophomore engineering students; directs the one-year Residential Option for Science and Engineering Students (ROSES).

Judy Cordes

Gaile Griffore

Jennifer P. Hodges

Anne Hornak
Elaine Johnson-Hahn

Academic adviser for freshmen through seniors in Biosystems Engineering (BE) in the College of Engineering and in Building Construction Management (College of Agriculture and Natural Resources); serves on departmental committees; coordinates departmental efforts for Science, Engineering, and Technology (SET) Day, College Colloquium, Biosystems Engineering scholarships, and professorial assistantships; facilitates student/industry contact sessions for the Biosystems Engineering Showcase, which features senior design projects; College of ANR representative on Study Abroad Focus Group

Dan King

Academic adviser for Civil and Environmental Engineering majors; events coordinator: College of Engineering representative on the All-University Adviser In-Service Training Committee and the Study Abroad Adviser Focus Committee; non-voting member of the Civil Engineering Undergraduate Curriculum Committee; faculty coordinator for the University of Surrey Exchange Program; Michigan liaison to Region V of NACADA (National Academic Advising Association); co-teaches one section of EGR 291 (ROSES Program)

Garth Motschenbacher

Academic adviser for Electrical & Computer Engineering (ECE) majors; currently investigating methods to help ECE students document co-op, internship, summer job, and research assistantship experiences; works with the department’s ABET & curriculum committees; provides support for the MSU student chapters of the Institute of Electrical and Electronics Engineers (IEEE) and Eta Kappa Nu, the international honor society for Electrical and Computer Engineers; coordinates ECE’s Science, Engineering, and Technology (SET) Day efforts

Scott Keely

Academic adviser for freshmen through seniors in Engineering Arts, Engineering Mechanics, Manufacturing Engineering, and Materials Science and Engineering programs; adviser for engineering freshmen and sophomores in the Honors College; teaches EGR 300, “Technology, Society, and Public Policy”; MSU representative for the State of Michigan Engineering College/Community College Liaison Committee

Jonathan Lembright

Academic adviser for freshman and sophomore engineering students; coordinator for Science, Engineering, and Technology (SET) Day; assists with the academic orientation program and various recruitment events for the College

Cynthia Sarver

Academic adviser for Chemical Engineering undergrad students and majors; coordinates the College of Engineering’s Academic Orientation Program; sits on chemical engineering undergraduate curriculum committee; oversees the Withrow Awards nomination and selection process for the department
How wonderful it is to see many of the College of Engineering’s very best friends in this room! I want you to know how much I have valued the leadership, the enthusiasm and energy, wisdom, counsel, and support that you’ve given the college over the years. As MSU embarks on the most ambitious campaign in its history, it seems only fitting that you would be here today. I want to thank you for coming, and for being such an important part of this campaign celebration.

We Are Gaining Momentum

We are excited about what the next five years will bring. If our past is any indication, we know that we will be successful. Over the last seven years, MSU has consistently broken all previous fundraising records. This most recent fiscal year was no exception, as MSU achieved its most successful fundraising year in history, with more than $211 million raised. This total represents all gifts, including gifts of cash, planned gifts, equipment, and other in-kind support ($171.6 million in current gifts; $40.1 million in planned gifts).

An exciting byproduct of this growth is our rising position among the Big Ten. Two years ago, MSU was virtually at the bottom of the Big Ten, ranking 9th in terms of dollars raised. Thanks to the generosity of our donors, we jumped to number 6 just one year later. In fact, MSU was, for the first time, ranked in the top 20 nationally and numbered 10th among public/research/doctoral universities in terms of total dollars raised.

Like MSU, the College of Engineering has enjoyed incredible fundraising growth. This past fiscal year is remarkable in that, despite a time of economic uncertainty, the College achieved its second most successful fundraising year ever, with $38 million raised. This included 18 gifts of $100,000 or more, including a planned gift of $1.3 million. In the last three years, our cash giving has increased to an average of $5.8 million annually, more than double where we were just four years ago.

Room for Growth in Individual Giving

Nationally, gifts from alumni and other individuals comprise 49 percent of all dollars given to higher education. But for MSU, only 15 percent of all dollars come from individuals, while corporations contribute nearly 60 percent. Just last week MSU received the distinction of being number 1 in the country in terms of total dollars received from the corporate sector. While corporate support is prominent in engineering schools, and we wouldn’t want it any other way, you can see why the College of Engineering views individual giving as its greatest growth opportunity.

Endowments Ensure Academic Excellence and Long-Term Stability

Another critical measure of progress is to look at our endowment. Endowments are permanent funds always equated with academic excellence and long-term stability. They provide a consistent source of funding that buffers us when traditional sources may decline. Endowments are similar to savings accounts. Each year, only a portion of the interest income is spent while the remainder reverts to principal to grow the fund over time and safeguard against inflation. In this respect, it is a gift that grows.

Endowments are absolutely critical if we are to be competitive with other engineering development...
schools across the country. We need endowments to recruit and retain the very best faculty and students, to provide access to innovative programming, and to grow and nurture those areas of research and scholarship to which we have committed.

The good news is that the growth of MSU’s endowment has been phenomenal. During this past fiscal year, MSU grew its endowment by more than $50 million. This is quite remarkable, given that the average college endowment nationwide lost 3.6 percent of its value during the past year. This affirms that we have been successful not only in raising endowment dollars, but also in serving as good stewards of these donor investments.

Are you ready for the bad news? Despite our incredible fundraising growth in recent years, our endowment for the most recent comparative reporting period places MSU 10th out of 11 among the Big Ten. This means that when MSU competes for the best faculty and students, we have far less leverage than our sister institutions who can offer greater resources in the form of scholarships, start-up research support for faculty, graduate fellowships, and other forms of critical support.

I’m afraid this also holds true for the College of Engineering. You may be as surprised as I was when I first arrived two years ago, to learn that our total endowment is less than $20 million. We are literally dwarfed when we compare our endowment with other engineering schools across the country.

Within the College of Engineering, scholarships are traditionally the easiest dollars to raise, with 64 percent of all endowments devoted to scholarship support. Scholarships are important to the caliber of students we want to attract, but we need to have the same success in other critical areas—namely, endowed discretionary funds, study abroad support, endowed professorships and chairs, and graduate fellowships. The most challenging dollars for us to raise are endowed chairs and professorships. Yet it is these endowments that allow us to attract the very best faculty in the country.

Now Is the Time to Support the College of Engineering

Both MSU and the College of Engineering have achieved wonderful momentum in terms of dollars raised and endowments generated. For that, we should be very, very proud. But we are in our infancy in terms of potential. This capital campaign offers us the opportunity to capitalize on the momentum and to take this college to the next level.

A capital campaign creates a sense of urgency and focus both internally and externally. It motivates the College to develop a set of high priority funding needs to which it is committed for the next five to ten years. And it sends a message to our donors and prospects that the needs have never been greater, and the time to support the College of Engineering is now.

The great thing about having best friends is that you know you can count on them. In this regard, I look forward to working with you as we commit ourselves to The Campaign for MSU. Together, we will advance knowledge and transform the lives of the generations of students who will receive their engineering educations here at MSU.
Roger L. Koenig (B.S. electrical engineering, ‘76) received an MSU Distinguished Alumni Award at the October 17, 2002, Grand Awards Ceremony at the Kellogg Center. His father, Herman E. Koenig, accepted the award on his behalf, as Roger was unable to attend. This award is given by the MSU Alumni Association to candidates who have distinguished themselves by obtaining the highest level of professional accomplishment and who possess the highest standards of integrity and character, thus reflecting and enhancing the prestige of Michigan State University.

Earlier in the year, Koenig also received the 21st Claud R. Erickson Distinguished Alumnus Award at the College of Engineering’s spring commencement ceremony, May 5, 2002. The College of Engineering’s highest honor, the Claud Erickson Award is given to a graduate who has attained the highest level of professional accomplishment, provided distinguished and meritorious service to the College of Engineering and the engineering profession, and engaged in voluntary service at the local, state, and national and/or international level.

Roger Koenig is the co-founder, chairperson, chief executive officer, and president of Carrier Access Corporation headquartered in Boulder, Colorado, a supplier of broadband access and service creation equipment. Well known for his charitable and philanthropic giving, he recently gave the MSU Department of Electrical and Computer Engineering a cash gift of $1.5 million to establish the Dr. Herman E. and Ruth J. Koenig Endowed Chair in Communication Systems in honor of his parents’ long-term devotion to MSU. Herman Koenig is a former chairperson of the Department of Electrical and Computer Engineering.
MSU College of Engineering Dedicates Endowed Chair

Michigan State University recently announced the dedication of the Richard M. Hong Endowed Chair in Electrical Engineering. Richard Hong, an alumnus of the College of Engineering, created this endowment to support a distinguished faculty member in the Electrical and Computer Engineering Department. Jes Asmussen, a member of the department for 35 years, has been selected to fill the position.

Asmussen is known internationally for his pioneering research on microwave plasma reactors and microwave heating applicators. His accomplishments and technical innovations have established MSU as a world-renowned center for the development and application of microwave materials and microwave plasma processing technologies. His findings have been used to develop small spacecraft engines for NASA and to process composite materials. Other applications include plasma-assisted synthesis of diamond films and integrated circuit manufacturing. Technology developed by Asmussen and his students has been licensed to industry in the United States, Europe, and Asia.

Janie Fouke, dean of the College of Engineering, says, “Endowed faculty positions are vital to the College because they are the nucleus of outstanding engineering programs.”

Richard Hong, for whom the chair is named, was born in Taiwan. He received a master’s degree from MSU in electrical engineering in 1967 and a Ph.D. in 1970. He is currently chairman of SinoPac Holdings, Matsushita Electric (Taiwan), and National Electric Appliance. Hong’s family has been devoted to philanthropy for more than three decades, sponsoring causes that range from the arts and cultural events to studies in finance and political science.

This endowed chair is the third fully endowed chair in the College of Engineering and the first to be filled in the Department of Electrical and Computer Engineering. Richard Hong’s generosity will enable the College of Engineering to continue building distinguished leadership for teaching and research in critical areas in electrical engineering.

“Michigan State University is grateful to Dr. Hong and his family for this demonstration of appreciation for the University’s important role in his life,” says Fouke. “It is especially appropriate that Dr. Asmussen is being honored as the holder of this endowed chair. He emulates the ideals of its donor, being a devoted educator and a successful entrepreneur.”

Alton Granger Named Chapter Honor Member of Chi Epsilon

Alton L. Granger (B.S. civil engineering ’54, P.E. ’60), president of Granger Construction in Lansing, Michigan, was named a Chapter Honor Member of Chi Epsilon, the national civil engineering honor society, on November 24, 2002. He was cited as being an exemplary engineer, a representative of the ideals of the organization and worthy to serve as an example for student members to follow. Membership is based on scholarship, character, practicality, and sociability, the hallmarks of a successful civil engineer.

Granger has served as president of the Holt Public Schools Board of Education, president of the board of directors of the Michigan chapter of the Associated General Contractors, and president of the Lansing Downtown Optimist Club. He has also served on the University Development board of directors at MSU.
Two old friends found each other after reading about the Agnes McCann Memorial Student Endowment Fund in the summer 2002 issue of Currents Magazine (page 19). When Robert Hedlund saw Keith Hunt listed as a donor to the “Aggie McCann Fund,” he contacted the college for Hunt’s phone number. The two men and their wives met for lunch at the MSU Kellogg Center State Room on November 22, 2002, and reminisced about their college days.

Hedlund and Hunt, both 1947 chemical engineering grads, worked as student aides in Aggie McCann’s office on the first floor of R. E. Olds Hall. Hunt says, “Aggie was the chief honcho.” Much of their work in Aggie’s office involved scheduling classes for engineering students, so that everything was in place for them at registration.

They laughingly recall that they earned 35 cents an hour. Hunt says, “If you worked 2 ½ hours, you’d get about a dollar, and you could eat breakfast, lunch, and dinner for one day at Kewpie’s or Hunt’s Cafeteria.”

Both men were in the Signal Corps (ROTC) during their first two years at MSU. They then entered the ASTP program at Purdue University, where they were able to complete their junior-year credits. Then both went to officers’ candidate school at Fort Monmouth, New Jersey, and were commissioned in the Signal Corps. Hedlund was sent to install radio equipment in Hawaii and on several islands in the Pacific, and Hunt was in a battalion attached to General McArthur’s headquarters. “So,” Hunt says, “I was running radio teletype messages in the Far East, and Bob was in Hawaii, sending them on to Washington.”

Both men corresponded with Aggie McCann about returning to MSU to complete their senior year. Hedlund says, “She handled everything personally. You weren’t just a number to her.”

Jeannette Hedlund recalls that when she and Bob got married, Aggie loaned her car to several MSU students, including Bob’s best man, so they could get to Grand Rapids to be in their wedding. Gladys Hunt says that Aggie sent Keith a Christmas card every year until she died in 1987.

After graduating, Hedlund and Hunt took different paths. Hedlund went to work for Dow Corning Corporation in Midland, Michigan, where he stayed for 36 years. He says, “Being a new company, every couple of years they gave me a better job, then a better job.” He spent five years in Japan as the technical coordinator between Dow Corning and their joint venture company, Toray Silicone. Jeannette, a graduate of Western Michigan University, was an elementary school teacher for many years in Midland. In Japan, she taught college students who wanted to improve their spoken English. She feels close to MSU because, as a student, she “camped out” in East Lansing to take part in MSU social events.

Hunt first worked in sales engineering, then with a pressure and temperature control company called H.O. Treras. He left in 1951 to join the staff of InterVarsity Christian Fellowship. He began in Illinois, and eventually became regional director for five states, including Michigan. He used his engineering skills to oversee the building of a large training center in Michigan’s Upper Peninsula, which he and Gladys managed for 33 years. Gladys, a 1948 MSU graduate in journalism, has published 20 books, including three this past year. The Hunts enjoyed foreign travel through their connection with the International Fellowship of Evangelical Students.

Both couples have continued their connection to MSU through their offspring. The Hunts’ son graduated from MSU, and their two grandsons are currently attending MSU. Of the Hedlunds’ four children, three graduated from MSU.

—Lynn Anderson
Bryan Cotton

**Freshman**

**COMPUTER SCIENCE & ENGINEERING; MUSIC—JAZZ STUDIES**

**HOMETOWN** Dolton, Illinois

**EXTRACURRICULAR ACTIVITIES** Plays trombone in the MSU Jazz Band; Multi-Racial Unity Living Experience (MRULE); ROSES (Residential Option for Science and Engineering Students), a residential program in which students with similar academic interests and career goals share selected floors in Bailey Hall of the Brody Complex

**ORIGINAL CAREER GOAL** To work with computers

**DECISION TO PURSUE ENGINEERING CAREER** “I knew I wanted to work with computers, but I didn’t want to lose that music that I’d had for so long. So I decided to double major and do something with the two.”

**LONG-TERM GOALS** “I’m thinking about creating my own music software—music theory software and jazz theory software. I had worked with several different programs in high school, but I saw that we did not have a good solid jazz computer program. The theory program that was used, even though it was out of date, helped me a lot. I want to give back to the music community by creating my own software.”

**HIGHLIGHTS/CHALLENGES FROM FALL SEMESTER 2002** He completed 18 credits, which included a math course, three music courses, and a computer science seminar. Yet, he felt he had “all this free time,” so he had to learn time management. “In high school, I was at school for 11 or 12 hours a day, 5 days a week. First classes, then band practice from 3:00 until 5:00; then work for the band director until about 6:00.” When he came to MSU, he didn’t expect to have class for two hours, and then have a three-hour break in the middle of the day. (He had intended to take 21 credits spring semester 2003, but has scaled that down to just 17.)

Being in ROSES allows him to interact with other engineering students.

**BEST THING ABOUT BEING AN ENGINEERING STUDENT AT MSU** “It opens you up to the world. The campus is so diverse. There are so many differences on campus; it gives you a broad perspective about everything.

“MSU prepares you for real-world situations. People in engineering say ‘go out and learn as much as you can. Get internships.’ In Jazz Studies, they promote going out and doing jam sessions. In the real world, you might get called for a gig two days before it happens. And you’ve got to be prepared to do that. They encourage us to go out and play as much as we can.”

Eboni Harper

**Sophomore**

**ELECTRICAL ENGINEERING; MATHEMATICS**

**HOMETOWN** Detroit, Michigan

**EXTRACURRICULAR ACTIVITIES** At age five, she was singing in her church choir. In high school, she played viola and violin. She now sings in the MSU Gospel Chorale. She’s a teaching assistant (TA) for the Emerging Scholars Program in the Math Department. As a freshman, she was involved in the Drew Enrichment Laboratory, a program designed to assist gifted minority students pursuing careers in science and its related fields with the transition from high school to the university science curriculum.

**ORIGINAL CAREER GOAL** To become an OB/GYN

**DECISION TO PURSUE ENGINEERING CAREER** She decided that she wanted to be an engineer because she loved math. She originally thought about becoming a physician, but decided that rather than work on the human body she would prefer to work on systems that help the human body. She’s particularly interested in research in electrical stimulation on the human skin.

**WHY MSU?** The friendly environment. She liked the “I want you to learn from each other” attitude and the variety of choices.
LONG-TERM GOALS She plans to study abroad in Germany next summer and would like to learn German and Arabic languages. "Most of my friends in engineering speak another language or they’re from outside the United States." She’s considering grad school, sees herself doing research in engineering and math, and would like to teach.

HIGHLIGHTS/CHALLENGES FROM FALL SEMESTER 2002 As a TA for the Emerging Scholars in the Math Department, she enjoys working with students. “It was interesting working with freshmen who didn’t all like math; who found it challenging. And trying to get them to have an open mind about math—how it can help them, and lead them in the future.”

BEST THING ABOUT BEING AN ENGINEERING STUDENT AT MSU “When I came to Emerging Scholars, they taught me to learn from my peers instead of just going to my professors. If one student is good in factoring, he or she can teach factoring. There is always someone around to help you.”

Jacob Kirshman
Sophomore
MECHANICAL ENGINEERING

HOMETOWN Linden, Michigan
EXTRACURRICULAR ACTIVITIES Hunting, fishing, jet skiing, soccer; was a ROSES student freshman year; member of American Society of Mechanical Engineers (ASME)
ORIGINAL CAREER GOAL Toy designer
DECISION TO PURSUE ENGINEERING CAREER He was always interested in how things worked; he made the decision mid-way through high school to pursue engineering

WHY MSU? When considering various universities, he visited MSU. He was also accepted at Kettering. “The ROSES people gave me a tour of the college. I really liked MSU. People told me it would be too big and I wouldn’t be able to find my way around or get to know anybody. But I don’t find that here at all. I’m rooming with someone from my high school.”

LONG-TERM GOALS “With a mechanical engineering degree, you can go into so many things.” He wants to get an interesting job, while at the same time going on to grad school.

HIGHLIGHTS/CHALLENGES FROM FALL SEMESTER 2002 Learning to use Unigraphics Solutions 3-D solid-modeling software, the industry standard in CAD/CAM/CAE technology. “It’s one of the best things I’ve done since I’ve been here.” He will be applying these new skills spring semester 2003, when he begins a co-op job in Battle Creek, Michigan, with Denso, a global supplier of automotive technology, systems, and components.

BEST THING ABOUT BEING AN ENGINEERING STUDENT AT MSU “The professors are understanding and willing to help you. You know you’re going to get a good education here.”

Greg Kehrier
Junior
CHEMICAL ENGINEERING & MATERIALS SCIENCE

HOMETOWN Bay City, Michigan
EXTRACURRICULAR ACTIVITIES Plays melodophone in the MSU Marching Band; plays guitar and sings lead vocals in two bands; enjoys tennis, hockey, football; was a ROSES student freshman year and has tutored in ROSES his sophomore and junior years; math TA; member of National Society of Collegiate Scholars and Golden Key

DECISION TO PURSUE ENGINEERING CAREER “I enjoyed chemistry in high school and was good at math. I attended a week-long chemical engineering exploration program at Michigan Tech after sophomore year in high school.” He decided to major in chemical engineering versus chemistry because he prefers working with large-scale equipment.

WHY MSU? “It’s the best! I looked at other schools around Michigan that had just as good a chemical engineering program as MSU, but I liked State the best. I liked the campus, and everyone was very friendly.”

LONG-TERM GOALS Will explore internship opportunities this summer; after graduation, he plans to work full time in the area of polymers, and possibly go on to graduate school.

HIGHLIGHTS/CHALLENGES FROM FALL SEMESTER 2002 Time was his biggest challenge. In addition to his classes, he’s a tutor for the ROSES program and a math TA.

BEST THING ABOUT BEING AN ENGINEERING STUDENT AT MSU “I have made so many friends; everyone is very friendly.”
Tracy Kamikawa  
Senior  
BIOSYSTEMS ENGINEERING  

**HOMETOWN** Honolulu, Hawaii  
**EXTRACURRICULAR ACTIVITIES** Kayaking (competed in high school); member of Tau Beta Pi, National Society of Collegiate Scholars, and Golden Key  
**ORIGINAL CAREER GOAL** Thought about going to medical school

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Nicole Danielson  
Graduate Student  
ENVIRONMENTAL ENGINEERING  

**HOMETOWN** River Falls, Wisconsin  
**EXTRACURRICULAR ACTIVITIES** Playing piano; reading; soccer, tennis, golf; watching MSU sports; member of Chi Epsilon and Honors College Service Corps; has been involved with Society of Women Engineers (SWE) since end of freshman year and has served as president, executive board member, and high school outreach person

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**DECISION TO PURSUE ENGINEERING CAREER** Since high school, she has always been interested in math and the sciences.

**WHY MSU?** “I always wanted to study far away from home, in an environment different from that of Hawaii. At my high school, they encouraged us to go to college on the mainland. I narrowed it down to MSU and the University of Southern California.” (She was born in California and lived there for a year while her father was completing his degree.) “There were a lot of people from Hawaii at USC, but I liked it here at MSU, due in large part to the people I met. Everyone is so welcoming.”

She entered MSU as a “no preference, engineering” major, with 49 advanced placement credits in history, calculus, and English. She was awarded a scholarship and a professorial assistantship. The summer before she came to campus, Evangelyn C. Alocilja, assistant professor of biosystems engineering, called her and invited her to work with her in her lab. Thereafter, she decided to major in biosystems engineering.

**LONG-TERM GOALS** “I hope to work as a food safety engineer in industry, and return to grad school eventually. I would also enjoy working in research and development. Ultimately, I hope to get back to Hawaii.”

**HIGHLIGHTS/CHALLENGES FROM FALL SEMESTER 2002** “This has been my most challenging semester yet, due to a heavy course load and the stress of planning a study abroad trip.” She is studying in Dublin, Ireland, spring semester 2003.

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**DECISION TO PURSUE ENGINEERING CAREER** “My high school calculus teacher pushed hard for us to look into engineering, I was already active in our Ecology Club, and I wanted a challenging major. Civil and environmental engineering just seemed to fit.” Her interest in ecology was influenced by her mother, a third-grade science and math teacher. (She claims she was subjected to all of her mom’s science projects!)

**WHY MSU?** She was impressed with the campus when she took part in the Alumni Distinguished Scholars program while in high school. She was admitted into Honors College and received an Honors College National Scholarship. She was also accepted to Iowa State and the University of Michigan, but she decided on MSU: “I loved the campus. Everyone was really nice.” After receiving her bachelor’s degree, she decided to continue on at MSU for graduate work. She received a half-time assistantship as a TA in fluid mechanics.

**LONG-TERM GOALS** She most likely will work in water/wastewater treatment; may try to get experience in government or consulting this summer.

**HIGHLIGHTS/CHALLENGES FROM FALL SEMESTER 2002** “Being a TA for the first time; having to deal with grading and lecturing. I wasn’t used to being asked so many questions about one particular subject; I wasn’t used to having to be an expert.”

**BEST THING ABOUT BEING AN ENGINEERING STUDENT AT MSU** “At MSU, you get so much more attention than you do at other universities. From speaking with others at SWE conferences, I find we get a lot more attention from our professors. They are always available. They care about their students.

“I know from talking with representatives in industry that they really like MSU graduates. They say that we have a lot to offer, that we’re well-balanced students, can understand what needs to be done, and pick things up quickly.”
Selin Aviyente
Assistant Professor, Electrical and Computer Engineering
Aviyente received her B.S. degree from Bogazici University, Istanbul, Turkey, in 1997. While earning her M.S. and Ph.D. degrees in electrical engineering systems from the University of Michigan, she was the recipient of a Barbor scholarship and received the College of Engineering Distinguished Achievement Award. Her research interests include statistical signal processing, non-stationary signal analysis, time-frequency distributions, application of information theory to signal analysis, and applications of signal processing to biological signals. She is a member of the IEEE Signal Processing Society and SPIE.

Shanker Balasubramaniam
Associate Professor, Electrical and Computer Engineering
Balasubramaniam obtained his Ph.D. from Pennsylvania State University. Prior to coming to MSU, he worked on the molecular theory of optical activity in the Department of Biochemistry and Biophysics at Iowa State University, was a visiting assistant professor with the Center for Computational Electromagnetics at the University of Illinois, and then was an assistant professor with Iowa State University. His research interests include computational electromagnetics and electromagnetic wave propagation in complex media. He is a senior member of the IEEE and a full member of the USNC-URSI Commission B.

Joyce Chai
Assistant Professor, Computer Science and Engineering
Joyce Chai received her Ph.D. in computer science from Duke University in 1998. Prior to joining MSU, she was a researcher at the IBM T. J. Watson Research Center where she conducted research on natural language and multimodal conversational systems. Her research interests include natural language processing, conversational agents, and intelligent user interfaces. She is a member of the American Association of Artificial Intelligence and the Association of Computational Linguistics.

Cevat Gokcek
Assistant Professor, Mechanical Engineering
Gokcek received B.Sc. and M.Sc. degrees from the Orta Dogu Teknik Universitesi, Ankara, Turkey, and a Ph.D. in electrical engineering from the University of Michigan in 2000. His current research interests include linear and nonlinear systems, robust and optimal control, model reduction, mechatronics, and engine control. He received the
Best Thesis Award from the Mustafa N. Parlar Foundation and the E. Gelenbe Best Thesis Award. He is a member of the IEEE Control Systems Society and ASME.

Ilsoon Lee
Assistant Professor, Chemical Engineering and Materials Science

Lee earned his B.S. and M.S. degrees at Seoul National University and his Ph.D. at the University of Delaware in 2000. Prior to coming to MSU, he was a postdoctoral associate at MIT in the Department of Chemical Engineering. His research interests include molecular level control over self-assembled thin films and surface patterning via novel non-lithographic approaches and layer-by-layer assembly. He is a member of the American Institute of Chemical Engineers, the American Chemical Society, and the Materials Research Society.

Phanikumar S. Mantha
Assistant Professor, Civil and Environmental Engineering

Mantha earned a Ph.D. from the Indian Institute of Science. He worked at the Center for Mathematical Modeling and Computer Simulation in India, where his research focus was surface water pollution in estuaries and the coastal ocean. He was a visiting assistant professor in the Department of Geological Sciences at MSU before joining the College of Engineering. His research interests include reactive transport and the fate of contaminants in surface water and groundwater, as well as environmental and geophysical fluid dynamics.

Tongtong Li
Assistant Professor, Electrical and Computer Engineering

Li earned a Ph.D. in electrical and computer engineering from Auburn University. Before coming to MSU, she was with Bell Labs in New Jersey, where she worked on the design and implementation of wireless communication systems. Her research interests include: wireless and wireline communication systems; digital signal processing; statistical and array signal processing; and information theory and network security. She is a member of the Communication and Signal Processing Group of the ECE Department.

Robert McGough
Assistant Professor, Electrical and Computer Engineering

McGough received a B.E. from Vanderbilt University, an M.S. in electrical engineering from the University of Illinois, and a Ph.D. in electrical engineering from the University of Michigan. Before coming to MSU, he was at Duke University Medical Center in the Department of Radiation Oncology. His research interests include medical ultrasound, thermal therapy, diagnostic imaging, and heat-mediated drug delivery. He is a member of the IEEE (UFFC and EMB Societies) and the North American Hyperthermia Society.

Ramakrishna Mukkamala
Assistant Professor, Electrical and Computer Engineering

Mukkamala earned a Ph.D. in electrical engineering and computer science at the Massachusetts Institute of Technology. He was awarded the General Motors Scholarship Plan for undergraduate studies and the Whitaker Foundation Fellowship for graduate studies. He then spent two years conducting post-doctoral research at the Harvard-MIT Division of Health Sciences and Technology. His research interests include biomedical signal processing and identification, modeling of physiologic systems, and cardiovascular physiology.

Charles Ofria
Assistant Professor, Computer Science and Engineering

Ofria received his Ph.D. from the California Institute of Technology in the field of computation and neural systems. Before joining the College of Engineering, he spent three
Ronald C. Rosenberg has been appointed as associate dean for research and graduate studies. A Fellow of the American Society of Mechanical Engineers, he has just completed two five-year terms as chairperson of the Department of Mechanical Engineering.

After spending his early years in Philadelphia, Rosenberg earned his bachelor’s, master’s, and doctoral degrees from Massachusetts Institute of Technology. He also studied at the Imperial College in London, earning a graduate diploma, the DIC, prior to his doctoral studies. After teaching at MIT for several years, he came to MSU in 1969.

He co-authored a textbook, Systems Dynamics, now in its third edition, which serves a critical role in the advanced engineering curriculum by introducing bond graph theory and related tools that allow engineers to work across disciplines in complex dynamic environments.

A part of Rosenberg’s vision for his role as associate dean is to foster relationships with other colleges, both at MSU and around the country, so the schools can learn about each other’s “best practices” and gain insights from one another. We look forward to expanding our horizons under his creative leadership.
Anil K. Jain, University Distinguished Professor in the Department of Computer Science and Engineering, is the recipient of a Humboldt Research Award.

“This is a pleasant surprise. It’s a big honor,” Jain says of the award, which recognizes lifetime research achievements of the winners.

Each year, the Alexander von Humboldt Foundation, a nonprofit foundation established by the Federal Republic of Germany for the promotion of international research cooperation, grants up to 150 of these research awards. Scientists and scholars with internationally recognized academic qualifications are invited to carry out research projects in Germany for periods of six months to one year.

Jain plans to travel to Germany in August 2003 for an initial one-month stay, with several follow-up visits.

He will be working in the area of pattern recognition and image processing with Joachim Buhmann, associate professor of computer science at the University of Bonn.

Jain is best known for his research in pattern recognition and its applications in automatic interpretation of handwritten document images, fingerprint images, medical images, and images captured by satellites for land-use planning. Teaming with Buhmann, Jain will focus on two interrelated areas—image segmentation and data clustering.

“Before you can analyze an image automatically, you need to first break it up into some uniform regions,” Jain says.

“If you have an image of a crowd, and you are looking to detect a face, this is an ‘image segmentation’ problem. How do you automatically find this (face) region that has characteristics distinct from the surrounding (background) area?”

“Segmentation is the first step before you can do any ‘object recognition,”’ he says. “It’s one of the most challenging problems in the field of computer vision and image analysis.”

In the area of data clustering research, one of the goals, says Jain, is “to organize a large number of patterns into ‘natural’ categories or groups, so that the data can be efficiently stored and retrieved.” One of the main approaches to image segmentation, he says, is to cluster the large number of picture elements (pixels) in an image. “Efforts in developing robust clustering methods will lead to better segmentation algorithms.”

Jain is the director of MSU’s Pattern Recognition and Image Processing (PRIP) laboratory, which is addressing a number of issues involved in the design of pattern recognition and computer vision systems. A major focus of the PRIP laboratory is human identification—using biometric characteristics such as fingerprint, face, signature, speech, and iris.

He received a B. Tech. degree in electrical engineering from the Indian Institute of Technology, Kanpur, and his master’s and doctorate degrees in electrical engineering from Ohio State University. He was an assistant professor at Wayne State University prior to joining MSU in 1974, where he served as chair of the Department of Computer Science and Engineering from 1995–1999. Jain received a Fulbright research award in 1998 and a Guggenheim Fellowship in 2001. He is also a fellow of the Institute of Electrical and Electronics Engineers, Inc. (IEEE), and the International Association of Pattern Recognition (IAPR).
Amy B. Silder [Women’s Crew] from Naperville, IL, is in the Honors College. In 2002 she was the sole MSU nominee for a George J. Mitchell Scholarship, established to involve America's next generation of leaders in the U.S.-Ireland relationship. She is the recipient of a National Merit Special Scholarship, an Honors College scholarship, and the A. W. Farrall Agricultural Engineering Scholarship. In 2001 and 2002 she was named to the Academic All Big Ten list and in 2001 was named a National Scholar Athlete. She is a member of the Phi Kappa Phi Honor Society. She served in an assistant research position in biosystems engineering. She was chosen for the 2002 Verizon Academic All-District IV Second Team. She stroked the 2nd Varsity 8 at NCAA in 2002 to a fourth-place finish and is a three-time NCAA qualifier. Silder volunteers with “We Can Row,” which introduces breast cancer survivors to the sport of rowing. Silder says, “I did not come to MSU to row; I came here because of the biosystems engineering program.”

Nathanael Robert Usher [Men’s Cross Country] from Gregory, MI, is in the Honors College. He runs the 10,000m and 5,000m in outdoor track and the 5,000m and 3,000m in indoor track. He is also on the cross-country team. He was named to the Academic All Big Ten Track and Field list in 2002. He held a professorial assistantship in the Department of Electrical and Computer Engineering.
Adam Matthew White [Men’s Baseball] from Jenison, MI, is a pitcher for the baseball team. He received the Big Ten Conference Scholar-Athlete Award for 2002.

Rachel Ann Miller [Women’s Crew] from Meeteetse, WY, is in the Honors College. In 2002, she was one of three MSU students nominated for a Rhodes scholarship. She is a member of the National Society of Collegiate Scholars. She also earned 2001 and 2002 Academic All Big Ten honors and was named Collegiate Rowing Coaches Association (CRCA) National Rowing Scholar-Athlete of the year in 2001 and 2002. She is a professional assistant for the Wireless Integrated Microsystems Pre-College Education Program and serves as president of the MSU student chapter of Eta Kappa Nu, an International Honor Society for Electrical and Computer Engineers. In 2001, she was the first MSU rower ever selected by the CRCA to receive the First Team All-American Award. Miller’s mother died of breast cancer during her junior year. She says, “I want to be a part of developing new forms of treatment that are less harmful to the body, less invasive, and more successful.” Miller volunteers with “We Can Row,” which introduces breast cancer survivors to the sport of rowing.

Ann Marie Kersten [Women’s Golf] from Oak Harbor, OH, is in the Honors College, a member of the National Society of Collegiate Scholars, and was named Academic All American and Academic All Big Ten in 2002. She is a student athlete representative to the Athletics Council, chairperson of the MSU Student Athlete Advisory Committee, and a representative to the Big Ten Student Athlete Advisory Committee. She was a member of the 2001 Big Ten Golf Championship team.

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*Academic Honors from MSU Athletics Department in Spring 2002. Honor = 3.00–3.49 GPA; High Honor = 3.50–3.749 GPA; Highest Honor = 3.75–4.00 GPA
James R. Von Ehr (BSCSE ’72), co-creator of the desktop publishing software, Aldus FreeHand, spoke to undergraduate seminars in computer science and engineering about his newest interest—nanotechnology—during a September visit to campus.

Nanotechnology designs products at the molecular level by controlling the actual positions of atoms and how the atoms relate to one another. In 1997, “nanotechnology” was a dirty word,” says Von Ehr. “It was still science fiction. When I started Zyvex, we were an outlier sort of company. But in 2000, President Clinton announced the national nanotechnology initiative and put several hundred million dollars behind it. Overnight it became respectable.”

Von Ehr has maintained his ties with the MSU College of Engineering over the years since earning his B.S. in computer science. He served on the College of Engineering alumni board and the Department of Computer Science and Engineering visiting board for several years each. He visits MSU about twice a year to keep in touch.

Having grown up in New Buffalo, Michigan, Von Ehr says the immensity of MSU was quite an eye opener when he arrived as a freshman. In Brody Complex, his first MSU residence, he says, “Suddenly I was surrounded by the same number of people as the population of my home town, but they were all my age!”

Von Ehr met his wife, Gayla, when they both started working at Texas Instruments on the same day. While working at TI, he earned an M.S. in mathematical science at the University of Texas–Dallas. He left Texas Instruments in 1984, and he and a friend from TI began creating a font editor for use on the Macintosh. This was the beginning of his software company, Altsys, which soon moved into desktop publishing and the creation of the drawing program that came to be known as FreeHand.

When Von Ehr heard Eric Drexler speak about nanotechnology in Dallas in 1993, he read Drexler’s technical book and became convinced that nanotechnology was feasible. When the sale of Altsys to Macromedia in 1995 brought unexpected wealth, he started the first-ever molecular nanotechnology development company, Zyvex, in Richardson, Texas. He says, “Nanotechnology is new for everybody. Nobody has credentials to be an entrepreneur in this field.” He is learning as he goes. He reads technology magazines and hires “really smart people.” The company has completed a tool that performs nanomanipulation inside an electron microscope. They have also created nanotechnology software that they will sell when there is a market for it.

Zyvex is experimenting with nanomaterials. One involves a blend of polymers and carbon nanotubes. The nanotubes are very expensive, but they can be 100 times stronger than steel. When you put them in a polymer, even at low concentrations, you make the polymer much stronger. You can stretch a nanotube 10 or 20 percent of its length and it won’t break or yield the way steel will. If you release it, it snaps back. Von Ehr says, “Think of the Golden Gate Bridge. The steel cables are bigger around than we are. But if we had a hundred times better material, we could shrink those cables to the size of my arm. The whole bridge infrastructure could be lighter.”

Von Ehr is the co-founder of the Texas Nanotechnology Initiative and personally contributed $2.5 million to the University of Texas–Dallas to set up their Nanotech Center. He says, “I want to make a place where we can bring together private enterprise, the public sector, universities, and venture capitalists. We need to talk to each other in order to create new ways of doing business.”

— Lynn Anderson
Matthew E. Melis (BSCEE ’82, MSME ’83) says that working at NASA’s Glenn Research Center in Cleveland, Ohio, is “fun and very rewarding.” He adds, “Research positions may not necessarily pay as well as those in industry, but there are rewards that you cannot put a price on. Not many jobs are downright fun. Imagine getting paid to be on the shuttle launch pad or to shoot a 50-foot-long pressurized gas gun with a 12-inch barrel at structures you have designed to withstand that impact.

Melis was hired by NASA after completing a bachelor’s degree in civil engineering and a master’s in applied mechanics at MSU. He has worked as a structural analyst in Glenn’s Ballistic Impact Lab for the last 10 years. Usually he works in the field of aeronautics, analyzing fan blade containment structures for jet engines, but occasionally the space shuttle program needs his expertise. Melis’s work on the space shuttle takes him to the Kennedy Space Center in Florida.

The space shuttle launch stack is comprised of (1) solid rocket boosters (SRBs), which provide thrust and steering for the first two minutes of flight; (2) an external fuel tank that holds liquid hydrogen and liquid oxygen propellants for the main engines; and (3) the orbiter itself.

The solid rocket boosters can be re-used. Their mission cycle consists of (1) launch; (2) separation; and (3) recovery. In recovery, their return to earth starts at more than three times the speed of sound, but parachutes slow them down to about 60 mph by the time they splash down in the Atlantic Ocean. The SRBs are then towed back to Kennedy Space Center for refurbishment.

At the base of each SRB assembly is a flared structure called an aft skirt. It houses the thrust vector control system (TVC), which steers the SRB. At splashdown, the...
When Elizabeth Buschlen Unger (BSME ’61) began her successful career, the social climate did not favor women in engineering. As an eighth-grader growing up in Michigan, she wanted to become an engineer and build aircraft capable of vertical takeoff and landing, like some she had seen in LIFE magazine. Her father was skeptical that a woman could succeed, but while she was still in high school, he took her to meet John Ryder, dean of the MSU College of Engineering. Ryder encouraged her to pursue her dream.

Unger entered the MSU College of Engineering in 1957 with 11 other women. Only two of them graduated.

She recalls the difficulties women faced. There was one women’s restroom in Olds Hall, for secretaries only. Female students trekked to the library to use the restroom. Two low buildings east of Olds Hall served as engine labs. The buildings were joined by two 15-foot connectors, which were actually men’s restrooms. To pass between buildings, Unger had to yell over a swinging door, “Woman wants to come through.” If no one answered, she could proceed around an imposing central urinal into the other building.

“Women couldn’t wear slacks on campus,” she says. “It was not ‘ladylike,’ even in the depths of winter.” For one class, Unger was required to run the campus power plant for a four-hour period and record data about its operation. The four-story power plant was not heated, and the floors and stairways were grated. Her professor requested special permission for Unger to wear slacks. Permission was denied, even upon appeal. Unger failed her assignment, because she obediently stayed on the first floor in her skirt.

Unger was nominated in 1960 for membership in Tau Beta Pi, the national engineering honor society. She received a “women’s badge” because women couldn’t join. During the initiation, she had to leave at one point, because “nonmembers,” i.e., women, could not witness the secret ceremony. In 1970 Tau Beta Pi finally invited Unger and other holders of women’s badges to become full-fledged members.

Unger feels that she owes much of her success to Dean John Ryder and Dean Wayne Von Tersch. Ryder helped her secure a part-time job with IBM in Lansing and a full-ride scholarship from Consumer’s Power Company. At a time when MSU offered only one computer class, her IBM training provided the equivalent of a bachelor’s degree in computer science.

When she began a master’s degree in mathematics, Von Tersch hired her to work on the MISTIC, MSU’s first computer system, which was programmed with punched paper.

— Lynn Anderson
tape, and on the CDC 3600, which soon replaced the MISTIC. She says, “Wayne mentored me in how to be a professional, a manager. He made my career.”

Unger moved to Kansas in 1966 with her husband and two-year-old son. Von Tersch helped her obtain a faculty position at Kansas State University. Once her son and two Kansas-born daughters had entered school, she earned a doctorate in computer science at the University of Kansas. After teaching at KSU for 14 years, she became associate dean of the graduate school. In 1994, she became vice provost for academic services and technology, and dean of continuing education. During the past nine years, she has integrated advanced computing technology into all the operations of Kansas State University.

Unger has loved every step of being an engineer, from studying at MSU, to teaching and research, to administration. She says, “My only regret is that I’m as old as I am, because I’d like to carry this on for another 20 to 25 years. Engineering is a great career for women.”

— Lynn Anderson
1950s

- **Joseph M. Colucci**, BSME ‘58, was elected to the National Academy of Engineering in 2002; the organization has only 1,827 active members nationally and 60 in Michigan. This organization performs studies at the request of Congress on such issues as fuel economy, global warming, and national security risks. He also recently received the Society of Automotive Engineers (SAE) Edward N. Cole Award for Automotive Engineering Innovation. Colucci is currently president of Automotive Fuels Consulting, Inc., of Clarkston, Michigan. He retired in 1995 from General Motors Research & Development Center (formerly General Motors Research Laboratories) after 36 years of service. He and his wife, Sue, have three grown children and seven grandchildren. They live on a lake in Clarkston and enjoy traveling.

- **John P. Kuly**, BSME ‘54, retired, is vice president of a condo association and chairman of its building facilities. Previously residing in Arkansas, he now lives in River Forest, Illinois.

1970s

- **David A. Lakin**, BSCE ‘76, was awarded the 2002 Outstanding Civil Engineer Award by the Michigan Section of the American Society of Civil Engineers (ASCE) “in recognition of his ‘people serving’ contribution to society and to the civil engineering profession.” Lakin, currently chairman of the History and Heritage Committee for the ASCE, is vice president, secretary, and Municipal Engineering Department manager at Spalding DeDecker Associates, Inc. He resides in Troy, Michigan, where he participates in the Troy Soccer Club and is a volunteer soccer coach for the Troy Youth Soccer League. He is also a member of the Clinton River Watershed Council.

- **Dave Marutiak**, BS Systems Science ’76, MS Systems Science ’78, is a senior business development manager at Microsoft’s Mobile Devices Division in Redmond, Washington, where he has been employed for the past three years. Prior to that, he spent more than 15 years at Bell Laboratories (under both AT&T and Lucent) as a distinguished member of technical staff and in various managerial positions. Marutiak, who has over 20 years of experience in public telephony networks, is currently focusing his work in the intelligent wireless area, including the Pocket PC and the upcoming Microsoft Smartphone platform.

- **Jimmy L. Spangler**, BSCEE ’73, joined the Lansing, Michigan, firm of Tetra Tech MPS in June 2002. He will provide specialized design and operation consulting to optimize municipal wastewater treatment facilities. His previous 23 years with the City of Lansing’s Public Service Department gave him expertise in wastewater treatment, stormwater management, flood control, sewage collection, and street maintenance. He is an active member of the Michigan Water Environment Association and the national Water Environment Federation, having served on the board of directors for both groups.

1980s

- **Mark Fouts**, BSEE ’83, of Farmington Hills, Michigan, is employed by Lear Corporation as a project leader on electric and hybrid vehicle wiring.

- **Timothy J. Mitchell**, BSCEE ’80, MS Geotechnical Engineering ’81, has been named a senior associate and regional manager in the Kalamazoo, Michigan, office of Soil and Materials Engineers, Inc. He is a member of the Michigan Society of Professional Engineers and past president of the ASCE Southwestern Michigan Branch.
Scott Shea, BSME ’80, is senior vice president of manufacturing, distribution, and engineering for Berwick Industries, the world’s largest manufacturer of ribbons and bows. Prior to joining Berwick in 1994, he spent 14 years at DuPont in various engineering and management positions. He and Paula, his wife of 20 years, have two sons—Mitchell, 14, and Jake, 9. They live in Berwick, Pennsylvania.

1990s

Brian R. Green, BSME ’99, is an aeromechanics engineer at GE Aircraft Engines in Cincinnati, Ohio. He is working toward a master’s degree at Ohio State University and plans to finish a doctorate in mechanical engineering as well.

James McKenzie, BSME ’97, is a senior product engineer with Johnson Controls, Inc. He is also working on his MBA part time at Wayne State University. He lives in Northville, Michigan.

Michele (Diehl) Ricks, BS Materials Science ’98, is a developmental engineer with Eastman Kodak Co., Rochester, New York.

Harry Zechman, MSAE ’94, is technology manager for Stoner, Inc., a progressive, rapidly expanding entrepreneurial business in southeastern Pennsylvania.

OBITUARIES

John Anderson, BSCEE ’94, MSCEE ’95, of San Diego, died of a heart attack on February 2, 2002. He was born on December 5, 1971, in Morristown, New Jersey. He graduated from Whippany Park High School in 1990, where he was captain of the state championship high school cross-country team. After receiving his degrees from Michigan State, he held several engineering and information technology positions, most recently as information technology manager for Forward Ventures. He enjoyed surfing, movies, hiking, skiing, and spending time with his many friends. He is survived by his wife, Carolyn Mockett; his parents, Albert and Alice Anderson of Whippany; his sister and brother-in-law, Suzanne and Steven Kaiser, of Bethesda, Maryland, and many other relatives and good friends.

Aurel A. Catlin, BSME ’23, of Big Stone Gap, Virginia, died on January 13, 1997. He is survived by a son, F. Robert Catlin, of Littleton, Colorado; and a daughter, Caryll Catlin Williams (MSU ’66) of Big Stone Gap, Virginia.

Marvin D. Livingood, PhD ChE ’52, of Louisville, Kentucky, died September 3, 2002, at Baptist Hospital East after a short illness. He was 84. Before Livingood retired, he had been a research engineer with DuPont for 33 years and, prior to that, had been on the faculty at Missouri School of Mines and Michigan State University. He was a fellow in the AIChE. He was preceded in death by his brother, Maj. Galen A. Livingood, USAF, of Texas. Livingood is survived by his wife, Agnes D. Livingood of Louisville; four children, Christopher M. Livingood and his wife, of Louisville, Winifred R. Purcell of Camdenton, Missouri, Matthew G. Livingood and his wife, of Tulsa, Oklahoma, and Abigail Z. Livingood and her husband, of Orlando, Florida; 10 grandchildren; and one great-grandson.


Claudia S. Winer, MS Computer Science ’73, died May 1, 2002, at the age of 53. Having worked in computer science for 32 years, she coordinated projects and trained staff in software process improvement at IBM’s Tivoli Systems Division in Austin, Texas.
## International Day in Engineering

RIGHT: “Many Colors, One People” was the theme of International Day in Engineering, November 12, 2002. Everett High School’s Hmong Dancers—Nee Lee (front), and Shina Lee—were among the performers.

LEFT: Maggie Blair-Ramsey, coordinator of Engineering Study Abroad and organizer of International Day in Engineering, says, “It is my hope that in the midst of international and cultural diversity, we can all see our oneness.”

For story, go to www.egr.msu.edu/goto/iday03.
For more photos, visit www.egr.msu.edu/goto/esaiday03.

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## Let Us Hear From You!

The College of Engineering and your former classmates are interested in you. Please keep everyone informed. Fill out this form (please type or print clearly) and return it along with any photos, news clips, or press releases to: Currents Magazine, Office of Publications and Public Relations, 3412 Engineering Building, MSU, East Lansing, MI 48824-1226.

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Ralph W. Powell
Are you sure this is 1957? It looks like me at the far right front, but that would have to be spring of 1956.

Russ Petrie, Col. USAF, Retired
The go-cart race . . . not 1957 but 1954. Top photo: driver unknown; at left, Hal Shaw, ’54; at far right, Russ Petrie, ’54.

John Kuly
(BSME 1954, River Forest, IL)
I was jolted out of my sox when viewing the back cover of your summer 2002 Currents Magazine. It brought back many fond memories of Michigan State! The four-lap Circle Drive race was an MSC first and made the front page of the Michigan State News, Friday, May 7, 1954. The race started off the sixth annual Engineering Exposition in ’54. Our SAE car driver was Neil Newman and enclosed (left) is a picture of Dr. Otto, our sponsor, and the design/construction team.
Who are these people? 
What are they making? 
Their pay rate is 35¢ per hour.

We welcome readers’ reactions to “Looking Back.” Contact us at editor@egr.msu.edu.