Hometown: Cartagena, Colombia
Undergraduate education: Universidad Pontifica Bolivariana, Medellin, Colombia. I graduated with a degree in chemical engineering.

Field of study: I’m pursuing a doctorate in chemical engineering.
Thesis topic: “Regeneration of Spent Dialysate Using a Membrane Bioreactor.” I want to help people receiving dialysis.
Expected graduation date: May 2006

Career goal: I want to work for the Environmental Protection Agency and focus on industrial wastewater treatment. My degree is in chemical engineering, but I work a lot with environmental engineering.

Why engineering: I attended a very competitive high school in Colombia and chemical engineering was the most challenging field. I’m the first in my family to go to college.

Why the UA: I found the membrane expertise I wanted along with environmental engineering. The professors were friendly, returning my calls and e-mails. People really help you to succeed here.

Most memorable moment: There are so many! I was president of the Society of Hispanic Professional Engineers last year and we received the UA Outstanding Professional Registered Student Organization (RSO) Award, while I received the Outstanding Professional RSO Student Member Award.

We’re hosting a regional conference of the Society of Hispanic Professional Engineers next spring, which is exciting. I’ve also gone to a lot of conferences and presentations.

And I just became a U.S. citizen, which is so exciting for me!

To contact Mary Gomez, e-mail mgomez@uark.edu or call her at 479-236-1758.
The Little Grain That Could

Nanocrystalline copper, with grain sizes in the range of 50 nanometers, is five to seven times stronger and significantly more resistant to fatigue damage than its microcrystalline counterpart. It’s also able to retain its other attractive properties such as high-fracture toughness, and electrical and thermal conductivity, which make it an attractive choice for interconnects in the next generation of electronic products.

When the temperature increases to about 100°C, however, the grain size begins to increase and the advantages begin to disappear.

Researchers Paul Millett, R. Panneer Selvam and Ashok Saxena in the Computational Mechanics Laboratory in the College of Engineering applied the principles of molecular dynamics and computer simulations to demonstrate that adding very low amounts of “dopants” (or impurities that consist of other elements) around the grain boundary controlled the grain growth and retained the advantages of the nanostructure.

To contact Paul Millett, a graduate student in civil engineering, e-mail pmillet@uark.edu or call 479-575-2229.

To contact R. Panneer Selvam, a professor in civil engineering, e-mail rps@engr.uark.edu or call 479-575-5356.

To contact Ashok Saxena, distinguished professor of materials science and engineering, e-mail asaxena@engr.uark.edu or call 479-575-3054.
In THE lEAD

in national Security

Hands On Experience
IE Student gains

English, head of the department.

Support the challenges of integrating

discipline – and our department

security.

Generation of scientists and engineers

educating and inspiring the next

challenges, while at the same time

current and future homeland security

capital in academia to address

stimulate and tap into the intellectual

program is designed to support,

technology experts. The scholarship

is such an important issue to me.

said Chambers. "Homeland security

is the first and only such fellowship

competition in all academic fields

Security awarded through a national

the U.S. Department of Homeland

industrial engineering, received

the applicants for the fellowship in

2001 through 2004, only 6 percent of

students nationally selected for the

award -- 423 students have applied, with

25 recipients.

Eckenseair also received a Graduate

Research Fellowship from the National

Science Foundation, one of only 1,000

students nationwide selected for the

honor. This three-year grant provides

$10,500 toward tuition as well as a

$30,000 annual stipend.

"I'm planning to use the Department of

Defense fellowship to pursue my

graduate studies at the University of

Texas-Austin," said Eckenseair. "The

NSF fellowship is deferable, which will

allow me to use it to eventually pursue a

doctoral degree."}

Graduate Receives Exceptional Fellowships

Adam Eckenseair, who graduated in

May with a bachelor of science degree in
dimensional engineering, received two

highly prestigious fellowships.

First, Eckenseair was awarded a National Defense Science and

Engineering Graduate Fellowship, sponsored by the Department of

Defense. He was one of only five

students nationally in the chemical
ingineering discipline to receive

the fellowship, which includes full

tuition, fees and an average stipend of

$30,000 per year for three years.

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allow me to use it to eventually pursue a

doctoral degree."
Tooley Elected to National Leadership Position; First Woman to Serve

Melissa Tooley, director of the Mack Blackwell Center for Rural Transportation, has been elected president of the Council of University Transportation Centers. Tooley is the first woman to hold this position.

The council represents more than 60 of the nation’s leading university-based transportation research and education programs. The council, established in 1992, has conducted research in the fields of engineering, social science, agriculture, business and logistics as well as other disciplines. Researchers in the center have collaborated with Walmart Stores Inc., Tyson Foods, the Arkansas Highway and Transportation Department and other universities around the country.

Welcome New College of Engineering Faculty Members

Biological and Agricultural Engineering
Kaiming Ye, assistant professor
Zunzhong Ye, assistant professor

Chemical Engineering
Jerry Kang, professor

Electrical Engineering
Yanping Li, associate professor
Robert Saunders, instructor
Vasu Varadan, distinguished professor
ViJaya Varadan, distinguished professor
Jining Xie, assistant professor
Hargoon Yoon, assistant professor

Industrial Engineering
Russell D. Meller, professor

Mechanical Engineering
Douglas Spearot, assistant professor
Sulin Zhang, assistant professor

College Expands Study Abroad to India

Next summer, six students in the College of Engineering will study engineering in India. The university, Shannigham Arts, Science, Technology and Research Academy (SASTRA) in Thanjavur, India, will host the students and a professor for a six-week summer pilot program. The students will take two engineering courses along with students from India. The UA College of Engineering professor will be the lead instructor for these courses.

“Once considered a luxury, studying abroad is quickly becoming a necessity for students interested in careers with large multinational corporations,” said Carol Gatts, director of recruitment, retention and minority affairs. The group will also spend a week touring the country. A full program might then be started the following summer.

“This is an opportunity for students to gain a completely different perspective and to begin to understand what globalization is all about,” said Ashok Saxena, dean of the College of Engineering. “We are excited to enter this partnership with such a prestigious institution in India.”

Researchers Apply Supercomputer to Solve Global Problems

Predicting the behavior of tornadoes and volcanoes. Calculating molecular formulas for new drugs. Modeling global climate change.

Researchers have big plans for Red Diamond, the state’s first supercomputer. “Red Diamond will help solve some of the most challenging science and engineering problems in the world today,” said Anne Apon, an associate professor of computer science and engineering and the leader of the effort to bring the machine to the university.

“UA researchers have already used Red Diamond to calculate the molecular structure of new nanomaterials.” By connecting to other supercomputers on a global computing grid, Red Diamond will also allow the university to participate in collaborative research projects with other institutions. In addition, it was also named to a list of the most powerful computers in the world. Twice a year, TOP 500 provides an updated list of the world’s most powerful computers at corporations, universities and government laboratories. Red Diamond made the most recent list at No. 379.

The supercomputer is named for the University of Arizona’s school color and the symbol and dominant color on the state’s flag.

Professors Produce Success

Ajay Malise, a professor of mechanical engineering, was elected a fellow of the Institute of Physics (IOP). The worldwide organization claims more than 15,000 members and supports physicists and physicists in various fundamental and applied areas. He was recognized for his work in advanced materials and manufacturing research, which has aided the areas nanomaterials and manufacturing processes, surface engineering and Microsystems packaging.

Panneer Selvam, a professor of civil engineering, was elected a fellow of the American Society of Civil Engineering (ASCE). The association represents more than 130,000 members of the civil engineering profession worldwide, with only 6,748 ever elevated to the grade of fellow.

Jerry Yeager, head of the computer science and computer engineering department, received the IEEE Haraden Pratt Award for Outstanding Contributions to the Engineering Accreditation Activities of the Institute for Electrical and Electronics Engineers (IEEE).

Steve Tung, an associate professor of mechanical engineering, has received the Ferdinand P. Beer and E. Martin Department of Chemical Engineering, was elected president of the Council of University Transportation Centers. Tooley is the first woman to hold this position.

The council represents more than 60 of the nation’s leading university-based transportation research and education programs. The council, established in 1992, is dedicated to facilitating the flow of transportation research and information among its members.

The Mack Blackwell Rural Transportation Center, which is housed in the College of Engineering, is the only council member geared specifically to researching rural transportation. The center, established in 1992, has conducted research in the fields of engineering, social science, agriculture, business and logistics as well as other disciplines. Researchers in the center have collaborated with Wal-Mart Stores Inc., Tyson Foods, the Arkansas Highway and Transportation Department and other universities around the country.

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Zunzhong Ye, assistant professor

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Jerry Kang, professor

Electrical Engineering
Yanping Li, associate professor
Robert Saunders, instructor
Vasu Varadan, distinguished professor
ViJaya Varadan, distinguished professor
Jining Xie, assistant professor
Hargoon Yoon, assistant professor

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Breaking Ground, Building Bridges

Whether it’s joining with The Nature Conservancy to rebuild damaged streams or working with Habitat for Humanity to develop its first-ever ecologically friendly subdivision, pursuing innovative collaborations to address complex ecological problems is simply in Marty Matlock’s nature.

“We really have the opportunity to make the world a better place,” said Matlock, associate professor of biological and agricultural engineering with the University of Arkansas Division of Agriculture. “If we’re going to live on the landscape in a way that allows future generations to continue to use it, we need to actively engage citizens, government leaders, developers and nonprofit organizations.”

Matlock’s inclusive philosophy flows into his coordination of the UA Ecological Engineering Group (EEG), a concentration of researchers who combine the science of ecology with the process of engineering.

“We’re dedicated to building the field of ecological engineering,” said Matlock. Indeed, the UA EEG hosted the fourth annual meeting of the Ecological Engineering Society of America in 2004.

The program, one of only 20 in the nation, consists of faculty members from biological and agricultural engineering, who team with faculty members from civil and chemical engineering. The group makes the most of its size by forming partnerships with UA faculty from geosciences, agricultural economics, the School of Architecture and the Sam M. Walton College of Business as well as collaborations with the Audubon Society, the U.S. Department of Agriculture, the U.S. Army Corps of Engineers, the U.S. Geological Survey and municipal, state and federal governments.

“We’re a small program, but put us all together and we’re very powerful,” said Matlock.

Small but powerful also defines the booming economy of Northwest Arkansas, which is the sixth fastest-growing region in America. Matlock believes the area is a near-perfect laboratory to study a variety of ecological engineering issues with national – and international – implications. Those issues include urban vs. rural needs; rapid population growth; depleting resources; commercial vs. common property usage; urban vs. suburban sprawl; and interstate property rights.

“Few areas are facing all of these issues at once,” he said. “We have a great opportunity to lead the way in addressing these pressing problems.”

One groundbreaking project that’s drawing national attention involves sculpting a stream to create specific ecological services. The project requires research
that Matlock and co-leader Mike Hanley of the Nature Conservancy believe can be applied to other stream ecosystems nationwide. Together, they applied these principles in an innovative graduate class.

“It’s about taking these ecosystems and trying to restore them to meet human needs and desires,” said Matlock. “Desires like having clean water, preserving animal habitat, restoring wetlands and creating spaces for natural beauty and recreation.”

Students received a unique, real-world opportunity. “The students really learned a lot from this collaborative effort,” said Hanley, senior riverine ecosystem restoration engineer. “Especially because the UA Ecological Engineering Group includes such a diverse cross-section of engineers from different disciplines.”

By studying the historic and current patterns of water flow and asking questions about desirable outcomes, Matlock and the students in this graduate-level class can redesign a stream to meet human needs – as unique as each stream – in a sustainable way.

“There’s no one right answer,” he said. “A stream can be a thousand things and still be a stream.”

The students worked with a landowner along a mile-long stretch of Wharton Creek, a tributary of War Eagle Creek. They’ve taken measurements, determined the dimensions of the stream and the size of the particles in the stream bed. By examining the bedrock and sediment, the erosion and flood plains, they created a history of what the channel has done.

“We’ve changed the way waters flow over the land,” said Matlock.

Streams have always changed within certain boundaries – flood, droughts and other natural processes have shaped those boundaries for millions of years. But people have stretched those boundaries past their natural limits with logging, grazing, planting non-native crops, urbanization and other land-use changes. And these changes have brought about undesirable results.

“Streams that are affected have more erosion power, which causes land loss,” said Matlock. “Important species, like smallmouth bass, have disappeared from native habitats and more frequent flooding has led to more sediment movement, which adds fine sediment and other pollutants to our water supply.”

Once the students determined the past and present dynamics of the stream ecosystem, they designed the restoration process based on the desired outcome for the stream.

“You have to answer the question ‘what do you want the system to do?’” he said. “You can never restore streams to what they once were. But some of the things that were, we want back.”

In this case, the desired outcomes included restoring the smallmouth bass habitat, minimizing land loss and keeping sediment and gravel transported downstream in balance with the landscape. Accomplishing this requires many ecological engineering design phases, including restoring sinuosity to the stream, creating riffles and pools, planting native trees and grasses along the riverbanks and restoring the channel to its natural water energy level.

Historically, most stream-restoration projects have been done from the perspective of landscape architecture or restoration ecology. As a licensed engineer and registered ecologist, Matlock is one of the few academic researchers nationwide who is qualified to design stream-restoration projects from an ecological engineering perspective.

“As ecological engineers, we can predict outcomes with a relatively high level of confidence,” he said. “These predictions, which are based on quantifiable data, satisfy the concerns of community leaders, regulatory agencies, property holders and citizens. We’re moving this from a pure science to an engineering practice that uses and respects science.”

To contact Marty Matlock, e-mail mmatlock@uark.edu or call him at 479-575-2849.

**“WE’RE A SMALL PROGRAM, BUT PUT US ALL TOGETHER AND WE’RE VERY POWERFUL,”**

**MARTY MATLOCK
ASSOCIATE PROFESSOR**
Researchers at the College of Engineering at the University of Arkansas are working to ensure that the 2003 blackout in the Northeast United States – the largest and most catastrophic failure in the history of the country – never happens again.

The newly formed National Center for Reliable Electric Power Transmission is dedicated to developing advanced power electronic systems to make the nation’s power grid more reliable and efficient.

With a $1 million congressional appropriation managed by the Department of Energy’s Gridworks Initiative, faculty members and graduate students will design, test and package electronic systems for future commercial use in the nation’s power grid.

“Because we live in the ‘digital economy,’ we must develop the capability to limit potentially catastrophic events so that people don’t get hurt and equipment doesn’t get destroyed,” said Alan Mantooth, professor of electrical engineering and director of the newly formed center. “These events can also severely damage our nation’s economy as well as jeopardize our national security.”

Mantooth will operate the center with Aicha Elshabini, head of the electrical engineering department, Juan Balda, professor, and Fred Barlow, associate professor.

The University of Arkansas is one of five universities in the nation to receive such support. The others include Georgia Tech, Virginia Tech, the University of Tennessee and the University of Wisconsin-Madison.

According to Mantooth, the researchers’ collective expertise in advanced power electronics design, modeling and packaging, together with their previous investigations of silicon carbide, made the UA a compelling choice for this research center.

For the past decade, UA electrical engineers have developed and packaged silicon-carbide systems for the National Aeronautics and Space Administration and the defense industry. In addition to its strength and ability to respond quickly to power interruptions, silicon carbide is a superior material than what is currently used in the power grid for many reasons.

“It’s a good thermal conductor, which means that it can operate at very high temperatures without requiring extra equipment to remove heat,” said Mantooth. “This can result in a reduction in the overall mass and volume of advanced controllers for a power grid. The properties of silicon carbide also allow an extremely high voltage capability, which can simplify power electronic design solutions compared to other materials such as silicon.”

For the national power transmission center, UA researchers will create mathematical models of silicon-carbide devices to simulate the design of large systems. These devices will then be rigorously tested and packaged. Packaging involves creating protective coatings and enclosures to prevent the material from breaking down when it’s subjected to high voltages and currents or when it’s interacting with air and water. These packaged devices will then be used to develop advanced technology for the power grid.

For the past decade, UA electrical engineers have developed and packaged silicon-carbide systems for the National Aeronautics and Space Administration and the defense industry.
The structure of the SiC crystal is highly dependent on its orientation. The different types of SiC crystals are known as polytypes. This figure shows the structure of the 4H-SiC polytype, the one most commonly used for making electronic devices. The molecular structure has a hexagonal frame and the distance between the Si and C atom is invariably 3.8 Å.

The University of Arkansas not only reached its goal of raising $1 billion during its Campaign for the Twenty-First Century, it surpassed it by $46 million, raising a total of $1.046 billion.

The campaign, which began July 1, 1998, officially concluded June 30, 2005, with a campus-wide “Thanks a Billion” celebration. The University of Arkansas now joins the ranks of only 13 public institutions to have raised $1 billion.

The size of the university’s endowment has increased from $119 million in fiscal year 1997 to $626 million in fiscal year 2004. A total of 81 chairs and 51 professorships have been created through the Campaign for the Twenty-First Century, with 2,212 endowed and non-endowed scholarships and fellowship funds created as well.

“We are extremely grateful to everyone who shares the desire to move the University of Arkansas into the upper ranks of the nation’s public universities,” said UA Chancellor John A. White. “The outpouring of private gift support from our family of donors affirms and enhances our standing as a nationally competitive, student-centered research university serving Arkansas and the world.”

The College of Engineering raised a record $70.9 million during the campaign. More than 11,200 gifts have focused on funding four main categories: students, faculty, capital improvements and program support. The size of the college’s endowment is now $27 million, while the college raised $17.2 million in fiscal year 2005 alone.

The campaign resulted in three new chairs with an endowment of $3 million each, six new chairs with an endowment of $1.5 million each and eight endowed professorships in various departments throughout the College of Engineering. In addition, donors funded 19 doctoral fellowships, five Honors College academy fellowships and 10 Honors College academy scholarships.

“There were two main factors in our ability to meet and to exceed our campaign goals; the support of our alumni was outstanding and hire of the Matching Gift Program made them stretch to their fullest,” said Ashok Saxena, dean. “We will forever be grateful to these wonderful and generous people!”

“The gifts have already made a huge difference in the College of Engineering in attracting and retaining outstanding senior faculty and providing them the resources necessary to continue to be the best in their fields,” he continued. “We are also seeing considerable more interest in younger applicants for starting academic careers at the University of Arkansas. The number of applications for faculty positions has increased by almost ten times over the past couple of years. I am very excited as we move into this year’s recruiting season knowing fully well that we will be able to attract applicants from the pool of the nation’s brightest.”
Long-time Donor Endows Department

The College of Engineering recently celebrated its first endowed department.

Ralph E. Martin, an alumnus of the college, made a gift of $5 million to endow the Ralph E. Martin Department of Chemical Engineering. The gift was matched by $4.25 million from the Matching Gift Program, creating a total endowment of $9.25 million.

The gift is being used to create an endowment for faculty and student positions with the department.

Ralph Martin, a native of Eureka Springs, Ark., graduated with a bachelor’s degree in chemical engineering in 1958 and a master’s degree in chemical engineering in 1960. He founded PetroFac Inc., of Tyler, Texas, a single-source supplier for the hydrocarbon-processing industry that grew into an international corporation. Currently retired, he continues to serve as chairman of the board. He holds patents for the treatment of emulsions, the desalinization of brackish waters and the desalinization of crude oil. Martin also founded Eagles Bluff, a country club and residential community on Lake Palestine in Bullard, Texas.

He is a member of the College of Engineering Hall of Fame and has provided leadership as a member of the College of Engineering Advisory Council and the College of Engineering Campaign for the Twenty-First Century Committee.

“Ralph Martin has been such a great influence on chemical engineering students at the University of Arkansas,” said Tom Spicer, head of the department. “His distinguished career demonstrates that UA chemical engineering graduates can take their place among America’s leaders in business and industry.”

UA Chancellor, Wife Endow Chair in Engineering

UA Chancellor John and Mary Lib White have made a gift of an annuity that ultimately guarantees $1.5 million to the University of Arkansas to establish an endowed chair in the College of Engineering.

The John and Mary Lib White Systems Integration Chair will be used to attract an internationally renowned scholar to the department of industrial engineering. The Matching Gift Program has already provided $1.5 million to support the chair, which will ultimately be supported by an endowment of $3 million. A national search is currently being conducted to fill the position.

“I’m so grateful for the education I received at the University of Arkansas and it means a lot to me to be able to give back to the institution that gave me so much,” said Martin.

Martin, a native of Eureka Springs, Ark., graduated with a bachelor’s degree in chemical engineering in 1958 and a master’s degree in chemical engineering in 1960. He founded PetroFac Inc., of Tyler, Texas, a single-source supplier for the hydrocarbon-processing industry that grew into an international corporation. Currently retired, he continues to serve as chairman of the board. He holds patents for the treatment of emulsions, the desalinization of brackish waters and the desalinization of crude oil. Martin also founded Eagles Bluff, a country club and residential community on Lake Palestine in Bullard, Texas.

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Graduate Research Chairs

College of Engineering

Graduate Research Chair in Materials Science and Engineering

Computer Science and Computer Engineering Department

Charles D. Morgan/Ancom Graduate Research Chair in Database Electrical Engineering Department

Graduate Research Faculty Endowed Chair in Microelectronics and High Density Electronics

Endowed Chairs

College of Engineering

George M. and Bryce W. Bingham Chair in Engineering

Ralph E. Martin Department of Chemical Engineering

Ross E. Martin Chair in Biomedical Engineering

Ralph E. Martin Leadership Chair in Chemical Engineering

Maurice E. Barker Chair in Chemical Process Safety and Environmental Fate of Chemicals

Computer Science and Computer Engineering Department

Roderick S. Wise Chair in Computer Science and Computer Engineering

Industrial Engineering Department

John and Mary Lib White Systems Integration Chair in Industrial Engineering

Endowed Professorships

Ralph E. Martin Department of Chemical Engineering

Ralph E. Martin Professorship in Chemical Engineering

Jim L. Turpin Professorship in Chemical and Biochemical Separations

Charles W. Oxford Professorship in Emerging Technologies

Robert E. Babcock, Sr. Professorship in Chemical Process Safety and Environmental Fate of Chemicals

Louis Owen Professorship in Green Chemical Process Design and Development

Ansel and Virginia Condray Endowed Professorship in Biochemical and Chemical Separations

Civil Engineering Department

James T. Winkle Professorship in Computational Mechanics and Nanotechnology Modeling

Industrial Engineering Department

James M. Hefley and Marie G. Hefley Professorship in Logistics and Entrepreneurship

Doctoral Fellowships

College of Engineering

Hearst Foundations Doctoral Academy Fellowships in Engineering

Ralph E. Martin Department of Chemical Engineering

Martin Doctoral Academy Fellowships in Chemical Engineering

Barrett and Peggy S. Duff Doctoral Fellowships in Chemical Engineering

Civil Engineering Department

Citizens Fidelity Insurance Company Doctoral Fellowships in Civil Engineering

Scheuck Family Foundation Doctoral Fellowships in Civil Engineering

Industrial Engineering Department

ABF Freight System Doctoral Fellowships in Industrial Engineering

Dr. Wray Wilkes Doctoral Fellowships in Mechanical Engineering

Honors College Academy Fellowships

Civil Engineering Department

Julian and Nana Rachael Stewart Honors Fellowships

Honors College Academy Scholarships

College of Engineering

George D. and Shirley Combs Honors Academy Scholarship

Ashok and Madhu Saxena Honors Academy Scholarship

Gadberry Family Honors Academy Scholarship

Matthew J. Siebenmorgen Honors College Academy Scholarship

Civil Engineering Department

Irine and Gus Vratsinas Honors Academy Scholarships

Matthew J. Siebenmorgen Honors College Academy Scholarship

Doctoral Fellowships

Civil Engineering

Industrial Engineering Department

Gae Morris Honors Academy Scholarships

Mechanical Engineering Department

David D. and Carolyn D. Watts Honors Academy Scholarship in Mechanical Engineering
College Welcomes World Renowned Researchers

With the addition of Vijay and Vasundhara “Vasu” Varadan, the University of Arkansas is positioned to become a world leader in the field of sensor technology. Both are internationally renowned and their pioneering research has profoundly influenced the quality of human life.

Vijay holds the Graduate Research Faculty Endowed Chair in Microelectronics and High Density Electronics, a $3 million endowed chair. She is also a distinguished professor of electrical engineering and director of the High Density Electronics Center. Vasu holds the George M. and Boyce W. Billingsley Chair in Engineering, a $1.5 million chair. She is also a distinguished professor of electrical engineering.

“This is a defining moment for the College of Engineering,” said Chancellor John White.

The Varadans are two of the best in the world in their fields. Their appointment immediately establishes the UA College of Engineering as a major R&D player nationally. All Arkansans will be beneficiaries of the Varadans’ decision to join the University of Arkansas and, thereby, accelerate the university’s rise to international prominence.

Vijay has developed biosensors to treat neurological disorders, such as Parkinson’s disease. His research also focuses on potential applications to control blood glucose levels and to treat Alzheimer’s disease and epilepsy.

Vasu’s research concentrates on ambulatory medical sensors as well as wireless microsensors for monitoring patients at home and in hospitals, thus providing better data to doctors and reducing health care costs.

“The Varadan team is really more than the sum of its parts,” said Ashok Saxena, dean. “They demonstrate the capability of engineering to translate technology into real solutions that will improve human life.”

The Varadans, married for 31 years, are a complementary team, both equally accomplished in their respective fields. Vijay is a systems integrator and design specialist; Vasu’s expertise is in creating new materials with novel properties, then studying and modeling their characteristics.

“As a professor, it is my privilege to impact many eager minds about the excitement of research and engineering,” said Vasu. “We are both excited about our new labs, new collaborations and the environment here in Northwest Arkansas. We’re committed to building up the University of Arkansas and taking it to a new level.”

Internationally Esteemed Professor Joins College Faculty

Jerry King has been named the holder of the Ansel and Virginia Condray Endowed Professorship in Biochemical and Chemical Separations at the University of Arkansas. He will serve as an adjunct professor in the Food Science Department.

King most recently was program manager and research scientist in the Supercritical Fluid Facility at the Los Alamos National Laboratory in Los Alamos, N.M. Before joining Los Alamos, King was lead scientist of the Critical Fluid Technology Group at the National Center for Agricultural Utilization Research (NCAUR) in Peoria, Ill., for more than 16 years.

After more than 37 years of experience in supercritical fluid technology, chemical separations, chromatography and applied chemical engineering and chemistry, King is excited to return to academia at the University of Arkansas.

“It’s like building the field of dreams,” he said. “We’re creating world-class capabilities – all the way up to pilot plant scale – to demonstrate better processes for industrial uses in Arkansas and throughout the nation.”

Kevin Hall, a professor in civil engineering, has been named the head of the department. He succeeds Bob Elliott, who held the position for 14 years and who will resume teaching duties.

After receiving an undergraduate degree from the UA, Hall was employed by the U.S. Army Corps of Engineers. He came back to the UA to earn a master’s degree in civil engineering, then earned a doctoral degree from the University of Illinois at Urbana-Champaign in 1993. He returned to the College of Engineering as assistant professor that year, receiving promotions to associate professor in 1998 and professor in 2003.

He received the Distinguished Faculty Achievement Award for Research and Teaching from the Arkansas Alumni Association in 2004.

Hall’s research focuses on the design, production and rehabilitation of pavements and construction materials, and he plays a vital role in highway transportation both throughout the U.S. and within Arkansas. As part of the Transportation Research Board’s National Cooperative Highway Research Program 1-40 project panel, Hall is a part of the national effort to determine how to implement an entirely new system of pavement standards to update the nation’s highways. He is one of only two members of the project panel from academia.

Hall is also cochair of the College of Engineering’s Strategic Planning Committee and has served as a member of the Faculty Senate since 1998.

Joe Rencis has been named head of the mechanical engineering department. Rencis, formerly professor and director of engineering mechanics at the Worcester Polytechnic Institute, succeeds William Schmidt, who stepped down as head of the department after 19 years.

Schmidt will resume classroom duties as a professor.

Rencis received his doctorate in engineering mechanics from Case Western Reserve University, Cleveland, Ohio, and had been at Worcester Polytechnic Institute since 1985. He is a Fellow of the Wessex Institute of Great Britain, which recognizes leaders in the fields of computational engineering and boundary element research.

He has also been a Fellow of the American Society of Mechanical Engineers since 2001.

Much of Rencis’ research focuses on the formulation and development of boundary and finite element methods for analyzing solid, heat transfer and fluid mechanics problems. He is internationally known for pioneering work in the area of error estimation and adaptive refinement for the boundary element method.

Peggy Maher Gabriel has joined the College of Engineering as the director of development, succeeding Susan Vainian who retired after 17 years of service to the college and 21 years to the University of Arkansas.

Most recently, Gabriel was director of major gifts at the Columbia University Graduate School of Business in New York, N.Y. In that position, she was responsible for creating and managing a team with an annual fundraising target of $20 to $30 million. Prior to that, she was major gifts officer at New York Well Cornell Medical Center in New York and corporate relations manager at The Asia Society and Museum, also in New York.

Gabriel holds a master’s degree in public administration from Columbia University and a bachelor’s degree in Asian studies from Williams College in Williamstown, Mass. Gabriel spent five years in Hong Kong teaching English at Chinese University and coordinating research and marketing for the China-based practice of Freshfields, Bruckhaus, Deringer, a leading international law firm.

Internationally Esteemed Professor Joins College Faculty

Jerry King has been named the holder of the Ansel and Virginia Condray Endowed Professorship in Biochemical and Chemical Separations at the University of Arkansas. He will serve as an adjunct professor in the Food Science Department.

King most recently was program manager and research scientist in the Supercritical Fluid Facility at the Los Alamos National Laboratory in Los Alamos, N.M. Before joining Los Alamos, King was lead scientist of the Critical Fluid Technology Group at the National Center for Agricultural Utilization Research (NCAUR) in Peoria, Ill., for more than 16 years.

After more than 37 years of experience in supercritical fluid technology, chemical separations, chromatography and applied chemical engineering and chemistry, King is excited to return to academia at the University of Arkansas.

“It’s like building the field of dreams,” he said. “We’re creating world-class capabilities – all the way up to pilot plant scale – to demonstrate better processes for industrial uses in Arkansas and throughout the nation.”

Kevin Hall, a professor in civil engineering, has been named the head of the department. He succeeds Bob Elliott, who held the position for 14 years and who will resume teaching duties.

After receiving an undergraduate degree from the UA, Hall was employed by the U.S. Army Corps of Engineers. He came back to the UA to earn a master’s degree in civil engineering, then earned a doctoral degree from the University of Illinois at Urbana-Champaign in 1993. He returned to the College of Engineering as assistant professor that year, receiving promotions to associate professor in 1998 and professor in 2003.

He received the Distinguished Faculty Achievement Award for Research and Teaching from the Arkansas Alumni Association in 2004.

Hall’s research focuses on the design, production and rehabilitation of pavements and construction materials, and he plays a vital role in highway transportation both throughout the U.S. and within Arkansas. As part of the Transportation Research Board’s National Cooperative Highway Research Program 1-40 project panel, Hall is a part of the national effort to determine how to implement an entirely new system of pavement standards to update the nation’s highways. He is one of only two members of the project panel from academia.

Hall is also cochair of the College of Engineering’s Strategic Planning Committee and has served as a member of the Faculty Senate since 1998.

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Inaugural Dinner Honors College of Engineering Alumni, Professors

The College of Engineering held its first Alumni Awards Dinner in the spring, welcoming three new members into its Hall of Fame and inducting the inaugural class of two new awards: the Distinguished Alumni Award and the Young Alumni Award. More than 250 alumni and friends attended the black-tie affair, held at the Fayetteville Town Center.

In addition to the alumni awards, the first John Imhoff Faculty Awards were presented. Designed to recognize excellence in teaching and research, the awards were generously established by John Imhoff, founder of the Department of Industrial Engineering, just before he passed away on March 16.

The 2005 Imhoff Outstanding Researcher Award went to Jin-Woo Kim, an assistant professor of biological and agricultural engineering. Kim has established an interdisciplinary research program that focuses on four areas: bio-catalysis technology, environmental biotechnology, nucleic acid technology and nano-biotechnology. In addition to the alumni awards, the first John Imhoff Faculty Awards were presented. Designed to recognize excellence in teaching and research, the awards were generously established by John Imhoff, founder of the Department of Industrial Engineering, just before he passed away on March 16.

2005 Hall of Fame
Edward M. Harvey, BSIE ’54
Founder, Chairman and CEO Harvey Industries, Inc.
Little Rock, Arkansas
Charles D. Morgan, BSIE ’66
Group President
Actemis Corporation
Little Rock, Arkansas
James T. Womble, BSCE ’66
Global Development Leader
Actemis Corporation
Little Rock, Arkansas
2005 Distinguished Alumni Award
Wesley F. Buchele, MSAGE ’51
Professor Emeritus, Agricultural Engineering
Iowa State University
Ames, Iowa
Frederick H. Clark, BSEE ’67
President and Co-Owner
CAL, Inc.
Huntsville, Alabama
Don Flores, BSCE ’69
President
Arkansas State Highway and Transportation Dept.
Little Rock, Arkansas
David D. Foust, BSIE ’64
President and CEO (retired)
Seneca Wire and Manufacturing Company
Rogers, Arkansas
Grady E. Harvell, BSCE ’72
President
AFCO Steel
Little Rock, Arkansas
Ron Morris, BSIE ’58
CEO
Loews Manufacturing, Inc.
Dallas, Texas
Stanley E. Reed, BSIE ’73
Owner and operator
Redd Farms
Marianna, Arkansas
Larry G. Stephens, BSIE ’58
CEO
Mid-South Engineering Co.
Hot Springs, Arkansas
Kay Watson Tuil, BSCE ’83
Supply Chain Planning Manager, Basic Chemicals, Catalysis Chemicals
Dallas, Texas
R. Terral Whetstone, BSME ’59
Director of Production (retired)
Southwestern Electric Power Company
Shreveport, Louisiana
Lang Zimmerman, BSCEG ’85
Vice President
Jetco Telephone Company
Mountain Home, Arkansas
Brooke E. Willet, BSCEG ’93
President
Focus Technologies, LLC
Plano, Texas
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President
Focus Technologies, LLC
Plano, Texas
R.Terral Whetstone, BSME ’59
Director of Production (retired)
Southwestern Electric Power Company
Shreveport, Louisiana

2005 Young Alumni Award
Scott E. Bennett, BSIE ’89, MSCE ’94
Assistant Chief Engineer, Planning
Arkansas State Highway and Transportation Dept.
Little Rock, Arkansas
Shannon D. Harrop, BSME ’92
National Account Director
Heil Environmental Industries, Ltd.
Chattanooga, Tennessee
Bruce D. Lilly, BSCE ’92
Managing Director
Entex Mobil Chemical
Baton Rouge, Louisiana
Marji McNeill, BSChE ’91
National Account Director
Exxon Mobil Chemical
Wichita, Kansas
Jerry Lynn Moore, Jr., BSCG ’94, MSCSE ’96
Chief Executive Officer, Focus Technologies, LLC
Plano, Texas
Brett A. Peters, BSIE ’87
Professor and Head, Industrial Engineering
Texas A&M University
College Station, Texas
Bruce Westerman, BSBAE ’90
Engineer and Founder
Mid-South Engineering Co.
Hot Springs, Arkansas

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The goal of the dinner is to honor, preserve and perpetuate the names and accomplishments of the people who have provided extraordinary service to the engineering profession, the college and the University of Arkansas. The 2006 College of Engineering Alumni Awards Dinner will be held Saturday, April 8, at the Fayetteville Town Center.

James T. Womble, Charles D. Morgan and Edward M. Harvey are the newest members of the College of Engineering Hall of Fame.

Alum Constructs Well-Rounded Life , Garners National Acclaim

Rachel Stender, BSCE ’97, was featured on the cover of the December 2004/January 2005 issue of Working Mother magazine. The accompanying story highlighted her balancing art while fulfilling many roles: engineer, mother, faculty member and community volunteer.

Last year, Stender was one of 12 engineers nationwide nominated as a “New Face of Engineering” as part of National Engineers Week, sponsored by the National Society of Professional Engineers. As part of the honor, she was featured in an issue of USA Today.

As an engineer for the Port of Corpus Christi, she is responsible for the design, construction and management of capital and maintenance projects throughout the Port. Her recent licensure made her the first female registered engineer in the 77-year history of the Port.

“I am extremely proud to be a graduate of the College of Engineering at the University of Arkansas,” said Stender. “I’ve always felt the UA is the best-kept college secret in the U.S., with great professors, a beautiful campus, state-of-the-art research facilities and excellent faculty-to-student ratios. My coursework and classes gave me the tools I needed as I began my professional experience. After graduating, I was prepared to be a valuable engineering asset early in my career.”

In addition to her duties at the Port, Stender recently completed reserve duty in the U.S. Air Force as a civil engineering officer with the 307th RED HORSE Unit, a mobile, rapid-response construction unit. In 2003, she completed a master’s degree in business administration from Texas A&M University-Corpus Christi, and now serves as an adjunct professor at the local community college. She is also a student mentor in the FUSE program at Texas A&M-CC, which is designed to further minority interest in science and engineering fields.

These words represent, as well as any words are able, the ongoing accomplishments of the faculty, students, staff and alumni of the College of Engineering at the University of Arkansas.

Engineers share a passion for solving problems, for improving the quality of human life and for asking “Why not?” instead of “Why?” During the two years of my tenure as dean here, I’ve noticed that very passion reflected throughout our campus community.

Some amazing examples that you’ll read about in this issue of “Ingenuity” include:

Imagination in action
The successful conclusion of the $1 billion Campaign for the Twenty-First Century. Through the incredible support and teamwork of our alumni, volunteers and donors, a dream has become a reality. The university and our college are now poised to become even better.

Innovation in action
Our researchers continue to explore solutions that address global issues such as discovering alternative forms of energy and developing better ways for society to lessen its toll upon our environment.

And finally, an inspiration to us all
Ralph E. Martin has exemplified a successful engineer and a generous donor. His record-setting gift to the chemical engineering department, which was renamed in his honor, will have a lasting impact on the lives of students and faculty that simply cannot be overstated.

We continue to welcome internationally renowned senior faculty to our community and we’re looking forward to recruiting more leaders committed to teaching, research and service. Any newcomer to the college will be – as I have been – inspired by the quality faculty, staff, students and alumni of this institution.

LAST WORD
Ashok Saxena
Dean of Engineering
Distinguished Professor of Materials Science
College of Engineering