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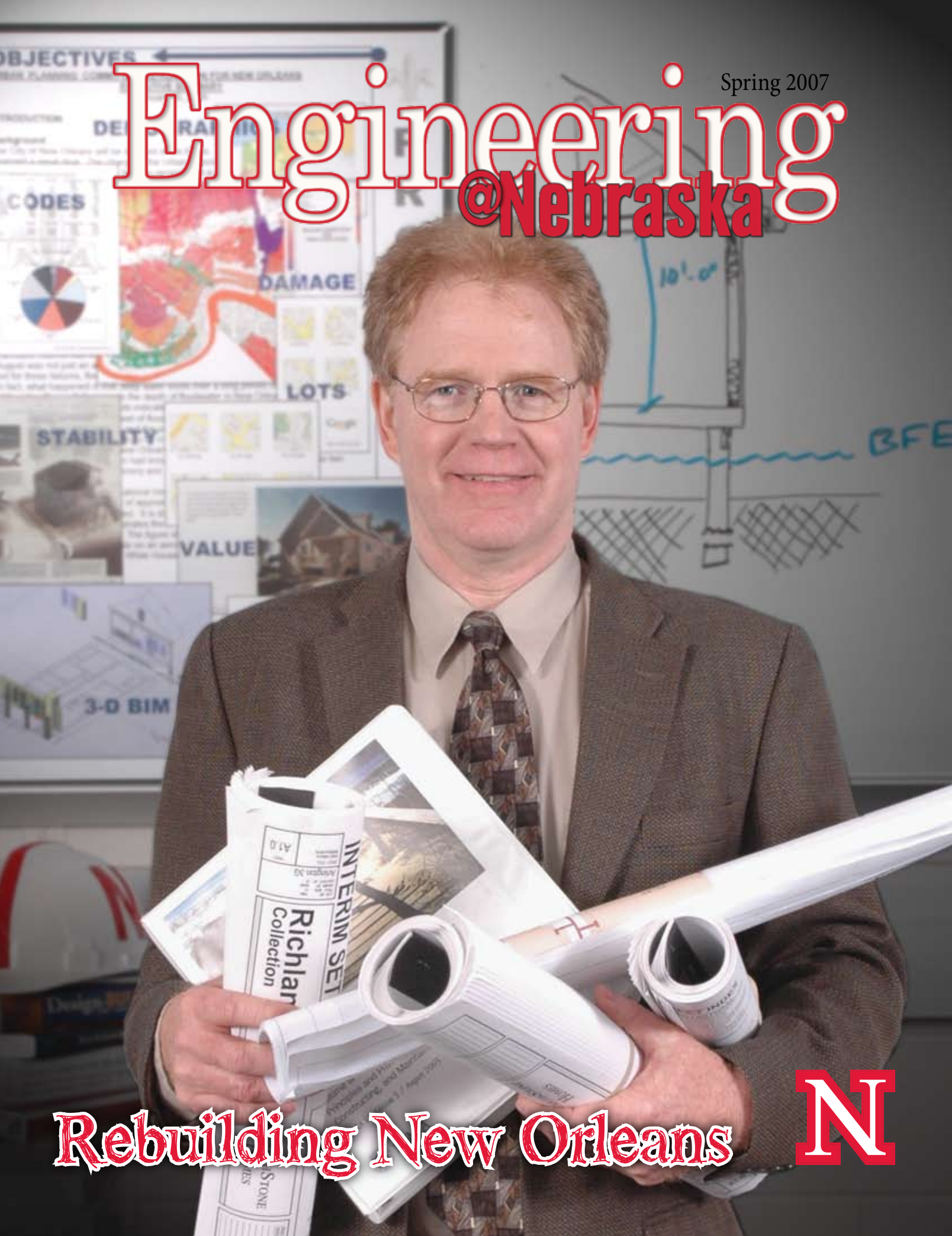
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Spring 2007

Engineering @Nebraska



Rebuilding New Orleans





Supporting Students at the College of Engineering, University of Nebraska–Lincoln

MEET JENNIFER, JIMMY AND MEGAN.

They are three grateful College of Engineering students who have received financial assistance because of the generosity of alumni and friends.

Please consider making a gift to the College of Engineering's annual campaign for scholarships and fellowships. You can create your own named fund or make a gift to one of the college's general student support funds. Either way, you are creating lasting opportunities for future engineers.



Jennifer Calcaterra

"When I first discovered I would receive the J.A. Woollam Fellowship, I was excited, humbled and relieved," Jennifer said. "Excited because I could spend more time on my studies and research; humbled because someone other than my parents, my government or my bank was willing to finance my studies; and relieved because I could avoid incurring crippling student loan debt."



Jimmy Crowe

"I was elated to find out I was receiving a scholarship to help lighten my financial burden and enable me to become more involved with my career path," Jimmy said. "I am able to concentrate more on my studies and be involved with additional activities that involve my field of study. Thank you, and I greatly appreciate your generosity and commitment to the College of Engineering."



Megan Guthrie

"I feel like I need to use the rest of my life to live up to my full potential and take complete advantage of the opportunities given to me," Megan said. "I know I wouldn't be where I am today without this important scholarship support."

2007 ANNUAL CAMPAIGN FOR STUDENT SUPPORT

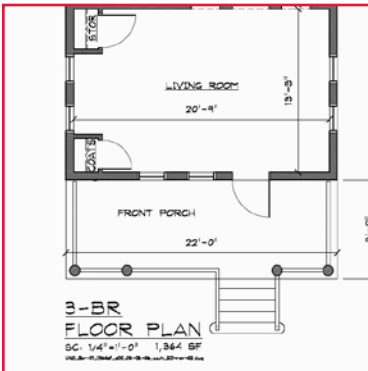
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Photos from top to bottom: Faculty and students work on blueprints that will be used for homes in New Orleans. Alumnus Gary Kuck shares his adventures in entrepreneurship. Professor Gren Yuill during one of his annual hunting and canoeing trips.

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Spring 2007

Rising Tuition Costs Put Pressure on Everyone

Perhaps the most important problem facing us in higher education in the United States today is the cost of education. While the causes for this increasingly onerous development are arguable, there is one thing that cannot be denied—our students and their parents are being asked to shoulder an increasing financial burden in order to help them achieve the American dream. Believe me, I know. I am the parent of one daughter who graduated from college last year and another who will graduate from college this year.

One distressing development has been the recent addition of a \$30 per credit hour fee for students enrolled in engineering courses. This fee has been made necessary by the difficulties



■ Dean David Allen

we have faced in public education over the last decade. It would not have been possible to maintain the quality of our outstanding facilities without the addition of this fee. The average student in the college will pay about \$1,500 in additional fees to obtain a baccalaureate degree from our college. We believe this additional expense will be returned to our graduates within the first few months of employment after graduation.

Education is expensive! But when you consider the alternative, there is little choice. Educational literature is replete with studies demonstrating unequivocally that higher education leads to a lifetime of greater financial remuneration for

those lucky enough to accomplish such a feat. For me, the financial rewards have been nothing compared to the intellectual rewards.

We in the academic community at the University of Nebraska want you to know that we are absolutely committed to providing you and your loved ones an exceptional education at an affordable price. We are constantly engaged and seeking ways to decrease the cost of education without sacrificing the quality. For example, we are developing new means of providing affordable distance education and outreach. Furthermore, we are continuously seeking grant and scholarship money that will defray the cost of education for as many of our students as possible. The faculty and staff of the College of Engineering understand the responsibility that has been placed on us by you, the taxpayers, and we thank you for your continued support.

—David H. Allen

Educators Must Impart Engineering Mindset

I just received my copy of *Engineering@Nebraska*. This is a response to the feature about women in engineering.

For the record, I graduated with a BSEE in '58, spent a career at General Electric (my division of which morphed into Lockheed Martin) in the aerospace field and am currently retired and residing in West Chester, Pa., where we've lived for 40 years. (I worked in King of Prussia.)

I happen to subscribe to *Science* magazine and a perennial issue is how to increase the numbers of women in science and promote more to levels of management and leadership. I also frequently give the staff and columnists at the *Philadelphia Inquirer* (newspaper) the "benefit" of my critiques of their commentary (not often appreciated). You might be wondering how these two things are related. I'll explain.

My first three years with GE were on what was called the engineering program. Along with rotating work assignments it consisted of weekly lectures over a wide range of technical subjects followed with an engineering problem that we were required to work and report on the next week. The format of the report was prescribed. Part one was problem definition. Part two was assumptions. Part three was problem approach. Part four was analysis. Part five was discussion of results. In other words, it was the structure of problem solving. Most of my comments to the *Inquirer* staff and columnists concern the abysmal facility many of the so-called solons of pontification (not a few associate professors of this or that and think tank advocates) to think and analyze perceptively and objectively. Often (usually?) their terms are ill-defined and objectives not clearly articulated.

My point is that education in science and engineering teaches one how to think, how to rely on evidence and fact, and also to recognize essential uncertainty and take that into account and the necessity for well thought-out planning. These things apply, or

should apply, to issues of all sorts, not just to technical problems. In order to have a career in science and engineering one must, of course, have an aptitude for the mathematical and technical. However, I suggest that in recruiting efforts there needs to be more attention given to the merits of learning how to think and solve problems. This, of course, applies to males as well as females, but the females are more likely to be put off by the geek/nerd images that too often are the ones projected.

The thought goes through my head that

perhaps we should be less concerned with trying to lure women into science and engineering fields and more about imparting the mental discipline that science and engineering has to offer into other fields that women find attractive. I don't know what today's curricula have to offer but some efforts at hybridization seminars, so to speak, both to college and high school students might be something to think about. They might even change some minds.

—Clay W. Crites, '58, West Chester, Pa.



Longtime Professor is a Student Again

When you're used to getting an immediate reaction from an experiment—even if it's smoke—getting used to working with colorless, shapeless materials is an adjustment.

"It's really weird for me," said Khalid Sayood, who holds the Henson College Professorship in Engineering, Communication and Information Sciences.

Winning a National Institutes of Health Research Career Development Award (K25) has allowed Sayood to take his knowledge in communications and data compression a step further. The award allows Sayood to spend five years learning about chemistry, biology and genetics by taking courses and working with other scientists so he can use his background in communications and information theory to solve biological problems.

It's not as big of a leap as one might think, Sayood said. Many of his research projects have dealt with studying data patterns and how information is organized. His science courses are teaching him how to interpret data from a biological standpoint.

"There are computer scientists and engineers, people like me, who want to work with biological data but neither know the capabilities or the challenges of acquiring that data," Sayood said. "This program provides people like me the opportunity to see the other side."

Biochemistry professor Charles Wood has been one of Sayood's K25 mentors. Together, they are looking at how HIV evolves as it's transmitted. Sayood is developing algorithms to detect patterns in genetic sequences. Un-

derstanding these sequences could help biologists discover more effective ways to treat, or even prevent, HIV.

"We're hoping his method will replace more cumbersome, time consuming methods used traditionally to detect sequences and match them up," Wood said.

One of the biggest challenges of the partnership has been learning to understand each other's expertise, Wood said, but it's also been one of the benefits.

Sayood also spends two days a week with Dr. Steve Hinrichs at the University of Nebraska Medical Center, his primary collaborator, developing algorithms to determine patterns specific to bacterial genomes. The fundamental problem in treating infections, Sayood said, is figuring out how to kill the bacteria without harming the patient. Scientists must look for patterns and processes that occur in bacterial cells but not in humans. One of Sayood's algorithms predicts the origin of replication in bacteria. To validate the prediction of the origin in staphylococcus aureus bacterium, Sayood copies the region of the DNA of *S. aureus* where his algorithm predicts the origin should be, inserts it into an *E. coli* plasmid, and then inserts the plas-

mid into *S. aureus*.

Theoretically, Sayood said, the *E. coli* plasmid shouldn't replicate in *S. aureus*. If it contains an origin of replication, however, it might. That would validate the algorithm.

"I'll never be a biologist but if you are working on research and want certain data it's good to know how it's derived," Sayood said.

Winning a K25 award has given him the time he needed to study bioinformatics, which he said was hard to come by when he held other research grants. The UNL Office of Research was instrumental in helping Sayood write his proposal and find mentors in the biological sciences.

Sayood said he's lost track of how much time he spends studying. "The T.A. wasn't so sure about an old guy taking his tests," Sayood said. "I told him that I had probably taken my last test before he was born."

Although he isn't pursuing another degree, Sayood is taking his courses for credit instead of auditing them. "The threat of embarrassing myself is a motivation to thoroughly learn the material," he said.

Sayood said seeing the classroom from a student's perspective would make him a better teacher. The next time he teaches Introduction to Bioinformatics, he plans to approach the subject differently based on what he's learned in science courses.

"I understand the subject matter much better, but I won't change my teaching style. That's one area where I think I do okay."

—Ashley Washburn

Photo by Tom Slocum



■ Khalid Sayood studies chemistry, biology and genetics to become a better engineer and teacher.





Photo by Tom Stocum

■ Ravi Saraf shows the touch sensor featured in Discover magazine's list of top 100 science stories of 2006.

Saraf's Research Among Discover's Top 100 Science Stories

Ravi F. Saraf, a professor in chemical and biomolecular engineering, and his doctoral student Vivek Maheshwari were featured in a story included in Discover magazine's list of the top 100 science stories of 2006. The list was published in the January issue.

Saraf and Maheshwari announced their discovery in the June 9, 2006, issue of Science magazine. The sensor is a self-assembling nanoparticle device with touch sensitivity comparable to that of the human finger, a capability far beyond any mechanical devices now available. The sensor consists of alternating monolayers of gold and cadmium sulfide nanoparticles separated from each other by a thin polymer film.

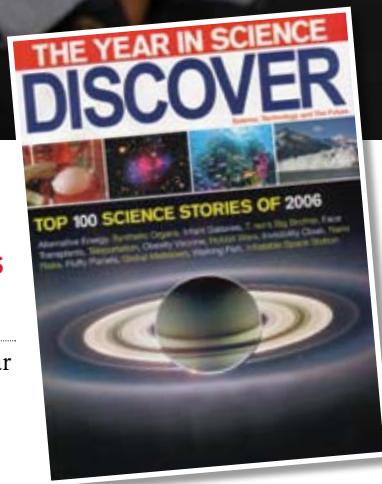
"I'm very happy that a simple laboratory experiment could lead to such a promising discovery and be considered one of the top science stories of the year," said Saraf, the Lowell E. and Betty Anderson Professor of Chemical Engineering. "There is a lot of work to be done, though, before this sensor can be used as a biomedical device. That's our goal, but there is much work still to be done."

Saraf and Maheshwari's touch sensor was one of a handful of research projects produced by a small group working at one institution. Most innovations recognized in the top 100 were produced by large international teams.

David H. Allen, dean of the College of Engineering, said Saraf is one of the most brilliant men he has met in his lifetime.

"I am confident that this invention, along with many of his others, will go a long way to make our world a better place," Allen said.

— Pat Saldana, with material from the Office of University Communications



Adams, Pérez Promoted to Associate Deans

Stephanie G. Adams and Lance C. Pérez have new administrative positions in the College of Engineering.

Adams, associate professor of industrial and management systems engineering, is now the associate dean for undergraduate education. She is overseeing projects related to recruitment and retention, outreach, advising, career services and communications. Prior to her appointment, she had been the college's assistant dean of research since 2004.

Pérez, associate professor of electrical engineering, will become the associate dean for academic affairs and graduate programs on June 1. He will oversee the college's international education programs, undergraduate degree program audits, accreditation and graduate programs. Pérez will continue serving as director of graduate studies, a position he has held since March 2005.

Adams and Pérez replace John Ballard, who is returning to teaching this fall after serving as associate dean of undergraduate academics for 13 years.

Low crowned Homecoming King

Jason Lowe of Ainsworth was crowned UNL's Homecoming king Nov. 4, 2006, in a ceremony during halftime of the Nebraska vs. Missouri football game.

Lowe, a senior mechanical engineering major, is the son of James and Jo Lowe. He is president of UNL's capella group, The Bath-tub Dogs, and a member of Pi Kappa Alpha fraternity. He was chosen among 10 candidates for king in a Nov. 2, 2006, vote of the student body. Construction management major Jason Villalobos of Seward also was a finalist.



Photo by Tom Stocum

■ Jason Lowe and Laine Norton



Gift for New Computer Science Center Announced

University of Nebraska alumni June and Paul Schorr III of Lincoln have been honored by their son and daughter, Paul “Chip” Schorr IV and Melissa Condo, both of New York City, with the naming of a new computer science center at the University of Nebraska–Lincoln.

The Schorr children provided a significant contribution to the University of Nebraska Foundation toward a project to redesign and renovate a three-story office building on the south side of Memorial Stadium for the Paul and June Schorr III Center for Computer Science and Engineering.

The South Stadium building had been home to athletic department offices since it was built in 1972. Athletic offices recently were relocated to the new Tom and Nancy Osborne Athletic Complex.

UNL Chancellor Harvey Perlman said the gift continues the Schorr family’s tradition of generosity to the university and the community.

“This gift enables us to complete our vision to renovate the South Stadium office complex into a state-of-the-art facility for computer science and engineering,” Perlman said. “We are grateful to the Schorr family for all they have done for the university during a nearly 40-year relationship.”

About the siblings’ decision to honor their parents at the university, Chip Schorr said, “The University of Nebraska is something our family has supported for as long as we can remember. It’s an important part of our family and has been a very meaningful part of our parents’ lives, so it’s a great way to honor them.”

Construction of the Schorr Center for Computer Science and Engineering started in January and is estimated to be completed in fall 2007. It will provide 18,434 square feet to consolidate areas of the Department

of Computer Science and Engineering that are currently located at two other areas on campus and a leased space off campus. The move also places the department adjacent to its offices in nearby Avery Hall.

“This new facility is critical to our vision to be broadly recognized for innovative research in software engineering, informatics and systems,” said Richard Sincovec, chair of the Department of Computer Science and Engineering and the Henson Professor of Engineering, Communications and Information Sciences.

“The growth of our research space is necessary to maintain our momentum, to our success in hiring and retaining outstanding fac-

UNL is an important part of our family and has been a very meaningful part of our parents’ lives, so it’s a great way to honor them.

— Chip Schorr

ulty, and to our ability to recruit top students and educate them to be the future leaders and innovators of the Information Age.”

The UNL Research Computing Facility, which provides campuswide services to researchers who need high performance computer resources, also plans to make the new center its home.

“Technically, we’ll be able to directly link, and significantly grow, our resources to meet increasing needs; more importantly, it will only enhance our ability to communicate with faculty, staff and students,” said David Swanson, director of the Research Computing Facility.

Also moving to the Schorr Center is PrairieFire, the most powerful supercomputer in the state. It is used by scientists and engineers to study nanoscale chemistry, subatomic physics, meteorology, genomics, crash-worthiness and artificial intelligence. It is also used by students for several courses.



■ Above left: Artist rendering of the new computer science center.

Above: Alumni June and Paul Schorr III.

The new location will allow PrairieFire to be directly wired with other department computers, together offering the power and storage capacity of more than 1,000 PCs. Funding is already in place to double this computing strength once the new center opens.

Chip Schorr said, “It means a lot to our family that we can help enable all of these talented engineers to collaborate together for the first time in one building. It gives the university an opportunity to extend its leadership in this area.”

Sweethearts since high school, Paul and June Schorr met in Lincoln in 9th grade after their families had moved from other cities a few years earlier, Paul from Hastings and June from Chicago. They both attended the University of Nebraska and were married a year before graduating in 1959. June Schorr received degrees in fashion merchandising and English, and Paul Schorr graduated with a degree in electrical engineering.

June Schorr has served art and human service organizations in various capacities, including her current association with the Whitney Museum of American Art and the Memorial Sloan-Kettering Cancer Center in New York City. She has also served the Sheldon Memorial Art Gallery at UNL and Omaha’s Joslyn Art Museum, among others.

Paul Schorr has enjoyed a long career in electrical engineering contracting and consulting and is president and CEO of ComCor Holding Inc. His civic involvement includes Knights of Ak-Sar-Ben and the Museum of Modern Art in New York City, among others. He is also past chairman of the University of Nebraska Foundation’s board of directors.

— Robb Crouch, NU Foundation

College Takes STEP to Help Transfer Students

Students will no longer have to worry whether the credits they earn at a community college will count toward an engineering degree from the University of Nebraska-Lincoln.

The National Science Foundation has awarded the College of Engineering a \$1.99 million grant to form a partnership with Nebraska's six community college areas that will enable students to complete select freshman and sophomore engineering courses at any Nebraska community college and transfer seamlessly into the College of Engineering.

With the Strengthening Transitions into Engineering Program, transfer students will be able to finish a baccalaureate engineering degree within a traditional time frame.

"We recognized that an education in engineering was not an attractive option for community college or transfer students," said Stephanie G. Adams, associate dean for undergraduate education.

Adams said in the past, a student who attended a community college and transferred into the College of Engineering typically had enough total credit hours to be a junior, but was a freshman in terms of engineering courses.

"This project guarantees the transfer of engineering course credits and makes the pursuit of an education in engineering more accessible," she said.

UNL and community college faculty are developing curriculum for four engineering courses, two of which will be offered in fall 2007. The College of Engineering also will offer a complementary set of support activities such as mentoring, summer enrichment programs, campus visits, parent orientation programs and career workshops.

Administrators hope STEP will increase the number of engineers in Nebraska.

Randy VanWagoner, vice president of educational services for Metropolitan Community College in Omaha, said the economy of Nebraska is directly linked to the quality of its educational system.

"Many companies decide to build plants and locate headquarters in a state based, in large part, on the education level of its citizens," VanWagoner said. "Providing this enhanced educational option and increasing the number of graduates in engineering will increase opportunities for these graduates and provide another benefit for Nebraska when companies consider expanding or opening new facilities in our state."

Each year approximately 72 students transfer from Nebraska's community colleges to the College of Engineering. One goal of STEP is to increase the transfer rate to 216 students by 2012. Another objective is to increase enrollment and graduation of underrepresented students, including minorities and women.



Central Community College President LaVern Franzen said STEP would be helpful for first-generation college students who are still setting their educational goals.

"To have this when they're trying to find a direction in their schooling is a real opportunity, especially for those with an aptitude in math and science. I think there will be a number of students who never thought of engineering but will find this to be a quite an attraction."

Civil Engineering Professorship Honors Life of Alumnus

An alumnus of the University of Nebraska-Lincoln will be remembered by his family and colleagues through the creation of an endowed professorship in civil engineering.

The Leslie D. Martin Civil Engineering Professorship has been established as a permanently endowed fund at the University of Nebraska Foundation to honor Martin while providing annual resources to a faculty member in the UNL Department of Civil Engineering.

The fund of \$470,000 was established with gifts from Martin's family, including his wife Vera Martin of Bella Vista, Ark., and brother Lanny Martin of Denver.

The Precast/Prestressed Concrete Insti-

tute, an organization to which Martin belonged and served, also provided a \$10,000 gift to the fund through memorial gifts made by its members.

"My brother

Les loved the state of Nebraska, the university and civil

engineering," Lanny Martin said. "He would be so pleased to know we have commemorated his life in this way."

David H. Allen, dean of the College of Engineering, said he is grateful for the generosity of Martin's family and colleagues.

"Civil engineering is one of the college's foremost research areas," he said. "The creation of the Leslie D. Martin Civil Engineering Professorship, as the first for our civil engineering program, is a fitting tribute to Mr. Martin's life and the work he enjoyed."

The college will award the professorship to an individual who demonstrates teaching, research and academic leadership in the field of civil-structural engineering, Allen said. The recipient will receive an annual stipend.

Leslie Martin received a bachelor's of science in civil engineering from the University of Nebraska in 1954. In 1970 he joined the Consulting Engineers Group where he worked for 25 years and served as president of its Chicago office. In addition to managing numerous design projects for public and private clients, Martin held leadership positions with the professional associations Precast/Prestressed Concrete Institute and American Concrete Institute.

In 1992, Martin won the Precast/Prestressed Concrete Institute's Robert J. Lyman Award for authoring an article about the design and construction of the Connecticut Tennis Center, and in 2002 he was awarded its highest honor for his longtime professional contributions.

Leslie Martin and his wife of 52 years, Vera Martin, who also attended the University of Nebraska, lived in various places but "felt their hearts were always with Nebraska," Lanny Martin said.

— Robb Crouch, NU Foundation



■ Leslie D. Martin

Photo courtesy of UNL Photography

Extreme MAKEOVER HOME EDITION

NAHB Joins 'Extreme Makeover' Team

Senior construction management student Dan Barrett said he never thought he'd live to see the day construction management became a spectator sport.

If anybody doubts Barrett's assertion, then one only needed to see the crowds gathered at the construction site of a home in northeast Lincoln being built for an episode of ABC's "Extreme Makeover: Home Edition."

Barrett and junior Nick Torgusson, president and vice president of the student chapter of the National Association of Home Builders, respectively, along with other NAHB members, volunteered their labor to make the dream of a new home come true for a family in need.

Barrett and Torgusson had little time to organize the student volunteers.

"This happened really quickly," Barrett said. "But we saw it as an opportunity for our chapter members to see how things get organized on a job site and learn about teamwork. It's a great learning experience," he said.

In addition to making sure workers have appropriate gear and keeping the street safe around the site, students are performing other construction site jobs.

"It's nice for the university," Torgusson said. "It's just one more thing that makes Nebraska's construction management program great and gets students involved in NAHB."

— Pat Saldana

UNL to House Nebraska Transportation Center

The University of Nebraska-Lincoln announced Feb. 19 the establishment of a new state transportation center to better coordinate and fund transportation research.

The Nebraska Transportation Center connects UNL's existing transportation research programs into one umbrella organization that promises to expand and provide better service to the state.

Laurence Rilett, director of the Mid-America Transportation Center, will also serve as the NTC director. Rilett is a distinguished professor of civil engineering and the inaugural holder of the Keith W. Klaas-meyer Chair in Engineering and Technology at UNL.

The NTC will develop partnerships with state and local governments and Nebraska businesses to foster growth in transportation research. Strengthening academic

degree programs and developing new transportation technologies are the center's other primary goals. The center will initially be housed in Nebraska Hall on the Lincoln campus. The university plans to find a permanent home in the near future.

The NTC will consist of various transportation programs including the Mid-America Transportation Center, the Midwest Roadside Safety Facility and other engineering programs at UNL, as well as structural and

safety engineering, transportation systems engineering and technology transfer. NTC will also work with public administration and finance offered at the University of Nebraska at Omaha; safety education programs created at the University of Nebraska at Kearney; and health programs developed at the medical center.

Tackling the increasingly complex problems facing the state's transportation system means research teams have to be multi-disciplinary in nature.



■ Laurence Rilett

"In my opinion, the greatest benefit of the NTC is that it will allow transportation researchers from across the University of Nebraska system to more readily collaborate by bringing significant faculty and student resources into a single entity," Rilett said. "As such, we will be able to attract top quality faculty and students to the University of Nebraska because of the culture of excellence in transportation that we are developing. I have no doubt that NTC will be a significant benefit to the university and the state of Nebraska."

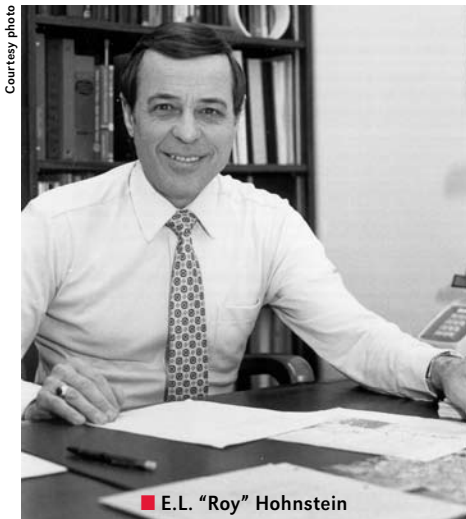
A number of people were instrumental in the creation of the NTC including Dean David Allen; Dean Sicking, director of the Midwest Roadside Facility and professor of civil engineering; and Prem Paul, UNL's vice chancellor for research. The Nebraska Department of Roads is providing transportation research funding and some of the initial seed funding for the NTC.

"The NTC will help us address challenges that are unique to our region, and we are confident this partnership will ultimately make our transportation system more efficient and safer," said John Craig, director of the Nebraska Department of Roads.

Alumnus Leaves College \$1 Million

Nebraska native E.L. “Roy” Hohnstein is remembered as an expert civil engineer who served HWS Consulting Group for 50 years.

Hohnstein believed civil engineering projects should always be tackled the right way rather than cutting corners. This is one reason he’s remembered by his colleagues as being the epitome of an engineer, one who is highly ethical and has mastered longstanding principles.



Courtesy photo

■ E.L. “Roy” Hohnstein

Admiring his father’s profession as a civil engineer for Burlington Northern, Hohnstein chose to study civil engineering at the University of Nebraska, graduating in 1951. He dedicated much of his career to HWS Consulting Group, a civil engineering firm based in Lincoln, where he worked 50 years and became widely known in the professional circle for his expertise in hydrology and flood control engineering, useful in designing municipal storm drainage systems and detention basins.

During his tenure there, he worked on projects in 19 states. One project in particular involved his alma mater by studying how to position the 140,000 square-foot George W. Beadle Center on the eastern edge of UNL’s City Campus to avoid any possible flooding from nearby Antelope Creek. Other notable Nebraska projects included designing a storm water detention cell for Grand Island and the challenging Rawhide Creek flood control project north of Fremont.

“He had all the credentials necessary to perform with high skill on a variety of projects,” said Jim Linderholm, chairman of HWS Consulting Group and Hohnstein’s colleague. “He will always be remembered for his dedication, as he was a person who could always be

counted on to perform at high levels.”

When Hohnstein died in 2006 at age 78, he provided a \$1 million bequest in his will for the benefit of the College of Engineering. The gift made to the University of Nebraska Foundation from his estate establishes a fund to support the greatest needs of the college.

“It is an honor to accept this gift from our alumnus Roy Hohnstein,” said David Allen, dean of the college. “Options for its use are being carefully considered, and it is exciting to realize its implications for students and to see ways in which it will help advance the college.”

After graduating from the university, Hohnstein pursued postgraduate courses at the universities of Colorado, California, Wisconsin and Iowa State before serving the U.S. Navy as a motor machinist. He then worked a year with the CB&Q Railroad Co. before going to HWS.

Hohnstein was born in Lincoln in 1927 to Henry and Pauline Hock Hohnstein and graduated from Lincoln High School. Besides engineering, he was an avid sailor, cyclist and bodybuilder with a passion for ballroom dancing.

Linderholm said all who had the privilege to know Hohnstein are pleased he remembered the university. “The University of Nebraska was his start of a long and admirable career,” he said.

—Robb Crouch, NU Foundation



The gift provided to the College of Engineering by alumnus E.L. Hohnstein was made possible through estate planning and a bequest in his will to the University of Nebraska Foundation.

By working with his advisers and the foundation to finalize this gift, Hohnstein avoided estate taxes on this amount and provided his college with a special legacy gift.

To learn more, please contact Karen Moelering, director of development, or Joanna Nordhues, assistant director of development, at (800) 432-3216 or (402) 458-1100. You may also visit the NU Foundation online at www.nufoundation.org/giftplanning.



Courtesy photo

■ Civil engineering professor Andrzej Nowak, left, receives his award from Poland President Lech Kaczynski. Nowak received the Award of National Professorship from the President of Poland, Lech Kaczynski, on Feb. 16. It is a lifetime title and the highest recognition that Poland grants to anyone in academia. Nowak has been a professor at UNL since 2005.

Student Kudos

Freshman **Aaron Fluitt** was one of two UNL students named World-Herald Honors Scholars at the 2006 Omaha World-Herald Recognition Dinner in December. Fluitt, a chemical engineering major, is a National Merit Scholar and a graduate of Lincoln East High School. He's involved in the American Institute of Chemical Engineers, Chem-E-Car Competition, University Honors Program and Cornhusker Marching Band.

Adriana Trejo won UNL's 2007 Lowe R. and Mavis M. Folsom Distinguished Master's Thesis Award. Her thesis addresses the importance of including physicians in the process of designing ergonomically correct laparoscopic surgical tools. Laurie Bellows, director of graduate student professional development, said Trejo's work was "judged to be the best in terms of importance and originality." Trejo's adviser is Susan Hallbeck, professor of industrial and management systems engineering.

Abdallah H. Alkhaleel, a Ph.D. student in industrial and management systems engineering, placed third in the 2006 Student Research Presentation Awards at the 34th Annual North American Manufacturing Research Conference. His paper was titled "Nanoscale Features by Electro-Machining Using Atomic Force Microscope."

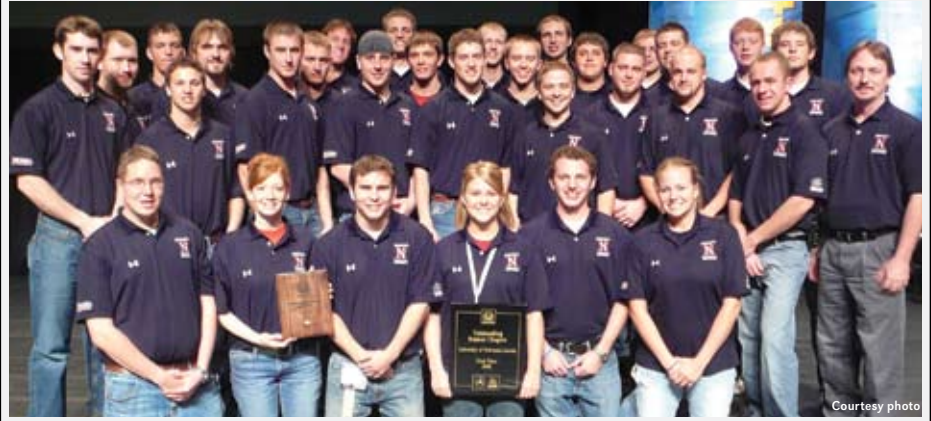
David Bennier, Carissa Gengenbach, Megan Krause, Andrew Lingenfelter, Laura Podany and **Issar Yazhbin** were selected for the inaugural class of Husker 24. The program is sponsored by the Nebraska Alumni Association to recognize UNL students who best embody the association's core values: leadership, service, integrity and spirit. The students were honored at a banquet Feb. 16.

Amin Akhnouk, a civil engineering Ph.D. student, was awarded the American Concrete Institute's Nebraska Chapter fellowship for the 2007-08 academic year.

Brandon Kreiling is the first graduate student to be inducted into Sigma Lambda Chi's Chi III Chapter. Sigma Lambda Chi is the international construction honor society.

At the November 2006 meeting of the Acoustical Society of America, two graduate students in architectural engineering won Student Paper Awards. **Jonathan Rathsam** received first place for his paper "Spatial coverage of reflector panels predicted with and

The UNL chapter of the National Association of Home Builders won the 2006 Outstanding Student Chapter Award at the NAHB Student Management Competition held Feb. 7-10 in Orlando, Fla. Nearly 170 teams were eligible for the honor. Several members also won individual awards. Senior **Nichole Karr** of Rolla, Mo., received the Outstanding Student Award. Junior **Nick Torgusson** of Detroit Lakes, Minn., won the \$5,000 National Housing Endowment Scholarship. In addition, UNL's residential construction team placed fifth out of 33 teams. Charles Berryman, associate professor of construction management, is the chapter adviser. The club's local and national sponsors are the Home Builders of Lincoln and the Ridgid Tool Company.



Courtesy photo

without edge diffraction." **Michelle Vigeant** received second place for her paper "Auralization of an orchestra using multichannel and multisource technique."

Lauren Ronsse, a Ph.D. student in architectural engineering, was awarded a \$10,000 grant from the American Society of Heating, Refrigeration and Air-Conditioning Engineers. In her current research project, Ronsse is testing differences between normal and hearing-impaired persons in performance and perception under various noise conditions.

A UNL team won second place in the 2006 national Big Beam Contest sponsored by the Precast/Prestressed Concrete Institute. The team leader was Scott Rosenbaugh, a research assistant with the Midwest Roadside Safety Facility.

New Staff

Civil Engineering Allison Post van der Burg, staff secretary II

Dean's Office, Lincoln Glenda Clare, student records and curriculum specialist; **Lori Eagle Claw Straatmann**, administrative manager; **David Williams**, assistant director of retention; **Toni Howard**, administrative technician

Dean's Office, Omaha Linda Abalos, recruitment and retention coordinator; **Kuete Gayibor**, administrative technician; **Norma**

Morley, administrative technician

Research Kathy Glenn, research coordinator

Faculty Books

David H. Allen, engineering mechanics, and **Roberto Soares**, Ph.D. student, "Multiscale Modeling and Simulation of Composite Materials and Structures," Chapter 11: Multiscale Modeling of the Evolution of Damage in Heterogeneous Viscoelastic Solids, 2007, Springer.

Paul Savory, industrial and management systems engineering, Amy Nelson Burnett and Amy Goodburn, "Inquiry into the College Classroom: A Journey Toward Scholarly Teaching," 2007, Anker Publishing.

Grants Over \$200,000

Fiscal Year 2007, First Quarter Continued from previous issue

■ **Lance Pérez** and **John Ballard**, National Science Foundation, "Strengthening Transitions into Engineering Program," \$1,993,942. ■ **Yongfeng Lu**, **Dennis Alexander** and **Xinwei Wang**, National Science Foundation, "MRI: Multifunction Nanoscale Measurement," \$220,000.

Fiscal Year 2007, Second Quarter

■ **Atorod Azizinamini**, Nebraska Department of Roads, "Development of Tools for Rating Bridges," \$414,421.



■ (Left) At Discover Engineering Day, volunteer Jenna Rihanek makes a peanut butter and jelly sandwich using the directions given by students. The activity demonstrated how computer programmers must write precise commands to make a program work correctly.

(Below) Fifth- and sixth-graders at Discover Engineering Day form an assembly line to test how effectively different types of packaging would protect 10 raw spaghetti noodles. The verdict: The best way to send spaghetti through the mail is by bundling it with rubber bands and wrapping the bundle with bubble wrap.



Photos by Ashley Washburn



For the most current news about the College of Engineering, visit:

<http://engineering.unl.edu/collegeheadlines.shtml>

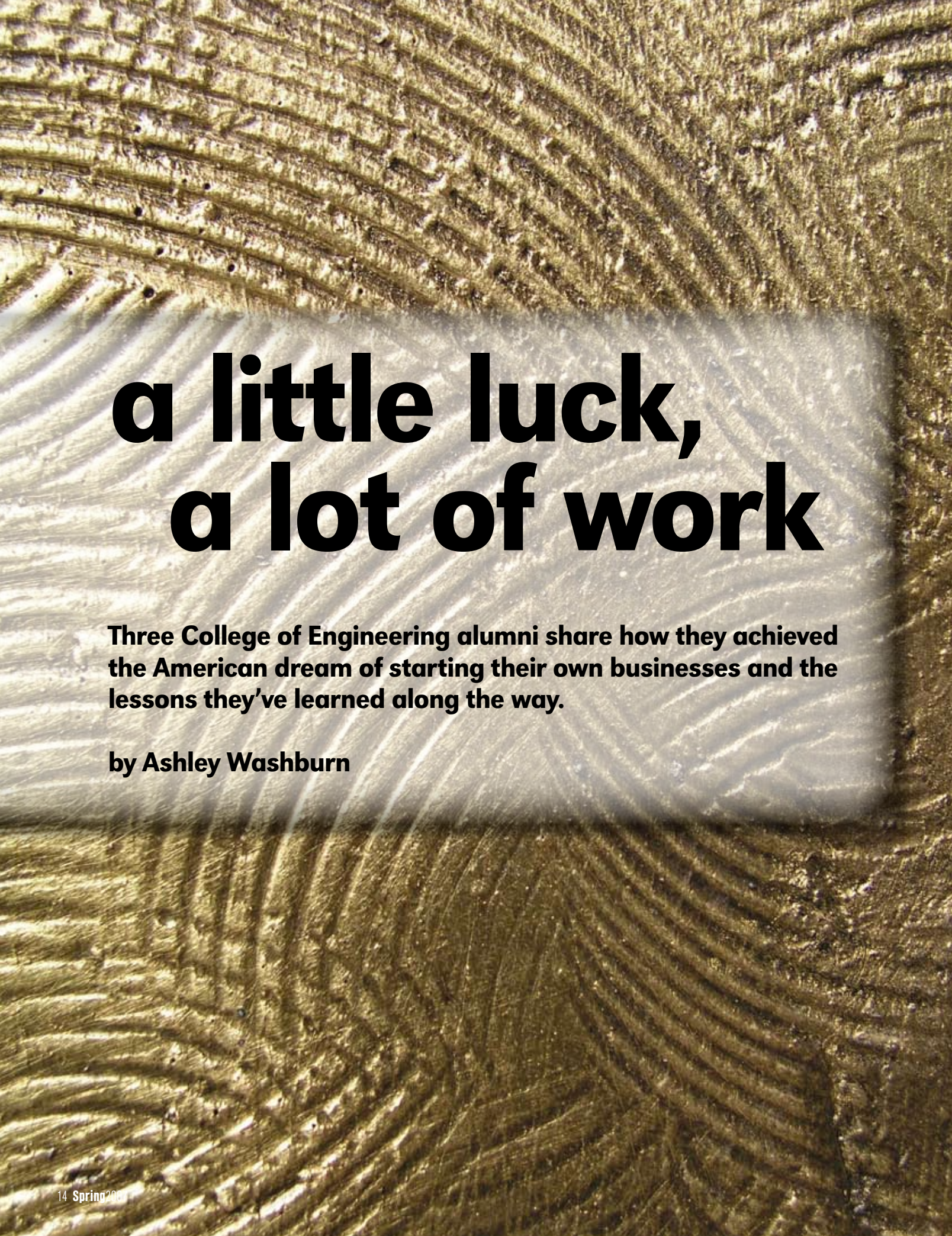


Kudos

■ **Dean Patterson**, electrical engineering, was elected a fellow of the Institute of Electrical and Electronics Engineers. ■ **Andrzej Nowak**, civil engineering, organized the U.S.-Poland Workshop on Concrete Structures and Materials. The National Science Foundation sponsored the workshop, held Oct. 8-14, 2006, in Poland. The objective was to present and exchange knowledge in concrete materials and structures. The U.S. delegation included **Maher Tadros**, civil engineering. ■ An article on maximal dynamic grip and wrist torque written by **Greg Bashford**, biological systems engineering, **Susan Hallbeck**, industrial and management systems engineering, and their students was No. 21 on the ScienceDirect Top 25 Hottest Articles of 2006 list. The article originally appeared in the Nov. 1 issue of the Journal of Applied Ergonomics. ■ **Lily Wang**, architectural engineering, is featured in a recruitment video produced by the American Society of Heating, Refrigeration and Air-Conditioning Engineers. The video can be viewed at <http://www.ashrae.org/chill>. ■ **Michael Meagher**, chemical and biomolecular engineering, was selected as the 2007 Engineering Science Distinguished Alumnus at Colorado State University. He has been a professor at UNL since 2000. ■ **Dean Sicking**, civil engineering, and **Brian Coon** and **King Mak**, Midwest Roadside Safety Facility, received the Practice Ready Paper Award at the Transportation Research Board meeting in January. The award recognizes the paper believed to have the greatest immediate impact on the design and construction of highways. The paper was titled "Guardrail Length." ■ **Dean Sicking** and **John Rohde**, civil engineering, **John Reid**, mechanical engineering, and **Bob Bielenberg** and **Ron Faller**, Midwest Roadside Safety Facility,

won the 2007 Best Paper Award at the Transportation Research Board meeting in January. The paper was titled "MGS for Long Span Culvert Applications." ■ The American Traffic Safety Services Association named the **Midwest Roadside Safety Facility's** Midwest guardrail system as the Most Significant New Product for 2006. ■ **Yong-Rak Kim**, civil engineering, received the Walter J. Emmons Award for the best paper presented at last year's Association of Asphalt Paving Technologies Annual Conference. His paper was titled "A simple and reliable testing method to evaluate fatigue fracture and damage performance of asphalt mixtures." ■ **Bob Williams**, industrial and management systems engineering, is the technical program chairman of the 2007 American Society of Mechanical Engineers International Manufacturing Science and Engineering Conference to be held Oct. 15-17 in Atlanta. ■ The UNL Parents Association honored six College of Engineering instructors for their contributions to students: **Stephen Goddard**, computer science and engineering; **Jerry Hudgins**, electrical engineering; **Esmail Mohebbi**, industrial and management systems engineering; **Paul Savory**, industrial and management systems engineering; **Jerald Varner**, electrical engineering; and **Timothy Wentz**, construction management. ■ **Ece Erdogan**, architectural engineering, is an associate editor for the Masonry Society Journal.





a little luck, a lot of work

Three College of Engineering alumni share how they achieved the American dream of starting their own businesses and the lessons they've learned along the way.

by Ashley Washburn

Pamela L. Dingman, '91

Company: Engineering Design Consultants LLC

Number of Employees: 10

Offices: Omaha and Lincoln

Distinction: EDC is the only woman-owned civil engineering firm in Nebraska.

Unofficial Motto: "We do anything you can bury or walk on."

Awards: In 2006, the American Business Women's Association named Dingman one of the Top 10 Women in Business. She was named to the Midlands Business Journal's 40 Under 40 in 2003 and received the Society of Women Engineers' Distinguished New Engineer award in 2002.

EDC was founded in 1998 by a group of engineering and construction professionals. Dingman opened the firm's Omaha office in 2003 and has gradually become EDC's primary owner. The company specializes in municipal design, land development, land planning, construction administration and surveying. EDC has worked on 4,000 residential projects including Vintage Heights and Wilderness Ridge in Lincoln, Waterford in Omaha, Lincoln Place in Gretna, and nearly 1,000 commercial projects including the I-80 Auto Mall and Lincoln Industrial Business Park.

Why did you start EDC?

At 35, I wanted to continue to grow. I did not want to be 55 years old and wondering if I could have my own company and my own office. It was important for me to go out there and see if I could do it.

What has been one of your biggest business risks?

I got into this the old-fashioned way and bought the company in pieces over time. As a single mother, there is extreme concern when there's only one income. There's something to be said when you drain an account or refinance a house to get a business going. In the land development market, there also are questions as to how it will go in the future.

How has your company changed over the years?

There is more competition and we have become more computerized and specialized. Whoever can figure out the best way to run that software will be the winner in the market. I also have a lot more clients talking about environmentally friendly developments. There seems to be more acceptance of green developments than there used to be.

What is satisfying about being an entrepreneur?

It's always satisfying when you can see an employee grow under your leadership. Having a client express satisfaction in what we've done for them. The ability to influence decisions with your value system rather than following someone else's value system.

What is one of your greatest successes?

Transitioning our presence in the market from a development engineering firm to one that does a fair amount of municipal work too. You have to be willing to adapt to the marketplace and be proactive, not reactive. You have to anticipate where the work will be at in the future.

Who has been your mentor?

I started my career in Colorado at a small manufacturing firm that was woman-owned (Schloss Engineered Equipment). That gave me a lot of knowledge and depth.

I was fortunate to stumble upon an ACCE (American Council of Consulting Engineers) committee that works with new, smaller companies. I talked to lots of women about insurance, financing and marketing. They were from all over the country and weren't in competition with me so they were fairly open.

What do you look for in an employee?

Someone who is driven. We look for employees who have the ability to be extremely versatile, can work with the team and who have a positive attitude.

Do you have any last words for readers?

As a corporate leader, I do think it's important to remember to have a sense of civic duty in the community you work. I think that's something not everybody thinks about when they're starting a company. We highly encourage employees to be active in the community.



Photo by Ashley Washburn

Gary Kuck, '76

Company: Centurion Wireless Technologies

Number of Employees: 1,300 in Lincoln, hundreds more in other locations

Offices: Lincoln, China, Korea, Malaysia, Mexico, Sweden, Taiwan and the United Kingdom

Distinction: At one point, Centurion made approximately 60 percent of the world's supply of antennas for portable handheld devices.

Awards: Kuck won the Corporate Leadership Award in 1998 from the UNL College of Business Administration and the Entrepreneur of the Year Award in 1993 from the UNL Center for Productivity, among others.

Chances are if you've owned a cellular phone or walkie-talkie, Centurion made the antenna. Gary Kuck and his wife, Susan, started the company in 1978. For the next 27 years, Centurion was the world's leading manufacturer in original equipment antennas and battery packs for professional two-way radios and wireless devices. Its customer base included Motorola, Ericsson, Nokia, Qualcomm, Panasonic and Mitsubishi. In April 2005, Kuck decided to sell Centurion to Laird Technologies. Now retired, Kuck is working on his next venture—Kuck Motorsports, a showcase of his personal collection of nearly 70 vintage automobiles.

How did you become an entrepreneur?

I always had a burning desire to be one. I really don't know why. ... I started my own company because I didn't have a job. I was working for Hy-Gain Electronics and they got into trouble financially at the time I was doing international business for them. When I started Centurion, my big war chest was \$3,870 in American Express bills from my old company that hadn't been reimbursed.

I have a funny story about trying to get customers. Early on, we had a customer come by to see us. It was very quiet because business was still slow, so my wife was pretending to be the receptionist. While I was talking to the customer on the other side of the cube wall, I overheard Susan taking three calls from big-name companies. I almost couldn't wait for the customer to leave. Well, it turns out that nobody had called! My wife had called her sister and told her to call every 10 minutes during my meeting so Susan could pretend to be talking to other companies and make us look credible.

How did you turn a local company into an international one?

It seems strange now but in the 1970s, very few Midwesterners did international business. My first customer was a Japanese firm. The Tokyo police force wanted an antenna that was more durable than those black flexible ones that were popular at the time. They asked me to source some products for them. I couldn't find anyone to make it so I found some job shops

and we made the products ourselves. My first order of 2,000 antennas took one month to make. By the end, we were building that every minute. ... Of course you have aspirations of being successful, but the desire isn't as high in the beginning as it becomes over the years.

How did you adapt to changes in your industry?

The real leg up I had from day one is that I understood the international marketplace. I didn't have a fear of doing international business. Business is a common language; it breaks down barriers.

What was the best business advice you received?

Establish your presence in the Far East, which we did in the early '90s. Of course, many of the people giving the advice had never done it. Trying to understand business in Shanghai in the early '90s was a rude awakening. ... The government didn't really know how to end communism yet.

Many of the workers had wonderful technical skills but they were 1) lacking experience, 2) lacking an understanding of business as a whole, and 3) never wanted to make a decision. It was a cultural thing.

Why did you sell Centurion?

We were filing an S-1 with the SEC to go public. Initially we were planning to go public in late 2000 but then the tech market crashed and all the technical companies got drug in with them. It just wasn't a good time to become a public company. In early 2004 we filed the S-1 again. A company from London found out and was bound and determined to buy us rather than let us go public. From our standpoint, they (Laird Technologies) made us an offer we couldn't refuse.

I decided not to stay on even though I was the founder. Anytime you have an existing company, they want to bring in their own people and mentality. I can't complain. Laird did very, very well, and my wife and I did very, very well.

Are you enjoying retirement?

People say, 'You're retired from a multimillion-dollar company—what do you do now?' I don't know where the time goes, but I'm busy. I haven't gotten to the point where I'm sitting at home watching Oprah.

Photo by Ashley Washburn





Jeff Lewis, '90, '92

Company: MIS Engineering

Number of Employees: 6

Office: Lincoln

Distinction: MIS Engineering is the only bare circuit board manufacturer in Nebraska.

Award: Lewis was the recipient of the first Walter Scott Entrepreneurship Award in 2001.

Jeff Lewis discovered just how risky entrepreneurship can be when an economic shift put hundreds of companies like his out of business. Lewis started MIS Engineering during graduate school in 1991. His company started as a circuit board manufacturer and gradually moved into mass production. At its peak, MIS had 132 employees. But in 2000, shortly after Lewis moved his business from the Sullivan Building in the Haymarket district to a 60,000 square-foot plant on Southwest 37th Street, companies began outsourcing circuit board production to manufacturers in India, China and throughout Asia. Lewis saved his business by returning to his roots: product design and prototypes. Today one of MIS's key clients is Nebraska Surgical Solutions, which makes small robots for minimally invasive surgery. Nebraska Surgical is a partnership between Shane Farritor, associate professor of mechanical engineering; Dmitry Oleynikov, a surgeon at the University of Nebraska Medical Center; and an investor.

Why did you become an entrepreneur?

I think the company concept was founded on a bar napkin in Iguana's. ... My father owned his own business (a plant nursery) and encouraged me to do the same. I love Nebraska and didn't want to leave. There probably has not been one day when I haven't loved what I do. The day I wake up and don't like what I do, I guess I'll do something else—but I don't think that will happen.

What is the best business advice you've received?

Cash flow, cash flow, cash flow. Make sure you meet your obligations. That's very difficult to do when you're an upstart. Another lesson I've learned is to find your niche and don't leave it. I tried to expand into production. That risk put most of the people I know in this business, out of business.

How have you adjusted to changes in your industry?

We didn't anticipate production being moved overseas so quickly. I outlaid millions of dollars to build our current facility, and I certainly wouldn't have done that willingly had I known that was going to happen. But if you're not part of technology, you'll get run over by it. One of our survival skills has been to be flexible. We've become more of a design team. If we'd been just a bare board manufacturer we wouldn't be alive today.

Being diverse is a good thing. The world may deal you a bad hand but the next one doesn't have to be. There's a saying that lucky people look for the opportunity, and I think there's a lot to be said about that. ... We're building up again and are very optimistic about the future.

How do you feel about outsourcing?

If companies benefit by outsourcing to India that's what's going to happen, and you're not going to stop it. Customers are loyal but purchasing agents don't care. If they can get it cheaper, they will. Products are cost-driven and a lot of that goes back to throwaway technology. It's cheaper to buy new rather than pay someone to fix it.

I worry about human rights. We're taking advantage of their (other countries') massive population and the actual workers aren't the ones getting rich. If there is anything I'm upset with in the world, it's the lack of enforcement of environmental standards with overseas production. These companies are polluting the world, and I fear for my grandchildren who will bear the cost of cleaning it up.

What do you look for in an employee?

MIS employs mostly UNL grads. I love getting junior-level engineering students. School is great, but there should be time in the trenches before you call yourself an engineer.

Rebuilding New Orleans

Story by Ashley Washburn
Photos by Amy Hensley



Professor George Morcous, Student Mike Wiesniewski, Student Jesse Wilke, Professor James Goedert



B

randon Kreiling admits that as a Midwesterner, he initially found it hard to comprehend why the city of New Orleans wanted to rebuild after Hurricane Katrina. Now that he's visited The Big Easy three times and witnessed the devastation Katrina left behind, he understands.

Kreiling, a graduate assistant, and 11 other faculty and students in the Department of Construction Systems have spent the past year designing floor plans and writing construction manuals that builders will use to build or renovate homes in New Orleans' Esplanade Ridge neighborhood.



Professor Yong K. Cho, Professor Avery Schwer, Student Brandon Kreiling, Professor Bill Holmes

In early 2006 the U.S. Department of Housing and Urban Development awarded the University of Nebraska–Lincoln a \$293,660 grant to participate in the Universities Rebuilding America Partnership. The program is a partnership between the Charles W. Durham School of Architectural Engineering & Construction, HUD and the Catholic Archdiocese of New Orleans. Fifteen other schools also are participating.

Kreiling, a 2000 graduate, was working for HearthStone Homes in Omaha when Professor James Goedert recruited him for the project. Kreiling said his first trip to New Orleans confirmed that returning to school was the right decision. Hearing New Orleanians' stories also convinced him it was necessary to rebuild the once-majestic city.

"It brings a sense of feeling that you are doing something good for those people," Kreiling said.

Before Katrina, Esplanade Ridge was a historic district with a diverse mix of picturesque mansions and modest shotgun homes. While suburban reconstruction has taken off, restoration of this midtown neighborhood has lagged behind.

HUD has required UNL to develop plans for three types of restoration: new construction; reconstruction, in which an existing home is torn down and rebuilt according to its original floor plan; and rehabilitation, which is extensive remodeling in homes that are damaged but salvageable.



Above: Computer renderings of finished homes.

Right: In the PKI Building Information Modeling Lab, the team discusses design options.

Goedert is the lead principal investigator. He selected Bill Holmes to oversee new construction, Avery Schwer to oversee reconstruction and Stuart Bernstein to oversee rehabilitation. Kreiling and Mike Wisniewski are the graduate and undergraduate assistants who have been involved since the beginning.

Goedert said the project was a natural fit for the faculty's skills.

"It has been a real practice-oriented project, and our staff includes a lot of practitioners," he said.

Since 70 percent of New Orleans is beneath sea level, designing homes that could withstand floodwaters and high winds was the foremost priority.

Kreiling learned that homes in low-lying areas are built on piers because if a neighborhood floods, the force of the current would take down a solid foundation wall.

The team also learned how to strap a house from roof to foundation. In Nebraska, Kreiling said, that's usually done only for commercial construction but it's necessary in New Orleans because a low-sloping roof acts like an airplane wing.

"When the wind comes up it can get sucked right off," he said.

Kreiling said the team has chosen materials that are water-resistant or easy to clean, like concrete or wainscoting, so the walls aren't as susceptible to molding if the home floods.

Learning how to hurricane-proof a home has been "a great learning experience for someone who has lived in Nebraska their whole life," said Kreiling, who grew up in Gering.

Through Universities Rebuilding America and related programs, thousands of volunteers—most of whom are unfamiliar with New Orleans architecture—have been designing floor plans. Kreiling said some designs have been lampooned as "Architects Gone Wild" because they're infeasible for hurricane-prone areas or don't fit the city's aesthetic.

"They're alienating people in New Orleans because they're trying to impose the design standards of their region," he said.

Holmes said the UNL team wanted to respect the city's architectural traditions. That meant adding details such as oversized front porches and ornate finials.

Size and scale was another consideration. Homes in New Orleans are tiny in comparison to homes in Nebraska, Kreiling said. The lots are narrow—he measured one that was only 14' wide—but up to 100' deep.

Goedert said while he wanted the floor plans to reflect the city's heritage, he was adamant that UNL wouldn't design any shotgun homes.

"Most people are uncomfortable walking through a bedroom and a bathroom to get to a kitchen," he said. "It's a common design down there but an ineffective one."



Throughout the design process, team members have consulted with local builders and residents. Students in CNST 1120: Construction Communications also developed working drawings as part of a class project, and the design team has incorporated some of those ideas.

In all, the team has made 10 designs, each with two possible adaptations, for a total of 20 designs from which a builder could choose. The designs range from a 369 square-foot micro dwelling to a 1,364 square-foot home. Holmes said the homes would cost \$85 to \$140 per square foot, which research indicated was affordable for most residents.

Providence Community Housing in New Orleans has helped UNL get permission to enter properties in Esplanade Ridge. Director of Communications Rich Arnold said, "They (UNL) clearly did a lot of

Plan, which will specify the order in which neighborhoods will receive aid to rebuild.

The high costs of insurance and construction materials also are "major detriments to recovery right now," Arnold said.

According to a Jan. 16 New Orleans Times-Picayune article, the Louisiana Housing Finance Agency has awarded \$121.6 million in tax credits for affordable homes in the most damaged areas. Even with the tax credits, however, residents have been priced out of the housing market because of insurance costs, which have risen 200 to 600 percent since Hurricane Katrina.

Arnold said he is impressed by UNL's commitment in spite of the setbacks.

HUD has required UNL to develop plans for three types of restoration: **new construction**; **reconstruction**, in which an existing home is torn down and rebuilt according to its original floor plan; and **rehabilitation**, which is extensive remodeling in homes that are damaged but salvageable.

research on the practicalities of their designs for this particular area. They really listened to the experts."

Goedert said he didn't know how soon builders would start using UNL's designs. Seventy-five percent of the drawings are complete and awaiting approval from local builders. Seven of the 10 reconstruction projects also are on hold until the team can access the appropriate sites.

"It's so difficult to describe the complexity of the political situation down there," Goedert said. "Even though 80 percent of the homes in New Orleans were damaged it's hard to find a new house anywhere."

Arnold said many builders are postponing work until the Federal Emergency Management Agency releases the Unified New Orleans

"They've probably been more helpful to us than we've been to them," he said.

Goedert said getting selected for Universities Rebuilding America was a major coup for the department, which has only recently made research a focus, in addition to teaching and service.

"This has gotten a lot of faculty who didn't think they were researchers involved in research," he said.

For additional information about this project, visit: <http://const.unomaha.edu/neworleans/index.php>







Magic in the Making

Story by Ashley Washburn
Photos by Erik Stenbakken

Lance Pérez hopes someday, assistive technology will make it more feasible for someone to live at home after a debilitating accident or illness.


The associate professor of electrical engineering is developing an ad-hoc wireless sensor network that could help someone perform simple household tasks like opening a window or turning on a lamp. It could even help families monitor their loved ones from a distance.

“I’ve always had an altruistic approach to engineering,” Pérez said. “Good engineering, I think, improves the human condition. I’ve always believed that.”

Pérez said for someone who wrote a graduate thesis on interplanetary science, his foray into biomedical engineering has been a pleasant surprise. His journey began in the late 1990s when he joined the Madonna Magic, a National Wheelchair Basketball Association team sponsored by Madonna Rehabilitation Hospital. He became friends with several Madonna employees, and when the hospital opened the Institute for Rehabilitation Science and Engineering in 2001, he was asked to help with research.

“I’ve seen the struggles people have to achieve independence and maintain quality of life, and it struck me that science and engineering wasn’t being fully utilized in this application,” Pérez said.





Mark Hakel, director of education and staff development at the Institute for Rehabilitation Science and Engineering, studies the conditions that prevent a stroke or trauma patient from returning home. He said Pérez has a knack for identifying technology that could help someone live independently.

“Lance often tells me that he relies on us to figure out the clinical needs, and he can figure out how engineering can be used to reach that final goal,” Hakel said.

In this case, Pérez said, some of the technology existed before researchers discovered that it could be used to control someone’s home environment. Steve Goddard, associate professor of computer science and engineering, helped design the real-time sensor system.

“Then we said if you put it into the home of an elderly or disabled person, or in an assisted living facility, what could you do to increase independence and quality of life?” he said.

Pérez envisioned creating a system that was inexpensive, easy to install and could communicate wirelessly. He sought advice from Gregor Henze, associate professor of architectural engineering, who is an expert on environmental control systems.

To test the application, Pérez constructed a laboratory in the Walter Scott Engineering Center to mimic someone’s home. He and his students installed sensors throughout the “smart room.” The

Christopher Reeve’s situation can communicate with the system to open the windows and the computer would know which one to open based on the person’s location,” Pérez said.

Or, the user could say, “I’m cold,” and the system would decide whether to adjust the temperature by opening the blinds, closing a window or turning up the thermostat.

Pérez’s research is only two years old. He said the ideal product would have more advanced communication capabilities.

The most pressing need is developing a “reasonably accurate” 2-D positioning system into a real-time 3-D localization system, he said.

Pérez also envisions a system that could give the user directions to get from one room to another, which would be useful for people whose thought processes have changed as the result of a stroke.

The system also could track medical conditions, which would help doctors better diagnose health problems, Pérez said. It also is designed to wirelessly communicate with common biometric devices like a blood pressure machine.

A system with diagnostic capabilities would help families and medical professionals track changes in someone’s health, he said. Studying someone’s walking pace could indicate whether he or she is at risk for a heart attack. The system also could give clues to signs of depression, such as lack of activity or changes in sleeping patterns.

“Assistive technology allows you to start addressing a set of cognitive and physical conditions that might have gone undetected before,” Pérez said.

Madonna’s Hakel hopes the system will bridge the distance between family members. He said stroke patients who don’t have a close relative living nearby are much more likely to live in an assisted living or long-term care facility.

Pérez said the system could connect to the Internet and allow family members to monitor their loved ones throughout the day. “What we’re hoping is that this will extend that safety margin so people can return home and stay there longer,” he said.

Hakel said Madonna is still figuring out how it could monitor patients from a remote location and still respond quickly if someone were sick or hurt.

“We just don’t know yet, not with the population we serve,” he said. “What we do know is that if we can prevent someone from being institutionalized, in the long run that would save you and I a lot of money.”

Good engineering, I think, improves the human condition.

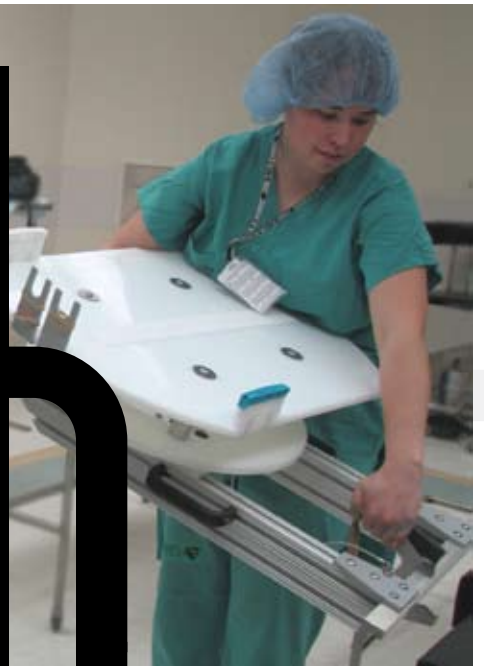
—Lance Pérez

person for whom the system is designed also wears a band containing a sensor. The sensors communicate with each other and with a master control panel. An intelligence system within the control panel analyzes data patterns to detect the person’s location within the room. The system also collects various environmental readings, such as the temperature inside and outside the room and which lights are turned on.

“Someone in, for example,

Kimberly Ryland
25 • M.S.
Mechanical Engineering

There have been great academic experiences at UNL: The tight-knit study group I had in biological systems engineering during undergraduate was an incredible emotional and academic support. My undergraduate research work with Curtis Weller whet my taste buds for a career of research and development. My master's thesis project with my adviser Carl Nelson has reaffirmed my passion for working with medical professionals to help them treat their patients. I was able to take the project (the development of an infant surgical table) from inception to design/invention to working successful prototype and patenting/licensing. It tied together almost everything I have learned in my undergraduate and master's degrees as well as previous internship and research experiences.



The Class of 2007's

Path to Graduation

Aaron Stubbendieck
21 • B.S.
Chemical Engineering

One of the best academic experiences I've had was working on the Chem-E car. The objective is to build a small car that fits in a shoebox and is completely powered by a chemical reaction. Competitions are held at regional and national American Institute of Chemical Engineers conferences. The UNL chapter had not participated in this event for as long as anyone could remember, and I led a group to bring it back. In the end we managed to build a solid car that placed fifth at regionals.





I always looked at engineers as these incredible, knowledgeable, untouchable professionals. It has been a humbling experience to join those ranks and realize that the more you learn, the more there is to learn.

My time spent with the St. Thomas Aquinas Newman Center and FOCUS were the best non-academic experiences. Part of development is spiritual as well as intellectual. Through my time, experience and friendships there, I grew closer to the Lord and really took on my Catholic faith as an adult.

I plan to work in medical device design as a liaison between surgeons and engineers. I'm excited and ready for new challenges and adventures. I expect a number of learning and trying experiences especially in the first years of full-time professional work; however, my internship and research experiences make me confident that with the Lord's grace I can and will adapt.

There is more to engineering than the formulas in books. What the formulas say should happen doesn't always happen, and the engineering comes in accounting for the gremlins and still being able to do something useful with the data that one gets. On the same note, there are plenty of good ideas, but few good approaches. The engineering comes in designing the approach.

When I started at UNL, I was a scared little freshman. Through my friends and peers and various activities, I've grown more confident and capable. I'm able to leave knowing I can do all the things I thought about as a freshman. That confidence is half of what I need to succeed as an engineer.

I am excited about moving to the Fairfax, Va., area to work with ExxonMobil in the real-time optimization group. Based on an available crude, minute-by-minute basis, I will determine the best products to make and how to make best use of existing facilities.

I went to Virginia during spring break with my friend who is also going to work for Exxon. While looking for a place to live, we saw lots to do within driving distance, such as camping, climbing and various historical locations.



Fulton Joins the Nebraska Legislature

When a 16-year senator says you're doing fantastic work while you're still learning the ropes, you know you're doing something right.

Sen. Tony Fulton, who began serving as state senator this year, is already gaining a reputation for being a well-prepared and astute lawmaker.

"He really studies each issue," said veteran senator Pat Engel, who serves on the Legislature's Appropriations Committee with Fulton. "It's probably that engineering background."

Fulton agrees that studying mechanical engineering at the University of Nebraska-Lincoln is helping him as a new senator.

"It's helped me analyze bills, to break things down to their basic elements," he said. "That's what engineers do."

Being appointed by Gov. David Heineman to represent District 29 in south Lincoln is only one of Fulton's accomplishments.

Halfway into his engineering degree, he took two years off to intensively study philosophy through Kansas Newman University and theology at Mount St. Mary's University, a private seminary in Maryland.

"It was a time in my life when I was looking for deeper meaning," he said.

Fulton said this experience has enabled him to look at problems while considering different philosophies and worldviews. This broader perspective has served him well in his profession.

"It's important not to ignore the liberal arts—it makes for better engineers," Fulton said.

After graduating in 1997, Fulton worked in Lincoln as a consultant for Alvine Engineering, in sales for Johnston Boiler Company and as an application engineer for Energy Recovery International. He continues to do consulting work for international energy projects.

Somehow, Fulton still makes time to run his own home health care business. He is CEO of Guardian Angels Homecare, a business that started when he was a young boy growing up in Auburn.

"An older lady from church called my mom to ask if she could send someone over to help her. I was the oldest boy, so she sent me."

Fulton began helping the older woman by cleaning and running her errands. He was paid 50 cents per job and spent it on baseball and football cards—the ones that had gum in

the package. That first client referred him to several of her friends who also needed help around the house. Years later, Fulton's helpfulness has grown into a successful business.

"This has allowed me to do something entrepreneurial as a means to do good, to change the culture for the better. That's deeply satisfying to me."

In 1998, Fulton married Judy Vandewalle, a fellow student he met at church while attending UNL. Five children have followed: Thomas and Augustine, 7-year-old twins; Bede, 5; Bernadette, 3; and Basil, 3 months.

Each was named after Catholic saints who were scholars, Fulton explained, except for Bernadette. "We just really liked that name," he said.

What do his children think of his new post as senator?

"The day I was appointed, I picked them up from school to tell them. They wanted to know if this meant they could get access to see what was behind all the 'secret doors' in the Capitol building. They're excited about the perks," he said, grinning.

—Heidi Uhing



■ Sen. Tony Fulton, a 1997 College of Engineering alumnus, during legislative debate.



■ Sen. Tony Fulton and his children Bede, 5, and Bernadette, 3, watch the ceremony during which new state senators are sworn into office.

Photos courtesy of the Unicameral Information Office

Class Notes

Engineering@Nebraska wants to know what its alumni are doing. Tell us about about your professional honors and memberships, career changes and family information such as births, marriages, graduations and deaths.

Log on to www.nuengr.unl.edu/alumni and click on Alumni Update Form.

Send us your photos to include with your class note. E-mail is the most efficient way to get your photos in Engineering@Nebraska. Send them to awashburn2@unl.edu and reference your class note. Please note that photos must be high resolution—at least 300 dpi.

Or you can send photos to:

Engineering@Nebraska
University of Nebraska–Lincoln
P.O. Box 880642
Lincoln, NE 68588-0642

Please include a self-addressed, stamped envelope if you would like them returned.

- On Nov. 15, 2006, the Osage (Iowa) Municipal Utilities Building was renamed the Weston D. Birdsall Utilities Building in honor of the BSME '49 graduate. **Wes Birdsall** was general manager of Osage Municipal Utilities from 1972 to 1992. Birdsall

has been recognized on the “NBC Nightly News” and in the Wall Street Journal, Time and USA Today for encouraging energy conservation in his community. To this date, Osage has some of the lowest electricity rates in the country, according to a Mitchell County News-Press article.

- **John A. Marks**, BSEE '54, is retired and living in San Jose, Calif. He is enjoying retirement by playing bridge, tennis, piano, choir and napping. John can be reached at skram77@att.net.

- **John O'Reilly**, BSME '82, is the founder of O'Reilly Wealth Investors LLC in Carlsbad, Calif. The company is an independent, registered investment adviser that provides wealth management services. John can be reached at john@oreillywa.com.



- **Jeffrey Kohn**, BS CIVE '89, is superintendent of the Platte South Water Treatment Plant. He works with the Metropolitan Utilities District Water Operations Division to explore methods of meeting new regulations. Jeff was involved in the design

of the new 100 MGD Platte West Plant, which is under construction. He can be reached at Jeff_Kohn@munebr.com.

- **Chad Mercer**, BSCM '01, lives in Fresno, Calif., and is a structures engineer for Washington Group International. He is working on a \$200 million freeway improvement project in Riverside.
- **James Loutzenhiser**, BSEE '03, has been an electrical engineer at the Cooper Nuclear Station since 2004. He is living in Auburn and raising a family. James can be reached at jlloutz@nppd.com.

Friends We Will Miss

- **Frederick Carl Hunt**, BSME '50, passed away Sept. 10, 2006. Hunt was founder of Vibration Test Systems in Aurora, Ohio. He held a patent on a line of low-cost electrodynamic shakers in the 25-600 lbf range. He also integrated his company's line of digital controllers with customers' computers. Hunt was from Omaha and served in the U.S. Navy for two years. He also was a member of the Institute of Environmental Sciences and Technology.

The College of Engineering's inaugural Admitted Students Reception on Feb. 23 honored high school seniors who have been accepted into the college for fall 2007.

The students and their parents enjoyed lunch before class sessions and department tours. A reception highlighting student organizations concluded the program. One hundred eighteen students, including some from as far as California, Texas and New York, participated.

Below, Lindsay Selig, '05, of Olsson Associates talks to a prospective student and his family about career opportunities in civil engineering. Olsson Associates participated in the career fair portion of the event.



Photo by Ashley Washburn

c a l e n d a r

April 15-20	E-Week, Lincoln
April 19	Dean's Advisory Board Meeting, Boston
April 20	E-Week Open House, Lincoln
April 26	Faculty & Staff Recognition Dinner
April 26	eSAB Dead Week Feed and E-Week Awards Ceremony, Lincoln
April 27	Computer and Electronics Engineering Senior Design Showcase, Omaha
April 28	Omaha Student Recognition Reception
May 4	Recognition Reception for May and August Graduates, Lincoln
May 5	Commencement, Lincoln and Omaha
May 31	Memorial Day, University Offices Closed
July 9-13	Bright Lights camp with Lincoln Public Schools

Seeking Peace On a Raging River

Gren Yuill has had a few close calls while canoeing some of the most remote waterways in the northern hemisphere, but none have been more horrifying than the accident he witnessed on the Seal River.

The Seal River, which flows east through the Canadian tundra into the Hudson Bay, is known for its powerful current and its breathtaking scenery. It was a once-in-a-lifetime trip for Yuill, son Kevin, brother Dave and nephew Duncan. Before the accident, the family had navigated the thunderous rapids—including a 60-foot drop—for 10 days without a mishap.

The last set of rapids was appropriately nicknamed “Death Rapids.” Fueled by youthful bravado, Kevin and Duncan took the lead. Yuill and his brother watched their sons paddle away and began their own descent. Suddenly, they noticed an empty canoe thrashing in the water but couldn’t see Kevin or Duncan.

They capsized, Yuill realized with dread.

A standing wave hit Kevin and Duncan’s canoe. The force caused the bow to plunge into the water, and the cousins were swept downstream. Terrified, Yuill and Dave tore through the rapids as fast as they could. Twenty-five minutes later, they found their sons.

“Luckily they were standing chest-high in water,” Yuill said. “They thought we’d capsized and drowned as well.”

The canoe was damaged and most of the equipment was gone, but Kevin and Duncan escaped with only bruises.

Not every adventure has been that harrowing, but Architectural Engineering Professor Gren Yuill has a taste for hobbies most wouldn’t dare try. He’s tried hang gliding, skydiving, flying and hunting. He doesn’t think of himself as an adrenaline junkie—just someone who seeks refuge in places off the beaten path.

Yuill said he became an outdoorsman in childhood. Every summer, his family visited relatives who lived in the wilderness of Manitoba, where he learned to hunt, fish and camp.

“It was complete wilderness all around,” said Yuill, who grew up in Winnipeg. “I got used to the country and loved it.”

Until the Seal River incident, Yuill’s most

frightening adventure was running out of gas on his second solo flight during flying lessons he took as a university student. Yuill said his instructor, who was “a good pilot but a lousy teacher,” forgot to teach him to make sure the gauges were functioning before takeoff.

“I barely cleared the trees to land on a lake,” he said.

For a short time after college, Yuill and a business partner ran a skydiving school. He also learned how to build hang gliders by re-assembling a wrecked glider he bought for \$25.

Yuill has given up those hobbies—he says they seem inappropriate for a senior citizen—but he still visits Canada every fall to canoe and hunt moose. He and Dave run Wild River Outfitting, a tourism business Yuill started with a friend in 1975. It’s more for fun than profit, he said.

The brothers choose one group of hunters to join them for an annual two-week camping and canoeing trip. Dave is the official guide, and Yuill teaches travelers how to call moose.

He learned by listening to cassette tapes of experienced callers and has perfected his technique by listening to moose in the wilderness. It’s illegal in Canada to use tapes to call moose, so hunters have to learn to perfectly imitate the sound, he said.

“It’s sort of like a cow mooing but much less musical and much harsher. It sounds like they’re in agony,” Yuill said before demonstrating a call.

It’s a difficult skill to master, he said. He hunted moose for six years before he killed his first one.

The other secret to moose hunting is calling the bulls at night, he said.

Yuill said his yearly hunting trip satisfies his need for solitude. The only signs of civilization on the 110-mile flight to his hunting territory are a set of railroad tracks and one power line.

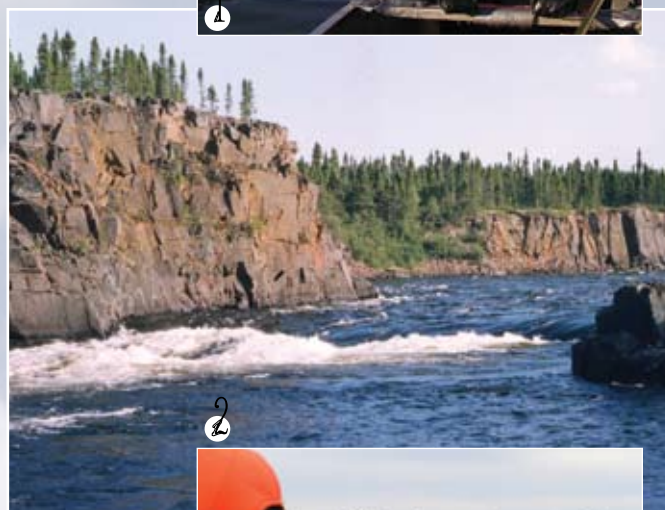
“I love the feeling of independence,” he

said. “I can’t understand how people can live in a crowded environment continuously.”

The feeling is infectious.

“At the end of our hunt, people start talking like they could stay there forever.”

—Ashley Washburn



(1) Gren Yuill steers his life by one paddle. (2) Mild rapids on Seal River. (3) A large moose wanders across the river, getting quite close to the campers. (4) Yuill’s son Kevin drinks from the fresh water river.

Photos courtesy of Gren Yuill

**Did you take things apart just
to put them back together again?**



Does your kid do the same?

If you know any children who have used their engineering skills to drive their parents crazy, send us their name and contact information, and we'll provide them with the tools to accomplish their childhood dreams.

**In Lincoln, contact Kaylea Dunn: kdunn2@unl.edu or 402-472-3060
In Omaha, contact Alma Ramirez-Rodgers: aramirez@mail.unomaha.edu or 402-554-3618**

www.engineering.unl.edu



Big Red Road Show

Sophomore Khoa Chu (right) helps visitors at the engineering booth at the annual Big Red Road Show in Omaha. In this activity, participants tighten a nut and bolt while wearing gloves made of different materials to see which one offers the greatest ease of flexibility and movement. UNL's Office of Admissions has hosted the open house since 2003 for adults and students of all ages to learn more about academic and student life programs at the university.

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