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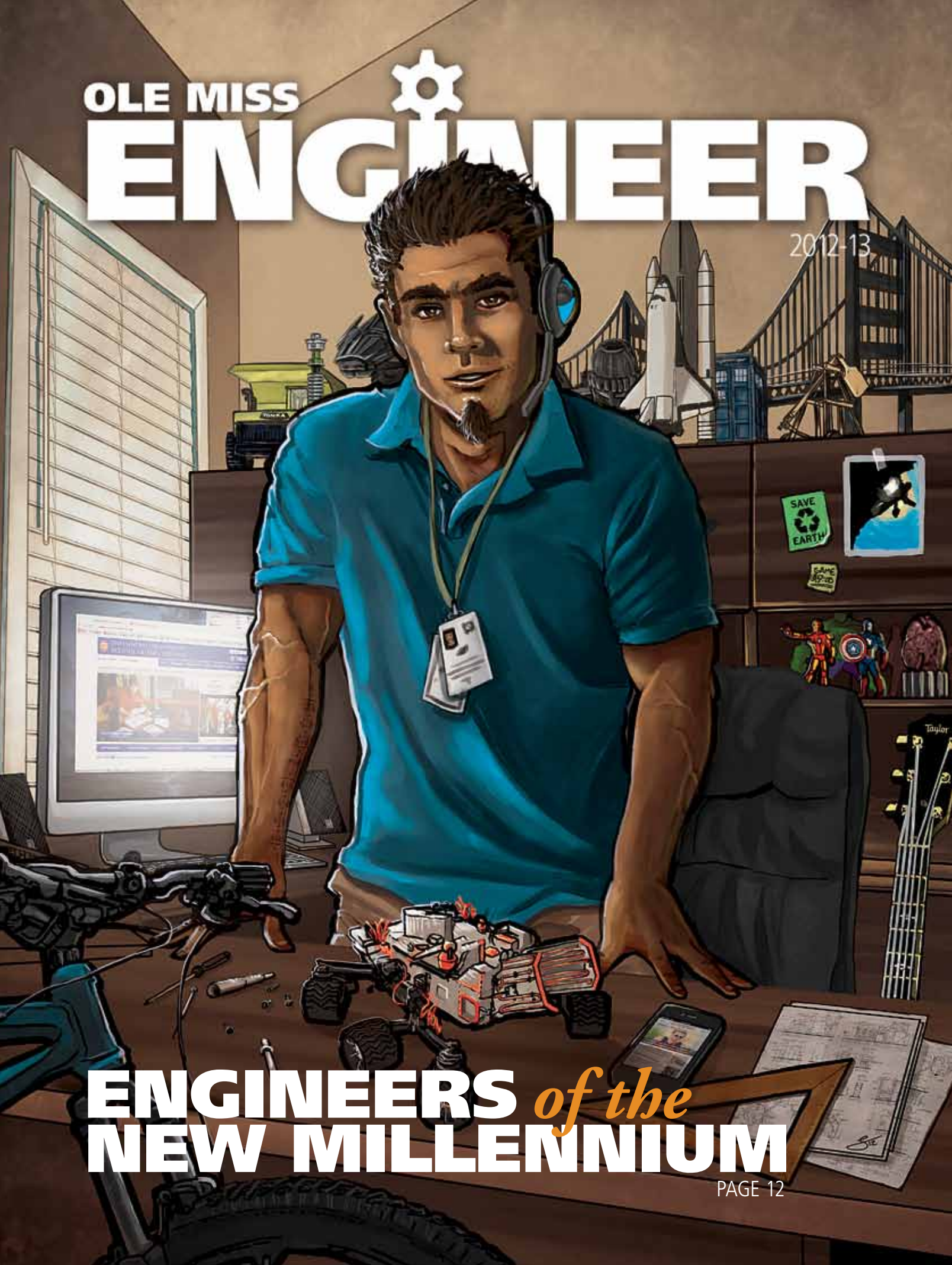
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OLE MISS ENGINEER

2012-13



ENGINEERS *of the* NEW MILLENNIUM

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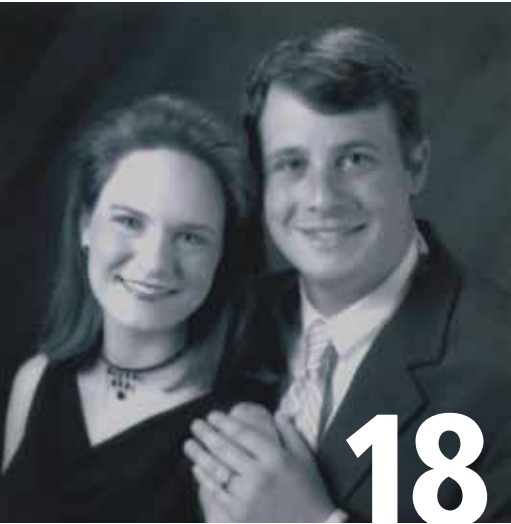


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NEW CHAIRS 2012-13

RAMANARAYANAN "VISH" VISWANATHAN, chair and professor of electrical engineering, received his Ph.D. from Southern Methodist University. Prior to joining the University of Mississippi, he was a professor of electrical and computer engineering at Southern Illinois University, Carbondale. His professional accomplishments include the election to fellow rank of the Institute of Electrical and Electronics Engineers. His research areas include signal detection, wireless sensor networks and wireless communications.



YACOB "JACOB" NAJJAR, chair and professor of civil engineering, received his Ph.D. from the University of Oklahoma in 1990. Prior to joining Ole Miss, he was professor of civil engineering at Kansas State University. Najjar's research focuses on the application of artificial neural networks and computational mechanics to advance the civil infrastructure. He also conducts research on the interaction of soil and civil structures, transportation, geomechanics, geosynthetics and geoenvironmental systems.





DEAR ALUMNI AND FRIENDS OF OLE MISS ENGINEERING:

It is my pleasure to bring you this issue of *Ole Miss Engineer*. The magazine/newsletter is in its 52nd year of existence!

Starting in 2011, each magazine issue has had a theme. In the last issue, under the title of “Titans of Industry,” we featured a number of accomplished alumni who made their marks nationally and globally. In this issue, we feature “Engineers of the New Millennium” — those who graduated in the year 2000 and after. These young engineers are different. They defy the stereotypes of engineering students and professionals.

At school, they are talented and ambitious. Some are taking on multiple majors and earning multiple degrees. Others are acquiring minors in modern languages, business and public policy leadership. Most are engaged in service. Many are doing study abroad, undergraduate research or are in the varsity athletics program. They maintain high GPAs, possessing strong communication skills and exceptional leadership skills. When they graduate, they set their sights high and are not limited by the conventional career paths. They typically rise fast, welcome change and are not afraid of receiving international assignments. Many of them attribute their adaptability to the education they received at the School of Engineering and were nurtured by the Ole Miss liberal arts environment. You can read these stories in this magazine.

I also would like to use this opportunity to give you a brief report on student accomplishments and the school’s progress. This fall semester, we will see another significant increase in enrollment. We are anticipating an undergraduate enrollment of more than 1,050, which is a 65 percent increase from four years ago.

Our students continue to excel and win national honors. This year, chemical engineering senior Nikki Reinemann won a Goldwater Scholarship (the second won by School of Engineering students in three years), and mechanical engineering senior Martin Ducote won a Fulbright Scholarship. A chemical engineering student team won second place in the national American Institute of Chemical Engineers team design competition. (Two years ago, another chemical engineering team won first place!) This spring, when the university’s Taylor Medalists were announced, we saw 11 engineering students winning this highest academic honor, an unprecedented number. The school also sees almost 100 engineering students enrolled in the university’s Sally McDonnell Barksdale Honors College. Knowing how small the engineering school is (or was, as we are growing), these are amazing accomplishments by our excellent students.

On the faculty side, John O’Haver, professor of chemical engineering, won the university’s highest teaching honor, the Elsie M. Hood Outstanding Teacher of the Year Award; and Atef Elsherbeni, associate professor of electrical engineering, won the university’s highest research honor, the Distinguished Research and Creative Achievement Award. This fall, we welcome a number of new faculty members including two new department chairs: Ramanarayanan “Vish” Viswanathan in electrical engineering and Yacoub Najjar in civil engineering. Both chairs were recruited from highly competitive national searches and had prior administrative experiences as acting dean of engineering and acting department chair, respectively. We also welcome three new assistant professors to computer and information science, one

Are you receiving our new Monthly Memo via email? If not, please send your contact information to engineer@olemiss.edu, and we will add you to the list.

assistant professor to chemical engineering, one assistant professor to civil engineering, one associate professor to mechanical engineering, and a few instructors.

Through a strategic planning process that involved a vision council and the school's advisory board, faculty and students, the school has committed to two strategic goals. One is to provide an enriched educational program, as rich as any elite private university can provide (but with the affordability and student diversity of public school). The other is to assist a group of underprepared and underprivileged students to successfully complete the engineering program. As a state, Mississippi is low in economic and educational indicators. Despite the disadvantages, we want to provide our students as good an opportunity as they can get anywhere in this country.

To offer such an education, resources beyond what the state of Mississippi can provide are needed. We are starting a new campaign to raise private funds to enable this goal. In doing so, we have created a Jess Woods Society program to replace the long-running, but now defunct, Woods Order program. If you are interested in making a donation to enable our educational goals, please feel free to contact me.

I am proud to present to you another issue of *Ole Miss Engineer* to keep you in touch with the school.

Sincerely,



ALEX CHENG
Dean of Engineering

DEAR FRIENDS OF THE SCHOOL OF ENGINEERING:

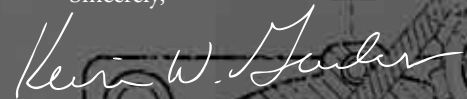
As these articles show, the next generation of engineers graduating from Ole Miss is accomplishing amazing things. There is more to tell. Without a doubt, our current students are being equipped with learning experiences both on and off campus. Professional society competitions, global experiences, service and leadership opportunities, and team building in the labs are just a few of the educational activities strengthening our engineering students' ability to perform once they leave our beloved circle.



The newly established Woods Society will help to accomplish the desire of the dean to facilitate these activities and magnify the impact of the endless opportunities the engineering degree has to offer. By being an annual member, you will assist in providing educational opportunities beyond the classroom, thereby ensuring our latest, greatest generation will not only be equipped with knowledge but also will succeed with excellence.

We hope you will consider becoming an annual member of the Woods Society. If you have questions or comments about supporting the School of Engineering, please contact me at 662-915-7601 or at kevin@olemiss.edu. Please see the QR code on page 29 to access more information about the Woods Society with your smart phone.

Sincerely,



KEVIN GARDNER
University Development Officer
for the School of Engineering

WORK OF GEOLOGICAL ENGINEER SPANS D.C., THREE STATES IN THREE YEARS

BY EDWIN SMITH

From levees, dams and highways in Texas and the Metrorail in D.C. to subways in New York and wind turbines in Kansas, Charles “Charlie” Wildman (BSGE 09) has had a hand in improving the everyday lives of millions of people.

“I think that’s kind of cool, especially because this has been only my first three years of professional work,” said Wildman, a certified Engineer I /Geologist I for Parsons Brinckerhoff Inc.

Since graduating from Ole Miss in 2009, the Lafayette, La., native has worked for PB, where he has enjoyed steady promotions. He credited his UM engineering professors with helping him lay the groundwork for his career.

“They taught me how to find solutions to problems, convey my thoughts in a logical and tangible manner, and gave me the tools needed to pass the FE (Fundamentals of Engineering) and FG (Fundamentals of Geology).

“I’m most proud for having graduated certified as both an engineer-in-training and geologist-in-training,” he said.

The two certifications rolled in with his geological engineering degree pushed him ahead in his first job search, which led him to PB. His first assignment was in connection with the Trinity River Parkway, a proposed improvement project of the downtown Dallas levee system.



His first task involved locating potential point bar deposits, which can act as preferential flow paths for water and cause erosion problems.

He moved from there to assist in the design/build efforts for the DFW Connector, a major highway expansion project on the northeast corner of the Dallas/Fort Worth International Airport.

“There we were doing the geotechnical design for the pavements, bridges, retaining walls and other structures,” Wildman said. “My role involved a variety of tasks, in support of more senior engineers, including planning and logging exploratory boreholes, maintaining records of laboratory test results, producing profiles and cross sections for use in geotechnical modeling programs for bridge and retaining wall calculation packages, and checking calculations.”

Following the connector project,

Wildman said he spent a year “chasing drill rigs,” starting as the lead field engineer/geologist at Eagle Mountain Lake near Azle, Texas.

“There, we were doing an exploratory drilling program, seepage analyses and a geophysical program to assess the hydrologic and structural integrity of the dam and levee system that was constructed to create the nearly 100-year-old lake,” he said.

Afterward, during summer 2010, Wildman was assigned to a job in Washington, D.C., which involved extending the D.C. Metro’s Silver Line, going out to Dulles International Airport. His work included drilling, logging and overseeing drill crews.

“After Dulles, I was sent down to Fort Hood in Killeen, Texas, where, again, it was more drilling, logging and oversight of drilling crews,” Wildman said. His crew provided supplemental engineering services to the constructor Balfour Beatty for foundation design of a new replacement Army hospital, the Carl R. Darnall Army Medical Center.

Unique to this job, Wildman and his crew conducted a load test to assess the bearing capacity of the underlying soil and rock units. Results from this test allowed them to reduce the size of the piles and drilled shafts enough to save the U.S. Army Corps of Engineers and the construction company more than \$7 million, he said.

“The Fort Hood job was my last major task while working out of our Dallas office,” he said. “I saw an opportunity in New York City, where our NYC office was looking for someone with my background and experience level.”

Wildman is working on Phase I of the Second Avenue Subway, a new line that will extend from 96th and Second on

[Ole Miss engineering professors] taught me how to find solutions to problems, convey my thoughts in a logical and tangible manner, and gave me the tools needed to pass the FE (Fundamentals of Engineering) and FG (Fundamentals of Geology). I’m most proud for having graduated certified as both an engineer-in-training and geologist-in-training.”

— Charles “Charlie” Wildman, Parsons Brinckerhoff Inc.



After gaining interest in tunneling and excavation, Wildman began working on Phase I of the Second Avenue Subway in New York City.

the east side of Manhattan to 63rd and Lexington.

“I’ve worked on two contracts for this job, the tunnel-boring machine mining of the east tunnel from 96th to 63rd, and the drill-and-blast excavation and subsequent construction of the 72nd Street station,” he said.

Wildman’s other major job with PB was a month spent in southeast Kansas, where his team had been called in, again by Balfour Beatty, to provide supplemental engineering services. At the Caney River wind farm in Howard, Kan., the constructor was having trouble excavating pits for the foundations of the wind turbines because it had received misleading information in its initial geotechnical report, Wildman said.

“The report cited the rock as being more fractured than it was in actuality, which led the constructor to think the rock could be excavated using standard excavation equipment — backhoes, trackhoes, etc. The rock is hard, meaning that it had to be drilled and blasted before it could be excavated.”

As fate would have it, rocks and tunneling captured Wildman’s attention in 2007, when he was an Ole Miss undergraduate, and led to his unusual combination of credentials at graduation. The genesis of his increased interest in this area of geology came when the geology and geological engineering department offered to pay for junior- and senior-level

students to attend the Association of Environmental and Engineering Geologists’ 50th anniversary meeting in Los Angeles, with the requirement that students volunteer to assist in two four-hour technical sessions.

“One of the sessions for which I volunteered was a tunneling session,” he said. “I was completely infatuated with tunneling and everything presented in the session. I had no idea that that was a route I could take for my degree.”

Upon his return to campus, Wildman asked Joel Kuszmaul if he would teach a rock mechanics course so that he could delve deeper into the theory that he had been introduced to in Los Angeles.

“Dr. Kuszmaul taught the class, and it was easily one of my favorite — if not my favorite — of all the courses I took at Ole Miss,” Wildman said. “Then in 2009, I saw that PB was ranked as ENR’s top tunneling firm, so I perused their job openings. Low and behold, there was an opening in Dallas. I went to their office, asked to speak with the hiring manager for that job and the following day got a call to come interview. I got the job and have been with PB ever since.”

Kuszmaul, chair and associate professor of geology and geological engineering, remembers Wildman as “one of a kind.”

“Charlie’s an extremely bright guy with a positive, upbeat attitude,” Kuszmaul said. “He was also extremely gregarious, extremely popular with his fellow stu-

dents and with faculty. When he was a student in my class and I called on him, he was prepared at any moment to respond to any question or engage in discussion with insight.”

Wildman said he appreciates the respect he received from those over him at PB.

“My bosses from Texas to New York City cite both certifications when I’m introduced to individuals or to rooms of new faces,” he said. “They harp on it and brag on it more than I would ever want to, and I was told by the guy that hired me that I jumped out over other applicants with master’s and even doctoral degrees.”

As his first three years since graduation reflect, Wildman admitted that he has “a really hard time sitting still.” His many interests aside from his work include home brewing, bicycling, playing softball, sailing, swimming, backyard gardening and following sports teams, with his favorites being the Ole Miss Rebels, New Orleans Saints, Texas Rangers and New York Mets.

Wildman’s family includes his mother, Mary Whitten Wildman (BAGE 72) of New Orleans, brothers David “Poopie” Wildman of Montgomery, Ala., Mark Wildman of Alexandria, La., Doug Wildman of Orlando, Fla., and Michael Wildman of Singapore. His father, the late Sam P. Wildman, was also a geologist. ✨

THIRD-GENERATION OLE MISS GRADUATE RECRUITS STUDENTS TO EXXONMOBIL

BY EDWIN SMITH

Perhaps Hunter Howell (BSChE 07) always knew he would one day graduate from the University of Mississippi and become an engineer. Both his father, Steven Kent Howell (BSCE 71, JD 77), and his paternal grandfather, James Braxton Howell Jr. (BSCE 46), earned their degrees from UM's School of Engineering.

Like his family, the third-generation alumnus has done quite well for himself postgraduation. As the cracking and hydroprocessing technical supervisor at the ExxonMobil Baton Rouge Refinery, Howell oversees 14 process engineers in the operations support department. Working with a team to improve the safety, environmental and financial performance of the refinery, Howell also recruits future engineers for ExxonMobil from Ole Miss.



Helping others succeed while solving the world's 21st-century energy challenges is most fulfilling."

— Hunter Howell,
ExxonMobil

"It gives me great satisfaction to know that I'm able to give some of the current generation of students an opportunity to work for the same corporation that gave me the opportunity five years ago," Howell said. "Helping others succeed while solving the world's 21st-century energy challenges is most fulfilling."

Howell is quick to acknowledge the role that the faculty at his alma mater played in preparing him for success in his career.

"The value of engineering education at Ole Miss goes well beyond the books and tests. This program is designed to make you 'think like an engineer,' and the professors are wholeheartedly dedicated to that goal," he said. "The most valuable skills that I've brought into

the workplace have nothing to do with the technical aspects of my degree, how many equations I've memorized or how intelligent I am. The skills that help set me apart from my colleagues are the intangible skills that I was encouraged to practice and hone during my time at Ole Miss — things like problem solving and visualization, asking relevant questions, intentional teamwork, effective goal setting and clear communication."

Without a doubt, the small classes and active engagement by the professors in undergraduate education help explain why the program is so effective at teaching these skills.

"Drs. John O'Haver, Paul Scovazzo and Peter Sukanek were three professors that greatly impacted my engineering education," Howell said. "I have a great respect for their methods of teaching."

"Hunter was one of those students who you enjoy because [he] excelled in the classroom and because [he] became a good friend," said O'Haver, professor of chemical. "Great academic, great personality, great character."

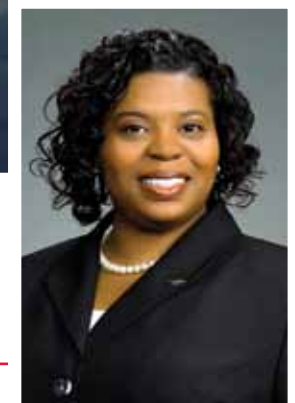
Howell's fast-track ExxonMobil career path began when he became an alkylation process engineer in 2007. After two years

of unit monitoring, optimization, project development and business stewardship, he was promoted to fluid catalytic cracking process engineer in 2009. In 2010, Howell became a fuels economist, where his duties involved refinery run plan optimization, feedstock and product slate evaluations, and profitability and margin analysis.

"This fall, I will be coming to Ole Miss for a third year of recruiting students to come work for ExxonMobil," Howell said. "The first time, I was training under former recruiter and Ole Miss alum David Carroll. Last fall, I recruited by myself. The result was that two chemical engineering juniors were hired as summer interns at the ExxonMobil Baton Rouge complex."

This fall, Howell hopes to continue the trend of recruiting Ole Miss' best and brightest engineering students for full-time positions and internships at ExxonMobil.

When not working, Howell enjoys spending time with his wife, Kelly Denton Howell, and hiking, camping, playing tennis, running and playing the trombone. ✨



ALUMNA TAKES LEAP OF FAITH, LANDS JOB WITH LOCKHEED MARTIN

BY DEBORAH PURNELL

When New Albany native Tamara Crawford headed to Texas in September 2002 with her newly minted Bachelor of Science in Mechanical Engineering from the University of Mississippi, she had \$300 in her pocket and an “eagerness to take any challenge head-on,” she said.

“I moved with no family ... and I had never driven more than three hours alone. But my purpose was to land an engineering position with Lockheed Martin Aeronautics Co. in Fort Worth.”

Did Crawford have a scheduled interview with the company?

“No.”

However, that didn’t stop Crawford, who has wanted to be an engineer since age 13, from setting out to make her dream come true. She stayed with a friend in Texas, and by January 2003, she got her first interview; two months later, she was officially a member of the firm.

Crawford began on the F-35 program working in prognostics and health management. Less than two years later, she was selected as one of three young engineers to participate in the company’s inaugural F-35 mass properties cross-training initiative. Today, Crawford is a senior aeronautical engineer and holds a Master of Science in systems engineer-

ing from Southern Methodist University in University Park, Texas.

“The most fulfilling aspect of my job is that I have the opportunity to see my work come to life. Every task is to ensure the pilot and the aircraft return safely,” she said. “My most recent assignment as lead systems engineer for F-22 production shutdown execution was extremely fulfilling because I was literally doing something that has never been done on such a large scale, plus ensure the task was completed on time and under budget.”

For her work on the F-22 shutdown execution, Crawford was nominated for a Career Achievement Award for the 2012 Women of Color at the Science Technology Engineering Mathematics Conference. In October, she will be inducted into the Pangaea International Honor Society.

Awards and professional accolades, however, are not new to Crawford. In October 2009, she received the Women of Color Technology Rising Star Award and was named Outstanding Young Alumna of the Year at Ole Miss. What’s more, during her matriculation at the university, Crawford was a Ronald E. McNair Postbaccalaureate Achievement Program scholar and a member of Who’s Who Among Students in Ameri-

can Universities and Colleges.

“Tamara has a keen awareness of her remarkable place in the industry,” said Alexander Cheng, dean of the engineering school. “Plus, aside from her professional focus, she is a well-rounded and intelligent leader who takes time to motivate other young people interested in engineering.”

Bill Parsons, former vice president for space exploration at Lockheed-Martin before he became president and CEO of RD Amross LLC, agreed and said, “Tamara is willing to take the necessary risks and to sacrifice to accomplish what she wants. She is a person with an extraordinary talent and a tremendous heart.”

Both Cheng and Parsons said Crawford is primed for leadership.

“Although I do see myself in a leadership position in the future, I am learning to pursue excellence rather than pursue a position,” Crawford said. “I’ve had unlikely opportunities presented to me that I may not have been open to consider if I was focused exclusively on a specific position.”

When not working, Crawford shares her time mentoring girls ages 8-18 at Friendship-West Baptist Church in Dallas. ✨



MECHANICAL ENGINEERING GRADUATE GOES GLOBAL WITH OIL COMPANIES

BY EDWIN SMITH

Even better than seeing the world is changing it for the better, and Samuel F. “Sam” Alexander (BSME 00) is getting to do both.

Alexander is responsible for materials management, including warehousing and distribution, for Chevron’s Nigerian operations. He has around 170 Nigerian nationals who report to him. Together, the team’s work supports thousands more, not including the hundreds of others with whom it does business as suppliers and service providers to Chevron Nigeria Ltd.

“The most fulfilling aspect of my current role is the cultural integration,” Alexander said. “I have been very fortunate to travel often and learn of the different cultures in many countries. However, the opportunity to live (part-time) and work in a single nation requires a complete immersion into the socioeconomic system.”

Alexander said his proudest career achievement so far happened during his time with ExxonMobil’s Sakhalin I project on Sakhalin Island in Russia.

“My role seemed small, but it was important and directly impacted the

company’s ability to complete and then operate the oil production facilities,” he said.

His task was to ensure readiness of operations by identifying, buying, shipping and warehousing all the spare parts and standby or backup equipment.

“This was exceedingly unique because it was a new location as well as an extremely harsh Siberian climate,” Alexander said. “I logged many miles across the globe, became practically family with some hotel owners and operators, and endured many sleepless nights. However, I really enjoyed my job and had the satisfaction of watching my responsibilities grow as my success continued.”

By the end of the project, Alexander’s team was on time and under budget.

“After moving thousands of items and spending millions of dollars, our variances were less than \$100 total,” he said. “The best part was I met my soon-to-be wife while working at one of our engineering companies in Houston.”

Prior to his present position, Alexander was a sourcing specialist for ExxonMobil Global Services Co., where he

was responsible for managing the purchase, production and delivery of line pipe for ExxonMobil’s global development projects. He was promoted to materials and logistics adviser and assigned to projects where he was responsible for managing/overseeing all materials and logistics activities, which included identifying, pricing/purchasing, shipping and storing projects-related materials.

“I developed, implemented and managed the spare-parts program for ExxonMobil to ensure seamless transition from development to readiness of operations,” Alexander said.

Later, as rotating-equipment engineer, he engaged in multiple projects to ensure the design and fabrication of rotating equipment (turbines, compressors, etc.) were within design and performance specifications. Alexander then became a procurement-operations adviser for Chevron Corp., a role in which he served as global adviser to multiple international business units, providing guidance and direction for all purchasing and materials-related activities.

“I would routinely conduct audits and assessments of performance for Chevron’s global supply-chain management operational activities,” Alexander said. “I also advised in the development of new-venture operations, building complete supply-chain management programs (facilities, processes, people, etc.) from the ground up.”

Alexander is quick to acknowledge the role Ole Miss engineering professors and courses had in his career development.

The most fulfilling aspect of my current role is the cultural integration. I have been very fortunate to travel often and learn of the different cultures in many countries. However, the opportunity to live (part-time) and work in a single nation requires a complete immersion into the socioeconomic system.”

— Samuel F. “Sam” Alexander, Chevron



“The most important aspect of my education at Ole Miss that prepared me for my career was the one-on-one interaction,” Alexander said. “I chose Ole Miss because of the size of the School of Engineering, and I made the right decision. Students were never a number or a face in a seat. We were all part of the family, and we worked with our professors to prepare us for the road ahead.”

The school’s emphasis on students’ reporting and presenting their work and projects paid tremendous dividends, Alexander said.

“I was always a step ahead of my peers by having the ability to communicate my work and ideas,” he said.

Alexander said his first leisure-time priority is to spoil his wife, Cheli, with whom he recently celebrated their sixth anniversary.

“After that I am a sports fanatic,” he said. “Whether I’m watching the Rebels or another team or playing when I can, I have always enjoyed sports. I also enjoy cooking, so while I am watching sports, I am typically trying to invent something in the kitchen.”

Alexander said he is looking forward to continued career success.

“I enjoy working with Chevron,” he said. “I have had many great experiences here, as I did with ExxonMobil as well. I enjoy traveling and working internationally and hope to parlay my diverse assignments in job function and location into a management-level career with Chevron.

“In a company as large as Chevron, the ‘manager’ label is a good advancement; progressing to higher management is great. I feel I have the ideas and experience to add true value to Chevron long-term and leave a legacy of influence with those who work under me along my way,” Alexander said. ✨







ENGINEERS *of the* NEW MILLENNIUM

TODAY'S GRADUATES USE DIVERSE SKILLS
TO SUCCEED IN A GLOBAL MARKETPLACE

BY TOM SPEED

A generation ago, many engineering students were pigeonholed as belonging to a specific breed. You know the stereotype – predominately male, intensely focused, introverted nerds sporting pocket protectors and slide rules. Today's engineering students at the University of Mississippi are shedding that stereotype big-time.



Never mind that they grew up in a digitally native environment where computers were the norm, not the exception, and they likely don't even know what a slide rule is.

The engineers of the new millennium are more well-rounded than ever before. They are more technologically proficient than their predecessors. They possess better, more developed communication skills than those who studied before them even a decade ago. Instead of immersing themselves completely in their engineering work, they are seeking a wide array of additional studies to complement their education, even while tackling increasingly complex engineering course work.



Markeeva Morgan (left) at NASA's Marshall Space Flight Center.

These days, it's common for engineering graduates to have minors in economics or foreign languages, or to compete as student athletes. They are leaders in their extracurricular campus organizations, and many supplement their classroom instruction with internships or humanitarian service projects that give them real-world experience that was rare a generation earlier.

These millennial students complete their education armed with a broad skill set, prepared to enter the competitive and increasingly global job market with more tools at their disposal. That's been driven by the needs of would-be employers who expect their new recruits to be technically competent while also being adept at so-called "soft skills" such as the ability to effectively communicate to a wide range of constituents, to

work in a team, handle time-management issues and be able to confidently speak in public.

But it also represents a shift in values for today's students, many of whom were born in the waning years of the 20th century. At the forefront of the new generation's motivation is a desire not just to land a lifelong career with a single firm and a gold watch at the finish line. More and more, students cite the drive to contribute to society as a motivating factor and career goal. Jonathan Jones (BSChE 11), for example, helped found the Ole Miss chapter of Engineers Without Borders while carrying a full course load at UM.

"I've always valued critical thinking and creativity as a way to impact economic and societal changes," said Jones, who also served as the organization's president during his senior year.

The challenging academic world of the School of Engineering has not been diminished over the years. But how students apply and complement that training is changing in subtle yet dynamic ways.

HANDS-ON

International companies dot the landscape of the annual Engineering Career Fair. Students who have a bilingual background may have the upper hand when it comes to landing sought-after jobs. Study abroad programs are becoming more common among the millennial set, too. Students who embrace these opportunities are more likely to sign on with international firms, broad-reaching governmental agencies and even land jobs overseas.

Samuel F. Alexander (BSME 00), profiled on page 10, is the materials superintendent of the Nigeria Mid-Africa business unit of Chevron.

"The most fulfilling aspect of my current role is the cultural integration," Alexander said. "I have been very fortunate to travel often and learn of the different cultures in many countries. However, the opportunity to live (part-time) and work in a single nation requires a complete immersion into the socio-economic system."

Markeeva Morgan (BSEE 01), profiled on page 24, has served in both the U.S. Navy and in NASA's Marshall Space Flight Center. As Space Launch System program lead for core stage avionics hardware, he is responsible for ensuring that the primary integrated avionics system hardware is developed, qualified and delivered on time and under budget and will adequately control the United States' new, largest ever launch



Ole Miss School of Engineering graduates can be found using their expertise in a variety of altruistic endeavors, such as Engineers Without Borders, Feed the Hunger and Habitat for Humanity.

vehicle. SLS is NASA's new flagship launch vehicle being designed to carry humans beyond low Earth orbit to destinations such as near-Earth asteroids and Mars.

"Studying engineering in a liberal arts environment has been invaluable to me and my career," Morgan said. "Understanding how to treat issues with an engineer's rigor while approaching communication with the emotional intelligence of one with a more rounded education has proved tangibly beneficial. Having had frequent opportunities to interact with my professors and other university leadership instilled in me a quiet confidence, enabling me to interact with persons in leadership positions with respectful boldness."

These alumni are making their mark on a global scale. But even here at home, foreign-language skills are providing a competitive advantage.

"All things being equal, if someone has bilingual skills, especially Spanish, that will be helpful to us," said Vicki Crockett, manager of talent acquisition and university relations & recruiting for Huntington Ingalls Industries. "We have a lot of Spanish-speaking employees and contract laborers."

There are several things we look for. Leadership skills, working in a team and being able to communicate effectively are very important here."

**— Vicki Crockett,
Huntington Ingalls Industries**

It can be hard enough to explain intricate mechanical instructions on the fly, but even harder when there's a language barrier, she said.

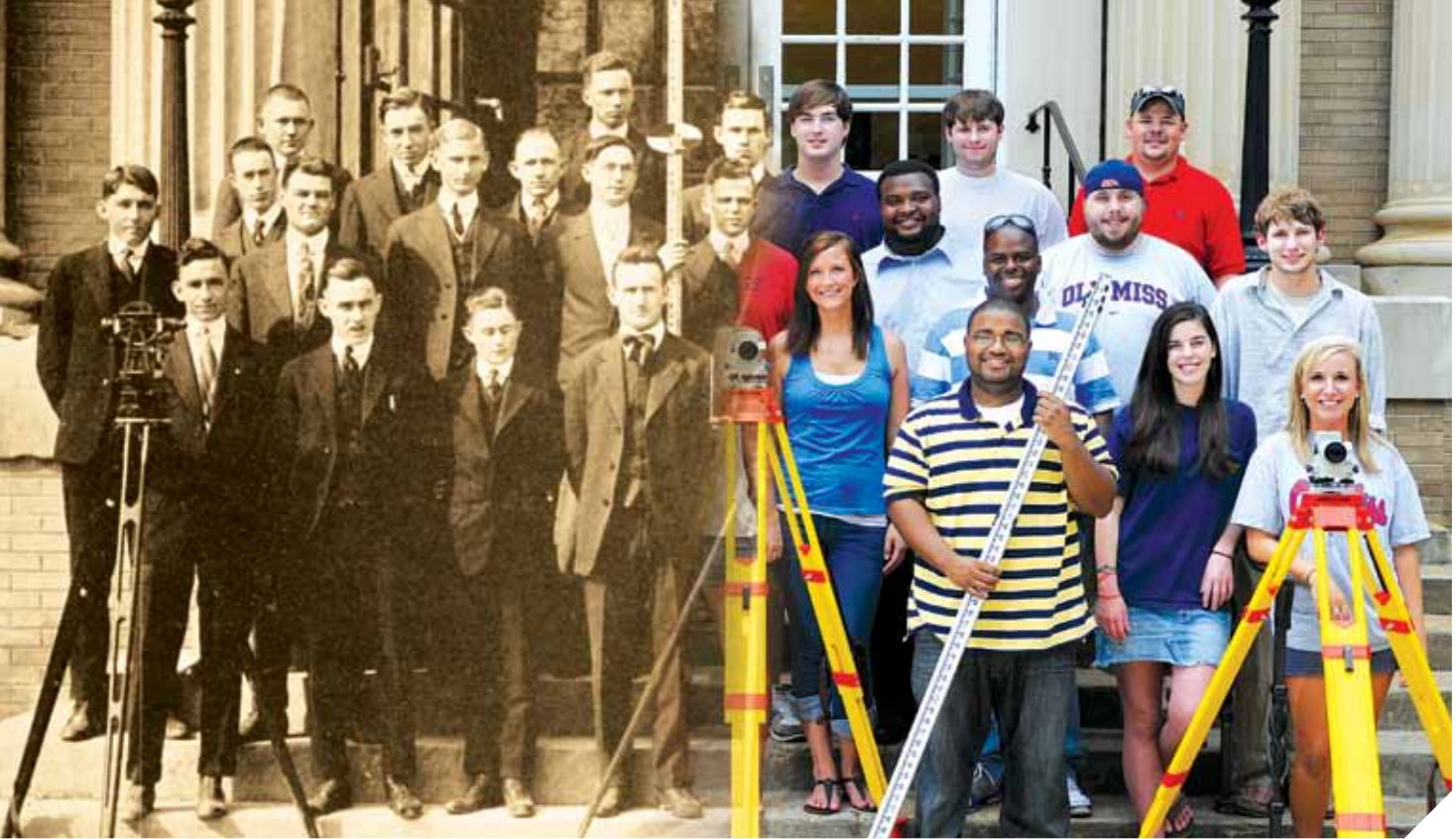
Ingalls, like many would-be employers, also places considerable emphasis on real-world experience, and many students have more opportunities to gain that experience before graduation through internships and co-ops.

"There are several things we look for," Crockett said. "Leadership skills, working in a team and being able to communicate effectively are very important here. I've been in staffing since 1982, and I've seen a real change in the students we're getting now. The engineering students are graduating with many more skills than we have seen in the past."

Anna Kathryn Hailey (BSCHE 11) took it even a step further, earning a triple major that also included Mandarin Chinese and chemistry. The Muscle Shoals, Ala., native was the university's first exchange student with the Institute for Thermal Power Engineering at Zhejiang University in Hangzhou, China, where she joined Chinese researchers on a project exploring carbon storage and sequestration methods.

Another major employer of Ole Miss engineering graduates is Borg Warner, the automotive manufacturing company that operates a plant in Water Valley. Stephen Edge (BSEE 00), profiled on page 22, started in the Water Valley facility and moved on to become a quality manager for Borg Warner in Asheville, N.C.

"Ole Miss engineering, especially electrical engineering, is about developing a toolbox," Edge said. "Not just a technical toolbox, but learning about teamwork, arts and humanities-related learning experiences. Dr. Charles Smith was the chair



during my undergraduate studies and was a major influence on me as a student and postgraduation as we stayed in touch. He encouraged me to be a student leader and to be involved as an alumnus.”

SOFT SKILLS

Indeed, many employers place an emphasis on extracurricular activities and interpersonal skills. They already expect excellence in academics. What sets students apart these days can be as much about what they do outside the classroom as what they do in it.

Christina Bonnington (BSEE 10) of Houston, Texas, pursued a career in professional ballet and held trainee positions with the Pittsburgh Ballet Theatre and Ballet Memphis before deciding to become an engineer. Many of the things she learned while honing her dance skills define good engineers.

“Determination, perseverance, qualities I learned through ballet, are key,” she said. “Faced with problems that constantly need to be solved in new, more efficient, more advanced ways, one cannot give up.”

Others, including Scott Haltom (BSME 10) and Wesley Phillips (BSCE 11), also faced the demands of playing intercollegiate sports while carrying full academic loads in the School of Engineering. Both earned Taylor Medals, the university’s highest academic honor, and graduated summa cum laude. Ridgeland native Haltom was a catcher for the baseball Rebels, and Phillips, of Madison, was a long snapper for the Ole Miss football team.

Those outside activities show a level of ambition that usually translates well to the work environment, said Dallas Baker (BSME 93, MS 97), an environmental engineer in the Mississippi Department of Environmental Quality’s Environmental Permits Division, who consistently populates the agency’s workforce with Ole Miss engineering students.

“[We] require our engineers to possess a high degree of

emotional maturity and strong interpersonal skills to be successful in applying environmental regulation and technical understanding to the balanced mission we have,” Baker said.

Those interpersonal skills are displayed by a student’s involvement with academic and even social organizations. It shows initiative, it shows commitment, and it shows leadership.

“[Employers] want students who have those skills outside the classroom,” said Jonathan Harrington, associate director of employer services at the Ole Miss Career Center. “What Ole Miss students might not get in the classroom, they make up for in social skills because they are involved in so many activities. They have plenty of opportunities to step out, take a leadership role and be active in community activities with their fraternity or other organizations within the school.”

Students’ development of interpersonal skills does not come solely from belonging to outside organizations, however. Ole Miss students have long enjoyed an advantage over peers from other schools because of the university’s liberal arts foundation.

“Balancing the demands of an engineering curriculum with the pull of a ‘liberal arts college life’ was excellent preparation for balancing the demands of the workplace,” NASA’s Morgan said.

Increasingly, the curriculum within the School of Engineering seeks to cultivate those broad-based skills. Team projects have become a hallmark of course work for engineering seniors, and Baker said that shows a level of competency that translates well to the workforce.

“Working together as a team to accomplish something — not only the written report but the project itself and even the team presentation, being able to stand up in front of your peers and professors and make a coherent presentation, that goes a long way,” he said.

In many ways, honed communication skills are a hallmark of the millennial generation. Millennials have, after all, grown up in the age of instant communication, replete with email, text messaging and social media platforms.



Daniel Huber uses his engineering knowledge as a contract pilot for an Alabama law firm and as a Flight Express commercial pilot.

MAKING THEIR MARK

One by-product of today's well-rounded engineering students is that graduates seek careers in sometimes surprising areas. Engineering graduates are leaders in the fields of law, medicine and national security. Sometimes, they apply their skills in somewhat unlikely places.

Daniel Huber (BE 08), with a full set of business courses to complement his degree, uses his knowledge of engineering as a contract pilot for a Mobile, Ala., law firm while also serving as a commercial pilot for Flight Express. As an undergraduate, and for a while after graduation, he also operated a flight school, using his business and engineering skills to become a successful entrepreneur.

Many employers place an emphasis on extracurricular activities and interpersonal skills. They already expect excellence in academics. What sets students apart these days can be as much about what they do outside the classroom as what they do in it.

Dr. James A. "Jimbo" Moss (BE 06, MD 10) of Jackson, profiled on page 28, is an orthopedic surgery resident at the University of Mississippi Medical Center.

"Without an engineering and physics background, it can be very difficult to understand a lot of the basics of orthopedics," he said. "However, after receiving my engineering degree, most of this part of orthopedics comes very naturally to me."

Rebecca Werner (BSCE 11) is using her engineering skills to help undeveloped communities around the world, a purpose-driven goal that is a hallmark of millennial engineers. Werner is pursuing a master's degree in environmental engineering, a course that was sparked by study abroad opportunities at Ole Miss. She had already spent spring 2008 in a study abroad program in Scotland (an experience she called "eye-opening"), when she joined an Ole Miss service-learning group on a trip to Belize. There, in the town of San Mateo, she saw in the dismal conditions of the water system an opportunity to help.

"That really hit home for me," she said. "That was probably the motivation to develop my skills. I realized that this skill set that's being built here at Ole Miss could be used to help people in undeveloped areas."



Werner also has worked with other groups, such as Living Waters for the World, where she can apply water-purification skills learned in the classroom to help others.

"My long-term goal is to be able to do missions and build water wells, to live in a community and help teach different skill sets that some of our engineering classes have taught us."

Other students participate in similar efforts, such as a recent trip to Africa as part of the Engineers Without Borders group, Habitat for Humanity and Feed the Hunger. These types of service-oriented careers can provide millennial students with career fulfillment as well as an important outlet while they are still in school, Jones said.

"Find an organization on campus you feel passionate about," he said. "Pour your heart into it. For me, that is Engineers Without Borders."

For Leo A. "Xan" Cutcliff III (BSCE 01) and his wife, Amber Miller Cutcliff (BSCE 01), profiled on page 18, that passion includes both mission work and mentoring young people. Immediately after graduation, they served as interns in India, Belize and Uganda with Engineering Ministries International, a nonprofit organization that provides free engineering and architectural-design services to missionaries in third-world countries. And although they have settled into successful careers with Neel Schaffer Inc., in Jackson, they continue to work with young people in their community and church.

"Engineering is not just a job; it is both a privilege and an obligation," Amber Cutcliff said. "We have a tremendous responsibility placed on our shoulders that should never be taken lightly."

Werner agreed. "There are a lot more students who are seeing that they can make a difference and see the power of [the] community bringing people together to set a goal and achieve it," she said. "Knowing that there is purpose and that it can bring good to others is inspiring."

Whether it's developing their toolbox by honing technical skills through humanitarian service, enhancing communication, leadership and language skills, or striking out in unexpected applications of their education, millennial engineering graduates are redefining the possibilities for engineering graduates. And as they blaze their own trails, they're shattering the old stereotypes and changing perceptions of the profession. ✨



HUSBAND AND WIFE ENGINEERING ALUMNI BUILD STRONG FOUNDATIONS FOR THE FUTURE

BY EDWIN SMITH

Good engineers know a lot about building strong foundations. And for Leo A. “Xan” Cutcliff III (BSCE 01) and his wife, Amber Miller Cutcliff (BSCE 01), that attention to good foundations extends past their professional practice into virtually all areas of their lives.

Both the Cutcliffs have enjoyed success as professional engineers, helping clients complete transportation-related projects throughout the Southeast. Away from work, they also have mentored dozens of young people and volunteered for mission projects in third-world countries.

Over the past decade, the couple has worked in the Jackson office of the engineering firm Neel-Schaffer Inc. Xan has been with the structural department, where his main role is designing bridges, primarily on projects contracted by the Mississippi Department of Transportation. Amber started in the aviation department, assisting in the design and rehabilitation of airport facilities throughout Mississippi, Alabama and Texas. Since 2007, she has worked in the transportation department and

helped design a roundabout to integrate Hathorn Road and Intramural Drive on the Ole Miss campus.

“Many of the projects Neel-Schaffer has had the fortune to be involved with over the last several years have been very exciting and high-profile,” Xan said. “The most fulfilling thing about my job is being involved with interesting and challenging projects while working for a company that is both client- and employee-centered.”

He acknowledged company co-founders Hibbett Neel and Gorman Schaffer (BSCE 62, MS 69) as having instilled in their employees the importance of building a strong foundation with clients.

“As an engineer, my ultimate goal is to be able to look back at my career and feel satisfied,” Xan said. “I would like to be able to look back at the projects I have worked on and be proud that they have served the public well, safely, and that they will meet the needs of our community long-term. I would also like to look back at the people I have worked with and feel that I have had a positive influence on them

both personally and professionally.”

The couple met as Ole Miss undergraduates in the civil engineering department.

“We both realized, as graduation approached, that we were incredibly blessed to have the opportunity to get an education in such a promising field, and we wanted to come out of the starting gate using that blessing to help others,” Amber said.

Immediately after graduation, both Cutcliffs served as interns with Engineering Ministries International, a Colorado Springs-headquartered, non-profit organization that provides free engineering and architectural design services to missionaries in third-world countries. Xan spent much of his time in EMI’s India office before participating in a project trip to Punta Gorda, Belize, to provide design services for a school and dormitory for Toledo Christian Academy. Amber helped design a meeting facility for the African Children’s Mission in Uganda.

The Cutcliffs credit the significant role their engineering professors, courses and overall Ole Miss experience



As an engineer, my ultimate goal is to be able to look back at my career and feel satisfied."

— Leo A. "Xan" Cutcliff,
Neel-Schaffer Inc.

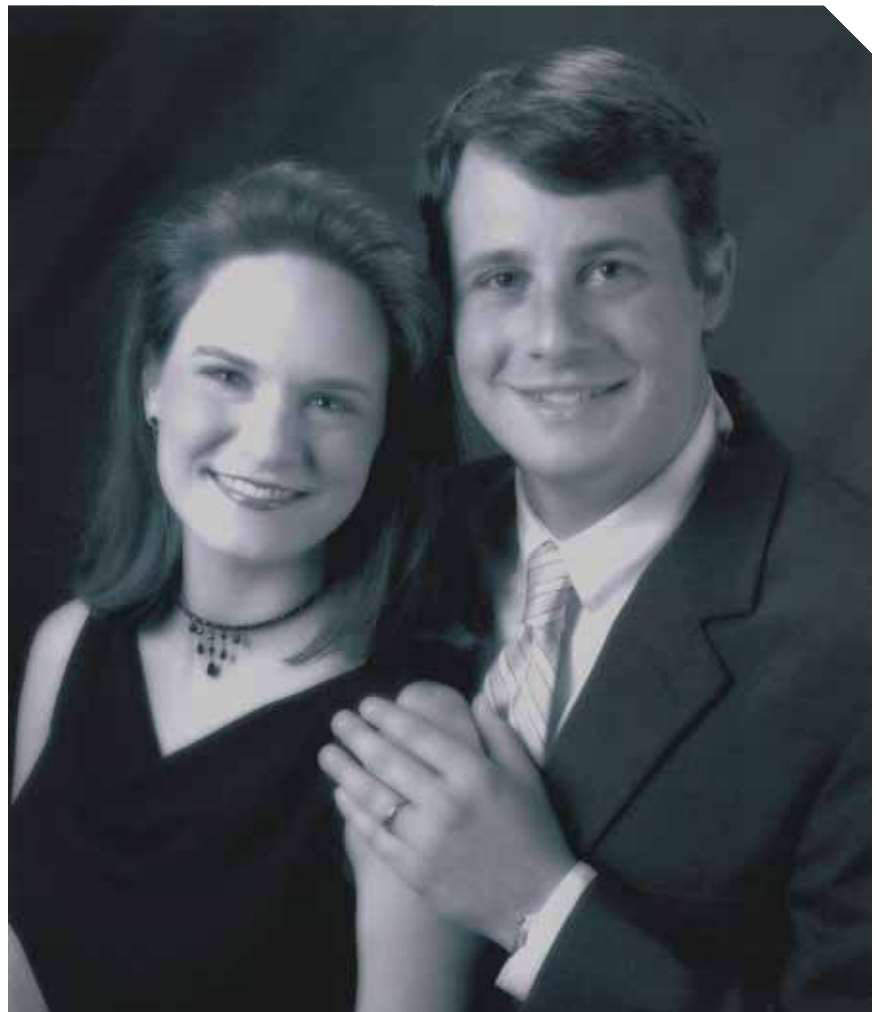
played in developing the foundations they needed to succeed in life. Xan said what he learned in engineering school wasn't exclusively in the textbooks but in learning to think, solve problems and overcome challenges.

"It is this foundation that is built at Ole Miss and, specifically, in the School of Engineering," he said.

"We also developed friendships with our professors and classmates that we maintain still," Amber said. "I think that is what sets the Ole Miss engineering school apart from larger schools is that closeness and personal interaction you have."

Both Xan and Amber have taught Sunday school and discipleship classes in their church youth group for several years. They continue to feel drawn to helping young people get a good start in their personal, spiritual and professional lives.

"I became active with the American Society of Civil Engineers while in school at Ole Miss and remained active as I entered the professional world,"



Amber said. "While serving as the Younger Member chairperson, I spoke with students of all ages, and it was always surprising to me how little they knew or understood about the field of engineering and the important role it plays in our society. Engineering is not just a job; it is both a privilege and an obligation. We have a tremendous responsibility placed on our shoulders that should never be taken lightly," she said.

Xan advises undergraduate students to take a long-term view of their education.

"As undergraduate students, we often look at short-term goals — finishing the next assignment, passing an exam and ultimately graduating," he said. "What they should do is consider their time in undergraduate school as an opportunity to build a strong foundation that will help them in pursuing a lifetime goal of learning in their chosen profession." ✨

Marni Kendricks, School of Engineering assistant dean for undergraduate academics, contributed to this article.

ENTREPRENEUR CARVING HIS NICHE IN COMPUTER AND INFORMATION SYSTEMS

BY EDWIN SMITH

Nilesh Dosooye (BSCS 00, MS 01) has come a long way from his homeland in Mauritius (a small island in the Indian Ocean). After earning his degrees in computer and information science from the University of Mississippi, he has made strategic career moves that have led to his current position as a software architect in a social advertising startup.

“We are a very small startup, with only three engineers and four businesspersons,” Dosooye said. “The small size of the team makes it very agile and each of us very accountable for any decisions we make. We move quickly and innovate and pivot the business rapidly to fulfill the advertiser’s and market’s needs.”

Dosooye’s ultimate career goal is to come up with that “million-dollar” tech startup idea and build it, but if that doesn’t work out, he will continue perfecting his software architecture and engineering skills while building more great software.

“The Ole Miss computer science department taught me all the good basics of quality software engineering and how to think logically and solve tough problems,” he said. “Many of the courses I took at Ole Miss have been the basis of several of the software design patterns and algorithms used in solving challenges in my field of work.”

He especially remembers UM professors Dawn Wilkins and Tobin Maginnis as having been helpful in all areas of his studies and helping him get his first job about six months after graduation.

“My first job after graduation was at the St. Jude Children’s Research Hospital in Memphis,” Dosooye said. “I was a software engineer in the Hartwell

Center for Bioinformatics, where I assisted scientists in building software to help them in their research. Dr. Wilkins had good connections at St. Jude, and she helped me get a referral for an interview there.”

“I knew Nilesh would be successful when I realized how enthusiastically he worked on projects beyond just his course work. It didn’t take long before he was the resident expert in building clean, very functional websites,” Wilkins said. “When he graduated, he had an extensive portfolio to demonstrate his skills to potential employers. Even with a full-time job, Nilesh continued to do work on the side. And, as they say, he got bit by the entrepreneur-

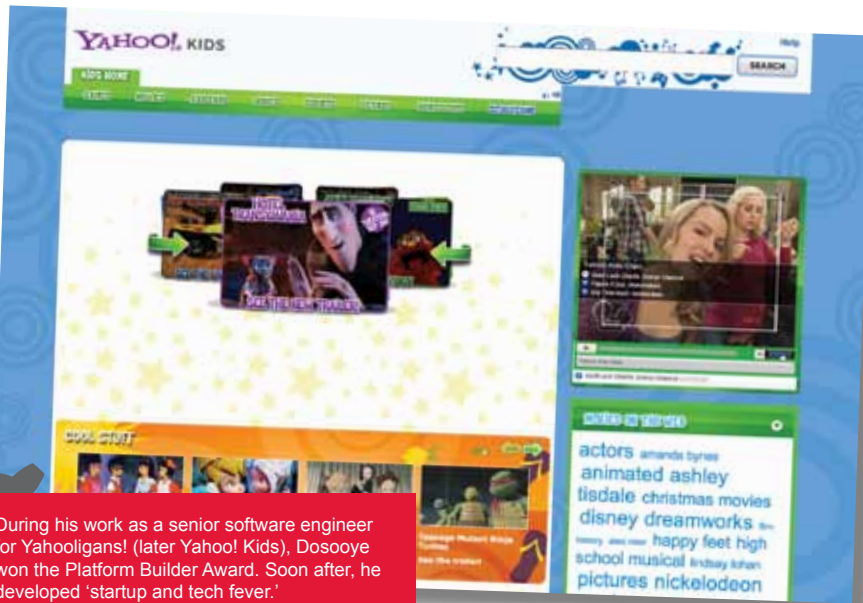
ial bug. Nilesh is a true success story.”

After St. Jude, Dosooye was hired by Yahoo! in Sunnyvale, Calif., as a senior software engineer for the Yahoo! Education and Yahoo!igans! (Yahoo! Kids) sites.

“I was among the two engineers that had full responsibility for all aspects of these two websites,” he said. “I worked there for a year and then got transferred to the platforms team, where I was part of a small team that built a global platform for user-generated content to be used by all of Yahoo! Properties, including Yahoo! News, Yahoo! Sports, Yahoo! Finance, etc.”

While on that team, Dosooye won the Platform Builder Award. Living in





During his work as a senior software engineer for Yahoo! Kids (later Yahoo! Kids), Dosooye won the Platform Builder Award. Soon after, he developed 'startup and tech fever.'



Silicon Valley, he soon gained “startup and tech fever.” Together with a colleague, Dosooye quit his job at Yahoo! to create his own startup called Thingfo.

“We wanted to build an ad hoc, location/context-based social network, the precursor to location-based networks such as foursquare.com or Facebook check-ins, but unfortunately it did not work out as we wished. We reinvented the business a bit and made some deals with Fox.com that used our platform to build applications used in conjunction with some of its national TV shows. After that, I took a break and [left] for a backpacking trip through Southeast Asia for a few months. I worked intermittently for Thingfo while I was traveling.”

After returning to California, Dosooye took a job as employee No. 3 with an early-stage startup, PeerPong.com.

“We were trying to build a platform where users would ask questions on the Web, and we’d try to find the right person to answer their questions based on profiling public information about people that we could find on the Web,” he said. “I received a patent for the technology and intellectual property we developed there. The company later got sold to FormSpring.com.”

After PeerPong, Dosooye decided to do some freelancing and travel some more. He sold all his stuff and went backpacking in South America.

“I started my journey in Colombia. Seven months and 12 countries later,

I was back in San Francisco. While I was traveling, I was still working for some clients in the U.S. doing freelance work,” Dosooye said. “It was perfect, being able to travel and see the world and still be able to work remotely to pay for the expenses while traveling.”

Back in San Francisco, Dosooye decided to work on another startup of his own called SocialDine. His goal was to disrupt the food consumption market by building a peer-to-peer marketplace for local home-cooked food, in the same way that Airbnb.com disrupted the hotel industry by creating a peer-to-peer apartment rental marketplace, but the market was not yet ready for it.

“I formed a team and worked on the SocialDine proof-of-concept prototype, and we validated the market was not ready. I then went into the mobile market and built a few iPhone applications (such as KivaLender and Speak Mauritian), which are in the Apple app store. After that, I decided to get back in the regular job market and just recently started a job at a stealth mode social advertising startup,” Dosooye said. “Every job and every achievement has been great, and I am proud of each. It’s like comparing apples and oranges to say which one I am most proud of.

“At St. Jude, I was very proud that I was doing significant work that helped the terminally ill. At Yahoo!, I was very proud that my work could reach millions of people throughout the world

on a daily basis. The feeling to be able to touch so many people’s daily lives is priceless. For my startups, I was very proud of the creative act, of being on the cutting edge and building new things the world had not yet seen,” Dosooye said.

In his spare time, Dosooye enjoys cooking and eating as well as traveling.

“I try to intermingle these with work as much as I can.”

Living in the San Francisco area, he also has fallen in love with the outdoors, camping and skiing.

“In winter, I ski every other weekend. In the summer, it’s hiking and camping in all the beautiful parks and outdoors of the Bay Area,” he said. 🌟

BROTHERS WORK TO KEEP ELECTRICAL ENGINEERING 'EDGE'

BY EDWIN SMITH

David L. Edge (BSEE 99) and his brother, Stephen Edge (BSEE 00), have maintained razor-sharp proficiency in their respective careers since graduating from the UM School of Engineering.

Stephen is a quality manager for BorgWarner, Turbo Systems in Asheville, N.C. David is a radio frequency applications engineer at Trilogy Communications in Pearl.

"I was given the opportunity to be quality manager of the facility where I was working in 2006," Stephen said. "Previously, I had been a technical manager, focused on engineering-related concerns. This allowed me to be a part of the management staff at a manufacturing facility, making not only technical recommendations and decisions but recommendations and decisions related to the long-term future of our products, processes and people."

David said he interfaces with wireless operators, such as AT&T and Verizon, to recommend products for their networks. His most memorable achievement so far has been the Beijing Metro Communications System in preparation for the 2008 Olympics. He also is a residential real estate entrepreneur in the Jackson metro area.

Both Edge brothers said that Ole Miss engineering was the foundation for their career paths.

"Ole Miss engineering, especially electrical engineering, is about developing a toolbox," said Stephen, who has served as a chair and member of the UM engineering advisory board since 2006. "Not just a technical toolbox, but learning about teamwork, arts and humanities-related learning experiences. Dr. Charles Smith was the chair during my undergraduate studies and was a major influence on me as a student and postgraduation as we stayed in touch. He encouraged me to be a student leader and to be involved as an alumnus."


"What Ole Miss did was give me a well-rounded background in analytical thinking and management," David said. "Dr. Charles Smith (former chair and professor of electrical engineering) was a great man. He was able to bridge the gap between the theoretical and real-world applications and make it very understandable to the students."

Stephen said his ultimate career goal is to move into a manufacturing management role and ultimately take charge of the management of one or more facilities and/or products. David said his ultimate goal is to own his own small business with some connection to engineering.

"I want to manage a team that provides the most effective customer solutions through the implementation of latest technology," Stephen said.

Before moving to Asheville, Stephen worked in Borg Warner's Water Valley plant. He held positions of increasing responsibility there including senior test manager, test development and validation manager, facilities engineering manager and quality manager.

David's previous work experiences include serving as RF systems program manager at Diversified Technology Inc.;



What [UM] did was give me a well-rounded background in analytical thinking and management."

— David Edge

RF systems engineer, project manager and RF engineer for AT&T Mobility; and plant and instrumentation engineer for Mississippi Chemical Corp. He is a member of both the UM engineering advisory board and the Benton Academy board of directors.

Outside of work, Stephen and his wife, the former Sarah Davis, are avid hikers who take every opportunity to get outdoors. The Edges also love to travel, both in the United States and abroad. They remain avid Ole Miss football fans and try to attend two or three games a year even though they live so far from Oxford.

David and his wife, the former Heather Wade, have a family of four: sons Owen and Noah and daughters Lily and Abigail. The family lives on a farm where they grow crops and trees.

"I enjoy hunting when I can," David said. ⚙️



Stephen Edge

GRAD RESEARCHES ENERGY SOLUTIONS IN PH.D. PROGRAM AT PRINCETON

BY EDWIN SMITH

University of Mississippi alumna Anna Kathryn Hailey, who graduated in 2011 with a B.S. in Chemical Engineering, B.A. in chemistry and B.A. in Chinese, has been busy finding new ways to produce lightweight, flexible electronics to help solve the energy crisis.

“I am researching methods for controlling crystallization of solution-processable small molecules for use in organic photovoltaics,” said Hailey, who is pursuing a Ph.D. in chemical and biological engineering at Princeton University. “The opportunity to contribute to solving the world’s energy crisis through production of cheap, lightweight and flexible electronic materials is very exciting and fulfilling to me.”

A National Science Foundation Graduate Research fellow, Hailey said she is honored at this display of confidence in her abilities and the promise of her future achievements. The pres-

tigious and generous award will fund three years of her graduate studies.

“Ultimately, I would like to work as a researcher in industry or in a national laboratory,” she added.

Hailey attributes much of her success to the education she received in the UM School of Engineering.



courses such as thermodynamics, kinetics, fluids, transport phenomena, mathematics and materials science, since I have drawn upon these subjects heavily in my first-year graduate courses and in my research. I also appreciate the mentoring of Dr. John O’Haver, who was a great resource to me as I was applying to graduate school and trying to figure out my future.”

“Anna has distinguished herself from other students in academic performance, research accomplishment, community and professional services, vision and personality,” said Chen, professor of chemical engineering and Hailey’s primary mentor and research supervisor.

Hailey has a drive to learn, understand and expand her personal boundaries, said O’Haver, associate dean and professor of chemical engineering.

“She has a very solid global perspective, which she will bring to all of her activities and make her the ideal scientist-engineer-researcher for the future,” he said.

School of Engineering Dean Alex Cheng said, “Anna characterizes our new generation of students, who are highly ambitious, versatile and capable. Anna and many of our students set their academic goals high, pursue broad educational experiences and are dedicated to service.

“With the school’s traditional close faculty-student relationship and strong mentorship, we are pleased that these students can accomplish their goals, which are as high as anyone can set. We are also pleased that the school continues to attract and nurture students of Anna’s caliber, such as Nikki Reine mann, who became the school’s second Goldwater Scholar in three years.”

Outside of work, Hailey enjoys traveling, going to the beach and spending time with friends and family. ✨

The opportunity to contribute to solving the world’s energy crisis through production of cheap, lightweight and flexible electronic materials is very exciting and fulfilling to me.”

— Anna Kathryn Hailey



“My engineering adviser, Dr. Wei-Yin Chen, prepared me for research by allowing me to join his lab early in my undergraduate career and always encouraging me to seek interesting and challenging opportunities, such as research internships abroad and the Barry M. Goldwater Scholarship,” she said. (Hailey was named a Goldwater scholar in 2010.)

“I believe experiences like this paved the way for me to come to Princeton and be awarded the NSF fellowship. I am thankful for the preparation I had in

NASA PROGRAM LEADER CONTINUES ASCENT

BY EDWIN SMITH

Whether maintaining national security on the high seas or eyeing a vision toward traveling to the heavens, Markeeva A. Morgan (BSEE 01) always rises to the occasion.

Currently, he is the program lead for core stage avionics hardware for the Space Launch System, which is NASA's new flagship launch vehicle being designed to carry humans beyond low Earth orbit to destinations such as near-Earth asteroids and Mars. As program leader, Morgan is responsible for ensuring that the primary integrated avionics system hardware is developed, qualified and delivered on time and under budget and will adequately control the United States' new, largest ever launch vehicle.

Since his graduation from the University of Mississippi, the Strayhorn native has served in both the U.S. Navy and in NASA's Marshall Space Flight Center. His stellar career is filled with promotions and awards recognizing his excellence as an innovator and a leader. With a master's in engineering management from the Catholic University of America, Morgan has remained grounded even as his positions have taken him and those working with him to new heights.

"I've had several occasions when individuals who were previously considered nonperformers were transferred to my team. With care and individualized leadership, each of their performance

levels dramatically increased," said Morgan. "They all remain more fulfilled in their careers, are making significantly greater professional contributions, are enjoying renewed balance between work and life and appear generally happier. I am proud that the seriousness with which I approach my leadership responsibilities can result in positive impacts to people's lives."

Morgan's rapid rise to the top began shortly after he reported for duty on Sept. 6, 2001, at Naval Reactors headquarters located on the Washington Navy Yard in the District of Columbia. Five days later, the attacks of Sept. 11 required him to accept responsibility atypically early in his career.

"On the morning we were attacked, I remember the director of instrumentation and control visiting my office. He said to me, 'Markeeva, our selection process is demanding because the learning curve here is steep. You have none.' Then he walked away," Morgan said.

"Weeks later, I was the nuclear instrumentation and control technical adviser to the Atlantic submarine fleet, leading multidisciplinary teams of mostly senior personnel to ensure the continued readiness of the fleet to respond to the then-incipient threat to our nation's security," he said.

He went on to serve in various positions of increasing responsibility at Naval Reactors, receiving numerous awards, citations and commendations along the way. Morgan's naval career culminated as manager of the Generic Nuclear Instrumentation and Control Program, charged with designing microprocessor-based control systems that can be used in multiple nuclear-powered ship platforms.

"The foundation established under my team's leadership has resulted in a more capable, flexible fleet while saving the Navy and the nation hundreds of millions of dollars," he said.

For his efforts, he was conferred both the Navy Commendation Medal and the 2007 Naval Sea Systems Command Federal Engineer of the Year award.

During the ceremony celebrating conferment of the Navy Commendation, Morgan's leaders remarked that observing someone who can, at such a young age, stand up and daily lead change in the way the Navy does business is uniquely remarkable. He, however, acknowledges that he owes his achievements as much to the education he received at Ole Miss as he does to his innate sensibilities.



The foundation established under my team's leadership has resulted in a more capable, flexible fleet while saving the Navy and the nation hundreds of millions of dollars."

— Markeeva A. Morgan,
NASA



NASA's Curiosity Mars rover makes its way across the Martian surface.

“Studying engineering in a liberal arts environment has been invaluable to me and my career,” Morgan said. “Understanding how to treat issues with an engineer’s rigor while approaching communication with the emotional intelligence of one with a more rounded education has proved tangibly beneficial. Having had frequent opportunities to interact with my professors and other university leadership instilled in me a quiet confidence, enabling me to interact with persons in leadership position with respectful boldness. Balancing the demands of an engineering curriculum with the pull of a ‘liberal arts college life’ was excellent preparation for balancing the demands of the workplace. So now, I can perform calmly under pressure.”

Inducted into the Ole Miss Student Hall of Fame and honored with the 2007 Outstanding Young Alumni award, Morgan has served on UM advisory boards, including the boards of directors of the School of Engineering, Center for Manufacturing Excellence, Alumni Association and University Foundation. He also serves on an advisory board for the HudsonAlpha Institute for Biotechnology and is an active

volunteer with Leadership Huntsville/Madison County, where he chairs the Community Impact Projects Committee for Connect Class No. 14. He recently accepted an appointment to the Huntsville Hospital Foundation Development Council.

Morgan also teaches the junior-level foundational management course at the University of Alabama in Huntsville, where he helps develop and encourage the next generation of managers to be leaders as well.

After being hired at NASA’s Marshall Space Flight Center, Morgan served as the independent assessments manager, risk management team leader, associate manager of the Mission Systems Assurance and Technical Support Department and, most recently, manager of the Huntsville Advanced Defense Technology Cluster Initiative.

Morgan repeatedly has been named a distinguished performer at NASA, a “Rising Marshall Star,” honored by his peers with the “Thinking Outside the Box” award, and he was one of two NASA recipients of the Black Engineer of the Year Modern Day Technology Leader Award in 2010.

Morgan is married to the former Shaquinta Pickett (BE 03), who is a LEED Accredited Professional and Certified Energy Manager. They are the parents of two daughters: Mallory, 6, and Sydney, 3.

“What we do outside of work varies fairly significantly,” Morgan said. “I met my closest friends at Ole Miss. We still gather for good times, often in Oxford and/or surrounding Ole Miss sporting events. I enjoy recreational sports, like basketball and golf, and I’ve developed an affinity for working with wood at the macro level (e.g., making tables, shelves, etc.). My wife, who I also met at Ole Miss, and I enjoy traveling.”

The sky is literally the goal and the limit when it comes to Morgan’s future.

“The most fulfilling aspect of this job is the ability to impact our nation’s capability to expand the knowledge of mankind, furthering its preeminence, and understanding that the history lessons taught in futuristic, space-faring movies are being designed right now by the team of which I am a part. It actually is rocket science. How fantastic is that?!” Morgan said. ✨

MILITARY RESEARCH CAREER LOOKING 'PRIDDY'

BY EDWIN SMITH

Even before she graduated, Lucy Phillips Priddy (BSCE 02) had begun proving her leadership ability in the field of civil engineering. In addition to serving as president of the student chapter of the American Society of Civil Engineers, she was president of the Engineering Student Body, which represents all student chapters in the engineering school.

The UM alumna continues to carve a niche for herself as a research civil engineer at the U.S. Army Corps of Engineers' Engineer Research and Development Center, or ERDC, in Vicksburg. Her ability to plan, present and conduct research led to her being given important responsibilities supporting both civilian work and the country's war-fighting effort. Working in ERDC's Geotechnical and Structures Laboratory, her specialty is materials research for airfield and pavement materials, usually requiring laboratory and field investigations.

For example, Priddy was principal investigator for various airfield damage repair projects focusing on the military's expedient pavement repair and construc-

tion. For these and other technical efforts, she received the ERDC Award for Outstanding Team Effort for the Joint Rapid Airfield Construction Program and the ERDC Award for Excellence in Operational Support for the Airfield Damage Repair Modernization Program.

"I am most proud of successfully completing several military pavement repair demonstrations, as part of the Critical Runway Assessment and Repair Joint Capabilities Technology Demonstration, culminating in live flight certification testing of repair techniques I had helped develop," Priddy said. "The demonstrations required several years of research, development and planning, of which I was part of a large team of researchers from the Army, Air Force and Navy and active duty military personnel. It was rewarding to see many years of research successfully demonstrated and certified for use. The work also contributed to several awards for team efforts and individual awards for several of my team members."

Priddy also has been highly active in professional activities. She served as president and secretary of the Vicksburg

Branch, secretary of the Mississippi Section and representative to District 14 of the ASCE. She also has participated in numerous community service activities.

"I believe that my current role allows me to use my talents to their fullest extent," Priddy said. "I enjoy organizing, communicating, learning and working with teams. I learn something new every day and get to work with some of the most dynamic and smartest individuals to solve challenging problems."

Priddy's work also allows her to travel the world and work face to face with the men and women in the military who are her stakeholders.

"Learning their needs and helping solve problems that directly impact them is most fulfilling," she said. "This role also allows me to continue my education through graduate classes and other training opportunities to enhance my knowledge and make me a better engineer."

Priddy acknowledges the role Ole Miss faculty played in her honing her abilities, which led to her present level of success.

"I believe that the engineering professors really cared about their students," she said. "My father died suddenly my freshman year in college, and my professors worked with me to make sure I did not fall behind in my courses and encouraged me to stay in engineering."

As a sophomore, she was hired as a research assistant working with Waheed Uddin, professor of civil engineering. During the three years she worked for him, Priddy was able to work on several research projects and learn how to prepare research papers, proposals and presentations.

"In this work, I also helped plan an international pavements conference, where I met many people I work with now either at my job or in professional societies and technical organizations," Priddy said. "This helped me get my foot into the research world much earlier than I would if I had started right





While Priddy was principal investigator for various airfield damage repair projects, she received the ERDC Award for Outstanding Team Effort for the Joint Rapid Airfield Construction Program and the ERDC Award for Excellence in Operational Support for the Airfield Damage Repair Modernization Program.

out of Ole Miss. The professors also frequently brought speakers into the classroom to introduce us to various jobs we could pursue. Through this, I met my (now retired) supervisor during one of these sessions and was offered the job I still have 10 years later.”

When Priddy wavered in her decision to accept the job offer, Uddin pulled her aside and told her if she were his daughter, he would tell her to take the job.

“Lucy was a great asset to the Center for Advanced Infrastructure Technology since its founding and always fulfilled my expectations when I assigned her challenging tasks,” Uddin said. “She contributed immensely to the successful 2001 international pavement conference that I organized and chaired. She led the creation of the Ole Miss student chapter of the Institute of Transportation Engineers and served as its founding president. I am proud of her continuous professional excellence and achievements.”

“It was great advice, and I am grateful he took the time to help mentor me as a student to be a researcher,” Priddy said.

“While the classes gave me the abilities to tackle any design problem, the job unveiled a whole new world of research that I had never considered for myself and really knew nothing about.

“I would also have to add that the professors encouraged the students to be active in the student chapters of the professional societies. They pushed us to take on leadership roles, to attend conferences and to continue to be active in the societies after graduation. I have been active in the American Society of Civil Engineers since my sophomore year in college, and this activity gave me the confidence and connections to continue to serve in leadership positions after graduation. This activity led to me receiving several awards and recognitions within ASCE that are the greatest honors I have received.”

Alex Cheng, dean of the School of Engineering, remembers Priddy as one of the most exceptional students he had ever met. Priddy recently was awarded the ASCE Edmund Friedman Young Engineer Award.

“Ever since her graduation, Ms.

Priddy has kept close contact with the school,” Cheng said. “She has returned a number of times to speak to classes and serves as one of the youngest members of the School of Engineering advisory board.”

After graduating from Ole Miss, Priddy went on to earn a Master of Science in civil engineering from Mississippi State University. Priddy is pursuing her Ph.D. in civil engineering from Virginia Tech while continuing to work for the U.S. Army ERDC full time.

“My ultimate career goals are to finish my Ph.D. and to continue to be active in research at the ERDC,” she said.

In addition to being a research civil engineer at the ERDC, Priddy also served as a co-coordinator for the Leadership Development Program for the Geotechnical and Structures Laboratory from 2005 to 2011. During 2010-11, she was a liaison officer representing the ERDC at the Office of the Deputy Assistant Secretary of the Army for Acquisition, Logistics and Technology. In this position, she was responsible for facilitating two-way communications between the ERDC and ASAALT regarding current and future science and technology research.

Priddy is married to Jody Priddy, a fellow civil engineer working for ERDC. She enjoys cooking and helping to give cooking lessons.

“When I have time, I like to travel, go fly-fishing and take wine tours in various parts of the U.S.,” Priddy said. ✨

I am most proud of successfully completing several military pavement repair demonstrations, as part of the Critical Runway Assessment and Repair Joint Capabilities Technology Demonstration, culminating in live flight certification testing of repair techniques I had helped develop.”

**— Lucy Phillips Priddy,
U.S. Army Corps of Engineers’
Engineer Research and Development Center**



ENGINEERED TO THE BONE

BY EDWIN SMITH

How does an engineer become a medical doctor?

Ask Dr. James A. “Jimbo” Moss (BE 06, MD 10) of Jackson, an orthopedic surgery resident at the University of Mississippi Medical Center.

“My responsibilities include treating patients with orthopedic injuries and complaints in the hospital-clinic setting,” said Moss, house officer at UMMC. “The most fulfilling part of this job is taking care of patients with traumatic orthopedic injuries and helping them return to a fully functioning life. We see patients every day with terrible injuries and help get them back in shape to continue their lives.”

Moss said his top career achievements include getting into the orthopedic surgery residency and being a part of one of the best orthopedic residencies in the country. Following his residency in 2015, he plans to practice orthopedic surgery either in an academic or private setting.

“I want to help continue research and education in orthopedics and, of course, always treat patients with compassion and skill to improve their lives.”

Receiving his engineering degree definitely assisted in Moss’ success, he said.

“A very large amount of orthopedics is based upon engineering principles,”

Moss said. “Every day we talk about different engineering principles. We use materials science every day, as all of our implants — i.e., plates, screws and knee replacements — are made of titanium, stainless steel, cobalt/chromium and so forth.”

Marni Kendricks, assistant dean of the School of Engineering, remembers Moss as being an exceptional student even as an undergraduate.

“I ‘inherited’ Jimbo as my advisee when I came to work in the School of Engineering as successor to Dr. Stacy Holmes, assistant dean. He probably unknowingly set the standard higher for other students to follow, as I was in the engineering advising learning curve, and he was the perfect student,” Kendricks said. “Good attitude, great work ethic, natural leader, super achiever, highly organized, thoughtful in his actions. He definitely became a standard setter for the school.”

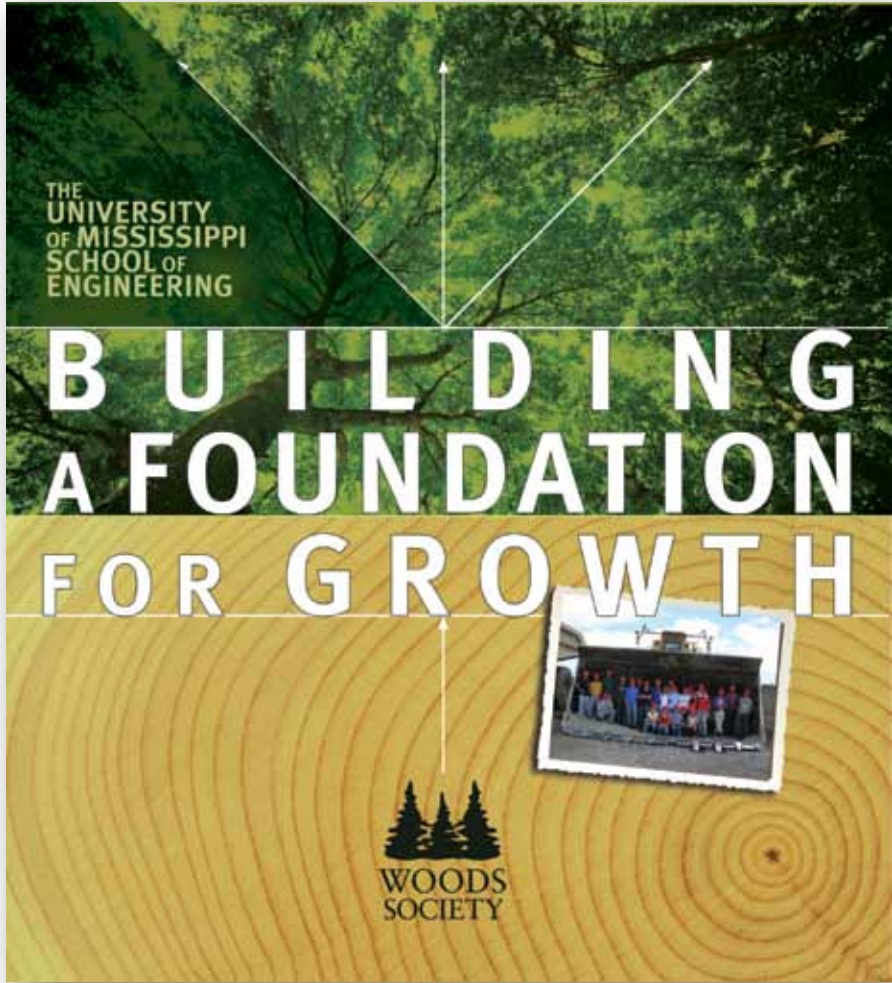
Moss also applies engineering principles when discussing failure modes of bone implants. These failure modes include shear, strain, compression, tension, fatigue and plastic deformation. Most of ortho surgery residents’ fixation principles are based on stress versus strain, compression versus tension.

“Without an engineering and physics background, it can be very difficult to understand a lot of the basics of orthopedics,” Moss said. “However, after receiving my engineering degree, most of this part of orthopedics comes very naturally to me.”

Dr. Matthew Graves, Moss’ supervisor at UMMC, said he has a bright future.

“Orthopedic surgery at its base level is just the application of statics and dynamics to human anatomy. With a clear knowledge of anatomical relationships and a grasp of basic biomechanics, it is possible to excel in the field,” Graves said. “Those with a background in engineering have a distinct advantage. The intuitions become more formalized. Failure can be understood a priori,” he said. “This allows beginners [in orthopedic surgery] to perform at a more advanced level. From the beginning of his residency, Jimbo has been something special. He has the ability to take full advantage of his psychomotor skills because he gets it. He understands structure and forces.”

Moss and his wife, Britney, have two sons: Abney and Benjamin. When not at work, he enjoys spending time with his family, mountain biking and carpentry/woodworking. ✨



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