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Echoes Staff

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SPECIAL ISSUE: GLOBAL CONNECTIONS

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Echoes

SPRING²⁰¹³

Vol. 2013, No. 2

A photograph of three young women smiling and posing in front of a modern building with large glass windows. The woman on the left is wearing a pink top and a grey cardigan. The woman in the center is wearing a green top and a white cardigan. The woman on the right is wearing a grey cardigan and a purple scarf. They are all smiling and looking towards the camera. The background shows a modern building with large glass windows and some trees.

World-Class Students

HIGH ACHIEVERS READY TO
TACKLE FUTURE CHALLENGES



OUR PRIDE IS IN OUR STUDENTS

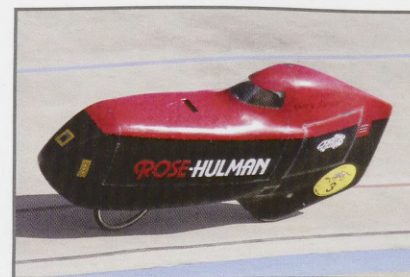
CYBER DEFENSE TEAM PLACES THIRD IN NATIONALS AFTER WINNING MIDWEST, STATE CONTESTS



An eight-student team set up a successful computer network that thwarted attacks from cyber defense professionals to earn third-place honors at the national Collegiate Cyber Defense Competition this spring in San Antonio, Texas. Rose-Hulman qualified after winning the Midwest and Indiana contests. These competitions assess students' operational competency in managing the challenges inherent in protecting a corporate network infrastructure and business information systems. Senior team leader Sean Richardson joined junior Cameron Spry in earning MVP honors at nationals.

HUMAN POWERED VEHICLE TEAM WINS ASME NATIONAL TITLE

The Human Powered Vehicle team continues to build on its legacy and add hardware to the trophy case by bringing home top honors at the American Society of Mechanical Engineers' east and west regionals. This year's redesigned vehicle won the male and female sprint races (pedaled by Drew Robertson and Crystal Hurtle), and earned the Innovation Award for a unique anti-lock braking system for the rear wheel (designed by Matt Skorina). Other riders during the endurance race were Pat Woolfenden, Claire Stark, and Skorina. Rose-Hulman has now won 10 of the past 12 ASME human powered vehicle events!



MEN'S BASKETBALL TIES RECORD WITH 24 WINS, HOSTS NCAA TOURNAMENT GAME



The men's basketball team tied a school record with 24 wins (24-4), won the Heartland Collegiate Athletic Conference's regular season and tournament titles, was ranked No. 23 nationally, and hosted a first-round game in the NCAA Division III tournament. Junior guard Julian Strickland (left) was named a second-team Division III All-American, second in program history, and head coach Jim Shaw was a finalist for the 2013 Glenn Robinson National Coach of the Year Award. The team's 24 wins matched the record by the 1976-77 Fighting Engineers that advanced to the Elite Eight of the NCAA tournament under coach John Mutchner.

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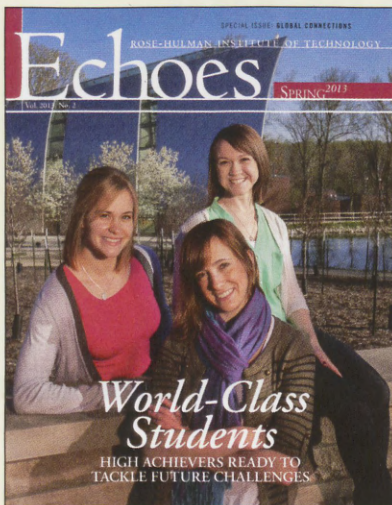
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ON THE COVER

Three students who have received major academic and global education honors are featured near the new cherry orchard that celebrates Rose-Hulman's 20-year collaboration with Japan's Kanazawa Institute of Technology. The trio are Emily Yedinak (front), recipient of a Fulbright U.S. Student award; Katherine Moravec (left), selected one of America's Goldwater Scholars; and Betsy Jones (top, right), among 40 students to study abroad through the Whitaker International Program. Read more about them on pages 22-23. (Photo by Larry Ladig)



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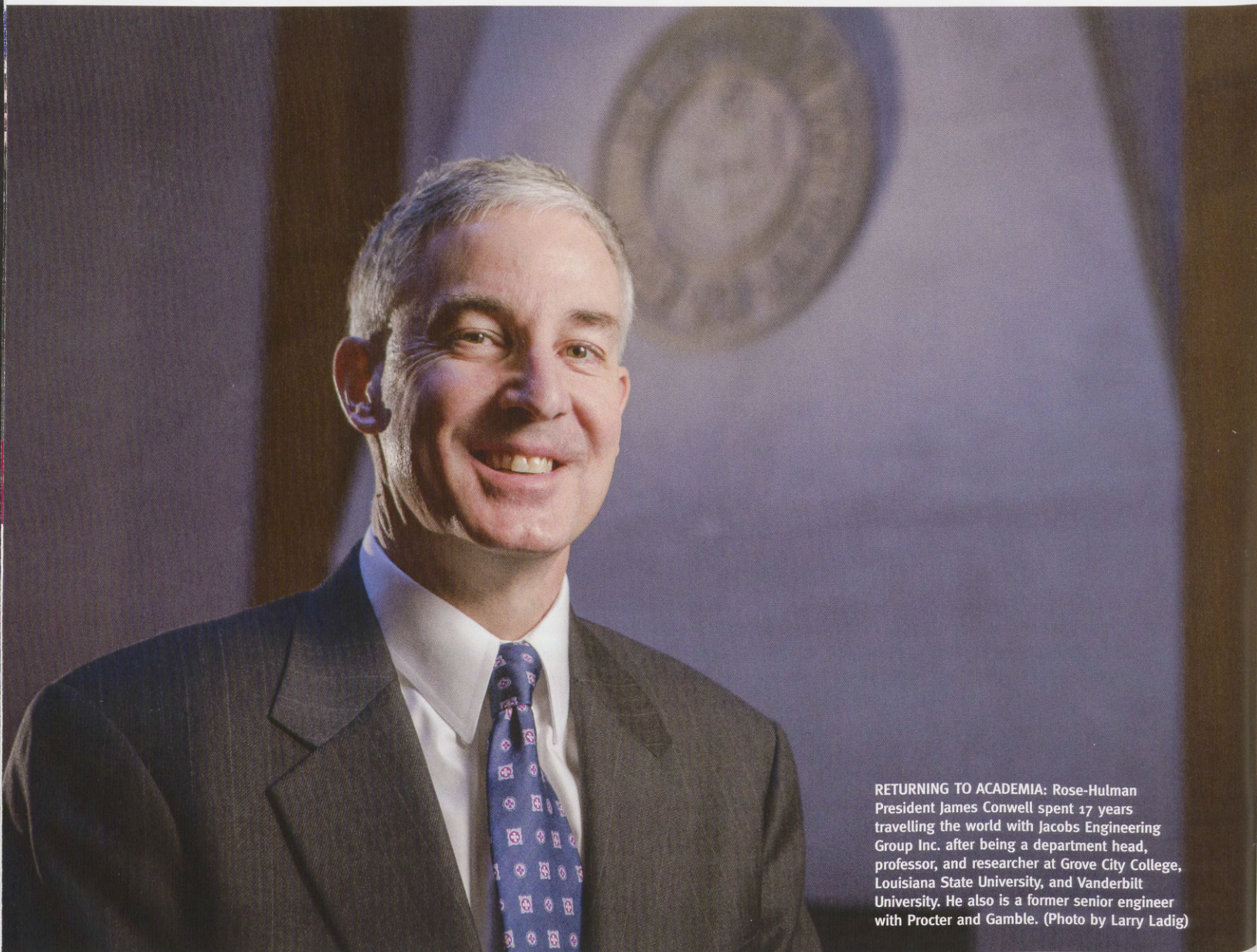
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RETURNING TO ACADEMIA: Rose-Hulman President James Conwell spent 17 years travelling the world with Jacobs Engineering Group Inc. after being a department head, professor, and researcher at Grove City College, Louisiana State University, and Vanderbilt University. He also is a former senior engineer with Procter and Gamble. (Photo by Larry Ladig)

James C. Conwell Brings Global Perspective, Industry Experience to Next Chapter in our History

By Carolyn Duffy Marsan



AS VICE PRESIDENT OF JACOBS ENGINEERING GROUP, James C. Conwell, PhD, PE, worked on projects in a dozen countries, including Germany, China, and Brazil. His globe-trotting professional experience will come in handy as Rose-Hulman's 15th president, armed with the institute's new strategic plan that envisions an increase in the college's connections to the global community.

A top priority for Conwell is increasing national and international awareness of Rose-Hulman's reputation as a top undergraduate science, engineering, and mathematics institution. He hopes to increase the diversity of the student body on campus. Additionally, he wants to better prepare graduates to address global issues by encouraging them to study abroad.

"Over the last 17 years, I have had the opportunity to work in Germany, Sweden, England, France, Korea, China, Brazil, Mexico, and Canada," Conwell says. "This global perspective has made a big difference to me, personally and professionally, especially the way I look at problems and tackle challenges."

Conwell sees a need to establish a way for Rose-Hulman students to have a meaningful international experience. "Then our students will have an enriched educational experience and become our proud ambassadors in other countries," he says. Expanding the global literacy of its students, he believes Rose-Hulman must partner with international educational institutions, reach out to alumni working abroad, and expand course offerings in such areas as foreign languages.

"Alumni have a critical role to play at Rose-Hulman, whether it's through providing internships and opportunities for our students, using us for continuing education, or providing us with financial support," states the new president. He added that Rose-Hulman will need to expand its financial and merit aid to attract a more diverse student body.

Conwell has spent nearly two decades in private industry, following a decade as an engineering professor at Vanderbilt University, Louisiana State University, and Grove City College. This background brings additional perspective on how to ensure that Rose-Hulman continues to graduate engineers who

can compete in a global economy and help solve the complex problems of a global society.

"There are certain attributes of global engineering success, and these attributes are not limited to engineering or math majors," he explains. "In my experience and observation, to succeed you must be a lifelong learner, you must be able to work in a diverse environment, and you must be able to communicate incredibly well. You also must understand the concepts behind what you're doing, and you must be able to move seamlessly among disciplines, such as business and engineering."

Conwell says it is critical that Rose-Hulman graduates be able to adopt a holistic and nimble approach to problem solving.

"Our students are already excelling in their technical acumen. We have to be vigilant to prepare our students to handle ever more difficult, yet-unidentified problems in this global environment," he states, adding, "The daily headlines of global environmental issues give you an idea of the size of the problems that our graduates must tackle in the future."

According to Conwell, Rose-Hulman needs to move confidently ahead with its vision of delivering an education to best prepare graduates to define and innovatively solve the problems of a complex, global society.

He says, "the challenge for us as the leading undergraduate engineering institute in the world is to take this education and teach our students how to do something even more meaningful with it." ■

Carolyn Duffy Marsan is an award-winning journalist covering business and technology issues. She is currently national correspondent for Network World, and has written for Macworld, PCWorld, and CIO Magazine.

"I share a common aspiration with Rose-Hulman: a knowledge and passion that meeting the next wave of global challenges will require strong technical, creative thinkers who can work with diverse groups to bring results and solutions."

—James C. Conwell, PhD
Rose-Hulman's 15th President

Q&A Global Presence, Name Recognition, Affordability Are Key Areas for New President

As James C. Conwell, PhD, PE, prepared to become Rose-Hulman's 15th president, he addressed a few topics in an interview with national technology and business journalist Carolyn Duffy Marsan. Here are excerpts from that recent conversation:

Q: What attracted you to the job of Rose-Hulman president?

A: I've been on the front lines of engineering innovation for the last 17 years, and it is clear there's an education crisis in America. Our country is simply not educating enough scientists, engineers, and mathematicians, and our industry is suffering. There are around 15,000 engineering and technical jobs in Michigan alone that can't be filled today because of a shortage of qualified applicants. In terms of a higher personal purpose, I have an interest in being part of the solution for our industry and for our country's place in the world.

"From one sense, I'm able to take the basics from academics and layer it over top of the experience I got in industry to make sure the next generation of engineers is ready to be successful."

—James C. Conwell, PhD
Rose-Hulman's 15th President

What interested me specifically about Rose-Hulman as an institution are the incredible personal relationships that the faculty and staff members form with the students, the focus on undergraduate education, and the great concern the institute has for making sure students are capable of handling the challenges that are facing our society and our world.

Q: What are the best attributes of a Rose-Hulman education that you want to nurture during your tenure as president?

A: Rose-Hulman's best attribute is the personal connection that the entire institute—the faculty, staff, and its leaders—has with the students. Every single person on campus takes an interest in the students. The culture of caring that exists throughout the institute is something that I want to protect and preserve. Also, Rose-Hulman students leave still curious, with the ability to be lifelong learners, to understand technology, and to address the challenges of a global society. I want to make sure we nurture that.

Q: The Rose-Hulman Strategic Plan has some themes of increased diversity. What should Rose-Hulman do to increase the diversity of its students?

A: We need to serve a much larger market than we currently reach. If we are preparing students for a complex, global environment, diversity is a key

aspect of that. The first step is increasing our name recognition. We also have to be actively recruiting to and engaging with a diverse audience to get them to visit our campus. Students who excel at science, engineering, and math have choices as they are admitted to many top universities. We must provide incentives, such as more competitive scholarships and financial aid, to attract those top students who choose to go elsewhere because of net cost after aid.

Q: Students, parents, and government leaders are putting pressure on higher education to hold down costs and demonstrate a return on investment for their degrees. What plans do you have for increasing the affordability of a Rose-Hulman education?

A: Education is one of the best investments you can ever make. I feel an unaffordable education is one that doesn't help you land a good job upon graduation. More than 90 percent of our students have a job, have been accepted to graduate or medical school, or have been commissioned to military service by graduation. Companies who hire our graduates recognize the high-quality value of a Rose-Hulman education. That said, our strategic plan calls for Rose-Hulman to be an affordable institute of choice for students who are passionate about science, engineering, and mathematics. We will be studying costs as well as our ability to increase financial and merit aid. ■



GETTING PERSONAL

JAMES C. CONWELL

15th President, Rose-Hulman Institute of Technology

ENGINEERING BACKGROUND

- Jacobs Engineering Group Inc.: Vice President, 1999-2013; Manager of Advanced Planning, 1998-1999; Engineering Manager, 1996-1998
- Procter and Gamble Manufacturing, Senior Engineer/Department Manager, 1983-1986
- Licensed Professional Engineer

ACADEMIC BACKGROUND

- Grove City College (Pennsylvania), Chairman, Department of Mechanical Engineering, 1993-1996
- Louisiana State University, Assistant Professor of Mechanical Engineering, 1990-1993
- Research Associate/Graduate Teaching Associate, Vanderbilt University, 1986-1990

EDUCATION

- Bachelor of Mechanical Engineering (with highest honors), University of Tennessee, 1983
- Master of Mechanical Engineering (minors in mathematics and electrical engineering), University of Tennessee, 1986
- Doctorate in Mechanical Engineering (minors in electrical engineering and mathematics), Vanderbilt University, 1989

FAMILY/HOBBIES

- Wife, Angela, is a mechanical engineer. They have two grown children.
- In his spare time, Conwell enjoys flying as an instrument-rated private pilot. ■

"I spoke with a Microsoft executive recently who told me that the average science, technology, engineering, and math graduate is going to have to take the equivalent of 30 credit hours every seven years to stay current. One of Rose-Hulman's challenges is to make sure we have incorporated the skills, knowledge, and foundation that will allow our students and graduates to be lifelong learners, and strengthen the connection between Rose-Hulman and our alumni to fill that need."

—James C. Conwell, PhD
Rose-Hulman's 15th President



HELPING HANDS: Members of the Engineers Without Borders student chapter helped bring a medical clinic and a sanitary system to citizens of Batey Santa Rosa in the Dominican Republic as an international humanitarian project. (Photo by Faculty Advisor John Gardner)

The **GRAND** Challenges

Rose-Hulman Joins Engineers in Creating a Better World

By Margaret Loftus

Until freshman Beth Reinert helped teammates design a makeshift skylight as a low-cost lighting alternative for poor households in Kenya, she assumed the only way engineers could have a positive impact on the world was to go into biomedical engineering.

The Introduction to Design course project—a 2-liter plastic jug filled with water and a bit of bleach that, when wedged into a hole drilled into a roof, diffracts light equal to a 50-watt light bulb—was just one of the ways Reinert was sold on the world-changing power of engineering in a course led by Assistant Professor Ashley Bernal, PhD (ME, 2006).

“The work I’ve done in Dr. Bernal’s class has shown me that there are so many ways that mechanical engineers can get

involved in humanitarian aid to improve the quality of life of others,” says the student.

That’s music to the ears of the National Academy of Engineering, that in 2008 identified affordable solar energy as one of the top engineering challenges for the 21st century, as well as Bernal, one of several Rose-Hulman faculty members who have woven those challenges into their coursework to prepare the next generation to tackle them on a global scale.

NAE’s Grand Challenges for Engineering grew out of an academy project heralding the greatest achievements in the 20th Century. Thanks to inventions like airplanes and computers, our world is vastly different today than it was a century ago, says Randy Atkins, NAE’s director of the Grand Challenges project.

"So we thought, 'What are the game changers for the next part of the next century?'"

After posing that question to a dream team of high-profile technological thinkers, including Google co-founder Larry Page and genomics pioneer J. Craig Venter, NAE identified 14 Grand Challenges that range from providing access to clean water to reverse-engineering the brain to preventing nuclear terror (*see sidebar*). "All [of the Challenges] will improve the quality of life in our nation and the world," NAE President Charles Vest stressed to reporters at the time.

What's more, the challenges would serve as a Sputnik moment for the next generation, after decades of fruitless efforts to turn out more homegrown engineers. Rose-Hulman has accepted the challenge, seeing its role as an institute that nurtures these "world changers."

"We're trying to create an awareness of these problems, motivate students, and provide them with skills so they can be a part of the solutions," says Philip Cornwell, PhD, vice president for academic affairs. "To me, the value of the Grand Challenges is that they put these problems in a larger societal complex. Our primary emphasis is on student development. They will become the problems-solvers of the world."

The call to action has sparked considerable enthusiasm among educators and the next generation of engineers. More than a dozen engineering colleges have adopted an NAE-endorsed Grand Challenge for Engineering Scholars program that combines an interdisciplinary curriculum and extracurricular activities to prepare engineering students to become world changers.

Inspired by the Scholars program, Assistant Professor of Mechanical Engineering Sean Moseley, PhD, has spearheaded Rose-Hulman's efforts to incorporate the challenges into the curriculum and extracurricular activities.

"I liked the idea of providing context to all the technical things we teach," he says. For example, a lesson on heat transfer can be applied to designing a less-polluting cooking system for a community that needs one. In teaching engineering, Moseley says, "We tend to focus on details and what the numbers should be at the end. Sometimes we lose the perspective of why we care."

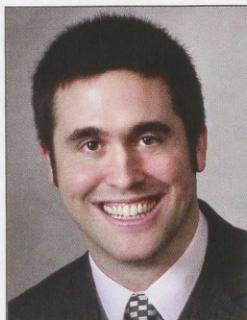


THE GRAND CHALLENGES FOR ENGINEERING

Here are the Grand Challenges for Engineering as determined by a committee of the National Academy of Engineering:

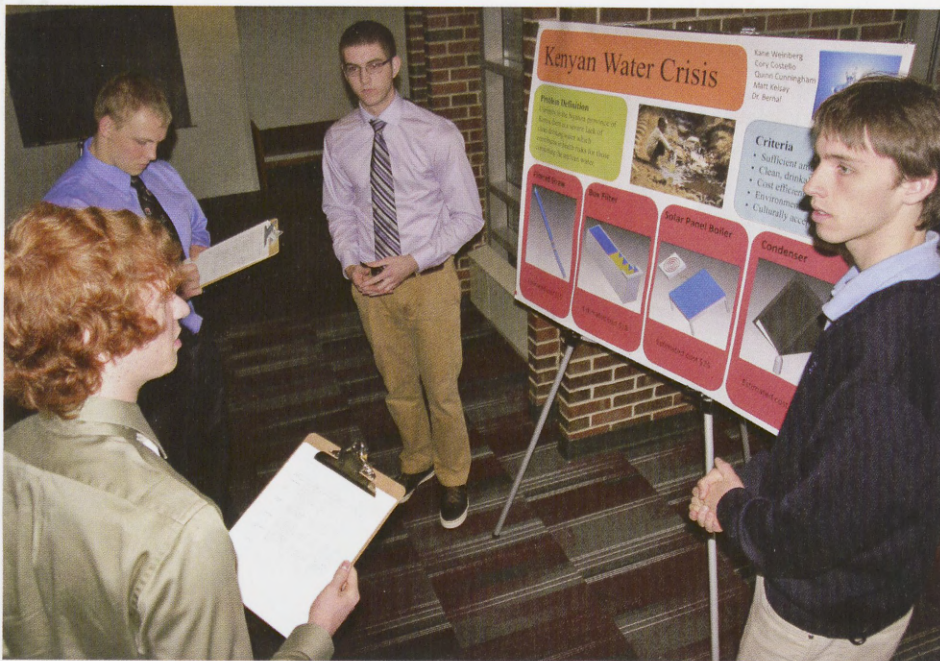
- Make solar energy economical
- Provide energy from fusion
- Develop carbon sequestration methods
- Manage the nitrogen cycle
- Provide access to clean water
- Restore and improve urban infrastructure
- Advance health informatics
- Engineer better medicines
- Reverse-engineer the brain
- Prevent nuclear terror
- Secure cyberspace
- Enhance virtual reality
- Advance personalized learning
- Engineer the tools of scientific discovery ■

www.engineeringchallenges.org



"I'd like high school students to think of engineering as having just as much of an impact on people as doctors. Instead of an individual, we're helping a lot of people at once."

—Sean Moseley, PhD
Assistant Professor of Mechanical Engineering



LEARNING ABOUT OTHERS' NEEDS: Freshman mechanical engineering students examined how to help people in Kenya through providing low-cost, energy-efficient devices in an Introduction to Design course this spring. (Photo by Dale Long)

In her professional and technical communications course, English Professor Julia Williams, PhD, asks student teams to make presentations on one of the Grand Challenges that affects them. Last year, one team focused on the clean-water challenge, mining the personal experience of a student from Tennessee whose younger sister had become ill from contaminated well water.

"It can be easy for students to think that the Grand Challenges deal with challenges outside of the U.S.," Williams says. "They need to see challenges within a more local context. [Yet] if they understand problems close to home, they can take that knowledge with them and extrapolate it globally."

Williams' class draws from a mix of academic majors, forcing students to work in multidisciplinary groups. This is essential to addressing the complex issues involved in each challenge. As Atkins, NAE's director, puts it, "The Grand Challenges won't be solved by engineers alone."

To that end, Bernal has partnered with Scott Kirkpatrick, PhD, assistant professor of physics and optical engineering, and

because of programs like this.

"Not every student comes in wanting to change the world, but I do see more of them with a plan to do that kind of work," she says.

Moseley thinks graduates exposed to these sorts of experiences have a leg-up. "I'd like to think that [our] graduates are better prepared to solve these problems as a result of the things we're doing on campus," he says.

Ultimately, Moseley hopes the Grand Challenges will change the perception of engineering.

"I'd like high school students to think of engineering as having just as much of an impact on people as doctors. Instead of an individual, we're helping a lot of people at once." ■

Margaret Loftus is a national freelance writer who wrote the cover story, "Changing the Face of Engineering" for the American Society of Engineering Education's PRISM magazine. She is a former U.S. News & World Report staffer and is now a contributing editor at National Geographic Traveler.



"It can be easy for students to think that the Grand Challenges deal with challenges outside of the U.S. ... [Yet] if they understand problems close to home, they can take that knowledge with them and extrapolate it globally."

—Julia Williams, PhD
Professor of English



LEARNING JAPANESE CULTURE: Students have fun learning about ensemble *taiko* drumming during a two-week trip in 2012 to Japan's Ishikawa Prefectural University.

Global Programs Open New Frontiers

Educational, Cultural Opportunities Abound Throughout World for Students, Faculty

By Steve Kaelble

Check the origin of many products on retail shelves and you will observe that practically any kind of business is increasingly done on a global scale. What's less obvious is the extent to which engineering has become a global pursuit, even for engineers who never set foot outside the United States.

That's the reality behind Rose-Hulman's growing international connections. Students and professors, through a variety of innovative programs, are gaining a global perspective by interacting with peers in faraway places and, in many cases, spending time studying in distant lands.

"As engineers, our customers, suppliers, and collaborators will almost always be

global in nature," says Interim Dean of Faculty Richard Stamper, PhD. "That became apparent to me when I worked at General Electric as a member of various engineering teams. We designed products that were sold around the world, made up of parts purchased from around the world, and manufactured in a variety of places."

Cary Laxer, PhD, head of the Department of Computer Science and Software Engineering, adds, "Everyone I talk to in industry says students need to know how to work in the global environment and how to interact with their peers from another culture."

One way that Rose-Hulman is providing global perspectives is through dual-degree masters-level academic

programs with Germany's Ulm University and South Korea's Seoul National University of Science and Technology (SeoulTech). These programs involve study at Rose-Hulman and leading international institutions. However, these are far more than study-abroad or student-exchange opportunities, advises William Schindel (MA, 1969), chair of the Board of Trustees' Academic Affairs Committee. "The degree is dual, not just in the sense of studying at two schools, but two degrees are granted—a degree from each school," he says.

The collaboration with Ulm focuses on the emerging field of systems engineering. Since it is a new field being approached in different ways, Schindel believes that's a



GLOBAL CONNECTIONS

great reason to study systems engineering in more than one place. "It's important to get exposure to different ways of thinking," he says.

The partnership with SeoulTech is similar, but focuses on optical engineering. It includes studies at both institutions, along with an internship at a Korean company.

A different kind of global experience comes through design collaborative projects involving Rose-Hulman computer

projects based in Sweden. "At the end of the semester, we took our students to Sweden to meet their counterparts, and together presented the project results to the client," says Laxer. The client was delighted with the teams' work and has continued to develop interesting technology-based projects.

These collaborative projects have been tremendous successes and became part of a Computing in a Global Society course, taught annually by Laxer. The

"Tomorrow's engineers need to know how their creations will affect other cultures and lifestyles," states Bernald, who came to Rose-Hulman in 2012 as a guest speaker. "The world is getting smaller and flatter all the time."

The emphasis on learning international perspectives is far from new on campus. Rose-Hulman's academic partnership with Japan's Kanazawa Institute of Technology celebrated its 20th anniversary last fall.



GREAT SUMMER EXPERIENCES: Professor Michael McNerney (left) teaches students from three Korean universities about micro-sized machines during a summer campus workshop. (Photo by Shawn Spence)

science students and counterparts at Sweden's Uppsala University and Turkey's Bilkent University. In many ways, the projects provide a taste of the situations graduates will likely experience at an international company, with interconnected global operations.

The program started nearly a decade ago when an Uppsala professor sought international perspectives for real-world

class travels overseas at the beginning of the quarter to meet peers and get a taste for the country's culture. Regular Skype calls keep project teams in touch. Several Rose-Hulman students have returned to Sweden for a client presentation and a full-day educational symposium, including sessions by Helena Bernald, an international cross-cultural communications specialist.

"Our goal is to develop scientists and engineers who can work in Japan or work with engineers in Japan," says Scott Clark, PhD, professor of anthropology. "During the summer our students are in Japan. They have an intensive Japanese language program, take a cultural course, and get involved in cultural activities. The program gives them skills and abilities to negotiate and overcome differences."

Additional student exchanges involve Japan's University of Aizu. Seven computer science students from Aizu spent three weeks studying at Rose-Hulman earlier this spring. It was the largest contingent in an exchange program that began in 2006.

"As a leading university for technology, Rose-Hulman is highly sought after as a destination for our students seeking international experiences to enhance their careers," says Tatsuki Kawaguchi, head of

program, according to Julia Williams, PhD, English professor and executive director of the Office of Institutional Research, Planning, and Assessment. "[The recent visiting Aizu students] helped our students improve their Japanese language skills and better understand Japanese culture," she says, adding that a number of Rose-Hulman students have parlayed their Aizu experiences into jobs with global businesses.

Optical Engineering Professor Michael McNerney, PhD, who coordinates the program. "It has been a delightful program for both institutions and may be expanded to serve students from other foreign countries in the future," he says.

Stamper (ME, 1985), emphasizes that the benefits of a global focus extend beyond such practical matters. "Global experiences can lead to a sense of self understanding and awareness that may be difficult to achieve otherwise," he says. "It



SWEDISH SIGHTS: Computer science students visited the anatomical theater at the University of Uppsala museum—one of several cultural adventures during a trip to Sweden. (Photo by Cary Laxer)

Aizu's international programs. The college has exchange programs with nearly 60 institutions in 17 countries. "Rose-Hulman is at the top of the list. Our students always come back from Rose-Hulman with a vast knowledge and several friendships with faculty and students," he stated during a recent campus visit.

Rose-Hulman students have also benefited from the Aizu exchange

International educational outreach has also allowed approximately 20 students from South Korean universities to learn about micro-sized machines and experience American culture during the past three summers at Rose-Hulman.

"Our program has been judged the best summer international experience for South Korean university students during the past two years," says Physics and

can lead people to examine and consider some of their basic assumptions about themselves and others—assumptions that they may have taken for granted without much reflection." ■

Steve Kaelble is an Indiana-based freelance writer who is a regular contributor to Echoes.



"[Rose-Hulman] is appropriately committed to reminding students that technical work inevitably involves culturally diverse teams, and that the success of a project usually depends on the degree of communication and cooperation among members of those teams."

—Milton Bennett, PhD,
Intercultural Communication
Researcher

Learning to Work Together When Cultures, Values Clash

Dealing with a Complex World is Key to Engineers' Development By Milton J. Bennett, PhD

Recently I was invited to address a variety of Rose-Hulman constituencies on the topic of "developing intercultural communication competence." Although I consult with many educational institutions and corporations on this topic, I was particularly pleased to bring my personal background to Rose-Hulman.

My father was an electrical engineer, and I recall at a young age being taught the fine points of soldering. I was one of 100 science-fair winners chosen to participate in the National Youth Science

Camp, and subsequently completed a couple years of physics at Stanford University before veering off into the social sciences. In my experience, combining the perspectives of social and physical sciences brings more rigor to the former and more humanity to the latter. This is a powerful fusion, and I believe that Rose-Hulman students can use it to be more effective in their global work.

Rose-Hulman graduates are entering a world of increasing cultural diversity. The fact that human beings are interconnected

as never before does not mean that we are becoming similar to one another. Quite the contrary; the propinquity afforded by real and virtual cross-cultural contact is provoking more emphasis on cultural identity. Traditional national and ethnic identities remain, but they are now accompanied by newer forms of cultural affiliation such as professional, gender, and generational, creating ever more complex multicultural contexts.

Work, including technical and scientific projects, is increasingly likely to occur

in one of these multicultural contexts. So, what do Rose-Hulman graduates need to know to be successful in these contexts, and therefore what does the institute need to be teaching? Too often, the answers to this important question are more politically correct than effective: “We teach tolerance” or “We respect women’s equal rights.” A more substantial answer involves modeling the process of developing the requisite competence, and then teaching to the model.

The gist of my Rose-Hulman visit was to present such a model: the Developmental Model of Intercultural Sensitivity (DMIS). Grounded in theory, DMIS is based on my observations in both academic and corporate settings about how people become more competent intercultural communicators. Using concepts from constructivist psychology and communication theory, I organized these observations into positions along a continuum of increasing sensitivity to cultural difference. Both quantitative and qualitative research over the last quarter century has confirmed the validity of the model, and it is now routinely used worldwide to guide intercultural training and intercultural education curricula.

The DMIS assumes that, as our perceptual organization of cultural difference becomes more complex, we are able to experience our own and other cultures in more sophisticated ways. This *intercultural sensitivity* is the precursor of intercultural communication competence. By recognizing how cultural difference is being experienced, we can target and sequence educational interventions to facilitate development along the continuum. (See chart.)

All the emphasis on science and technology tends to generate a Denial Condition. Cultural difference does not seem as “real” as physical phenomena, and students are apt to make statements such as, “Electrons don’t care what culture they’re in.” The institute is appropriately committed to reminding students that technical work inevitably involves culturally diverse teams, and that the success of a project usually depends on the

The Developmental Model of Intercultural Sensitivity

© Milton J. Bennett, Ph.D., IDRInstitute

Perceptual Experience of difference

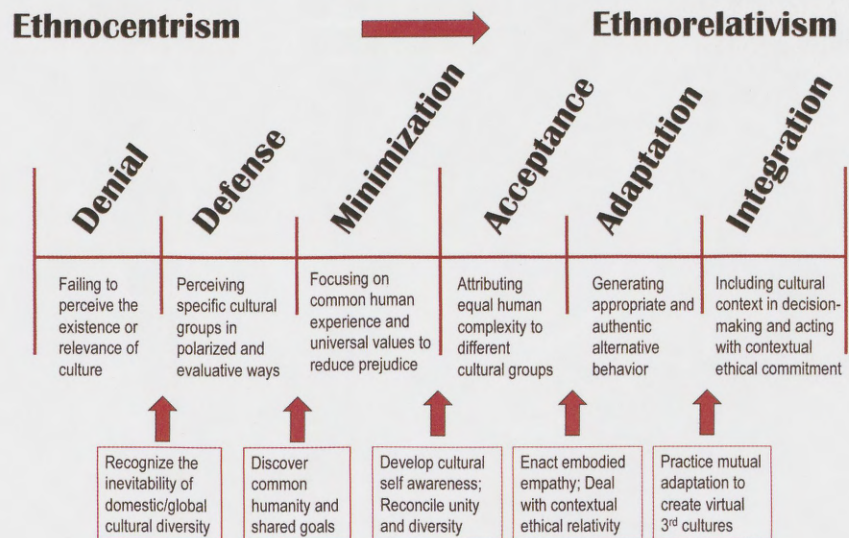


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degree of communication and cooperation among members of those teams.

While I did not observe much Defense during my visit to Rose-Hulman, the model predicts that a move out of Denial is likely to be accompanied by some stereotyping of newly noticed other cultures. Campus programs around reducing prejudice are therefore a continuing necessity. However, such programs should be seen as developmental and not ends in themselves. When the resolution of intolerant Defense into tolerant Minimization is seen as the final goal, both students and instructors tend to become very (self) satisfied at its achievement. But the goal of intercultural education is not to become more tolerant; it is to acquire competence in intercultural communication, which by necessity involves the recognition and appreciation of cultural differences.

Accepting the equal complexity of other cultural worldviews (but not necessarily agreeing with them) is the requisite for getting beyond tolerance. Building on this acceptance, students can be guided toward taking the perspective of alternative

worldviews and thereby developing a “feeling” for other cultures. This kind of feeling is what all competencies have in common, such as having a feeling for cooking or for researching. In this case, it is experiencing the feeling of culture that enables competent intercultural communication.

It is impressive that the Rose-Hulman’s Mission and Vision Statements include the goals of providing students with more campus diversity and more opportunity for international experience. But the key to making those activities developmentally educational is the goal, “Empowering students with the skills necessary to deal with complexity.” This is both the means and the end of intercultural development: bringing perceptual complexity to the experience of cultural difference, and thus enabling Rose-Hulman students to thrive in a complex multicultural world. ■

Milton J. Bennett, PhD, is founder and co-director of the Intercultural Development Research Institute (Italy and USA) and was a founder of the Intercultural Communication Institute (USA).



INNOVATION LEADER:

As senior vice president, Mike Ayers is responsible for a large segment of Toshiba's Texas operations. (Photo provided by Toshiba)



Ayers Keeps Toshiba on High-Tech Edge By Steve Kaelble

Things were so simple back in the old days for Mike Ayers, senior vice president and general manager for Toshiba International Corporation

"When I started out at Toshiba, products might be designed and engineered in Japan and sold in the United States," he says. "Today, we can start part of the design in one country, finish it in a second, build part of it in a third country, finish it in a fourth, and ship it to a fifth."

Ayers has direct responsibility over a wide segment of the Fortune 500 company's Texas operations. The product areas tend to fit into the general description of industrial systems, and all have a link to electronics. He has an important role within an interconnected

web that requires a big-picture view to navigate.

Even when he's at home in Texas, Ayers deals with engineers and other colleagues in all parts of the world. And, though languages and cultures differ tremendously, "engineers around the world are engineers. It's easy to communicate engineer-to-engineer," he says.

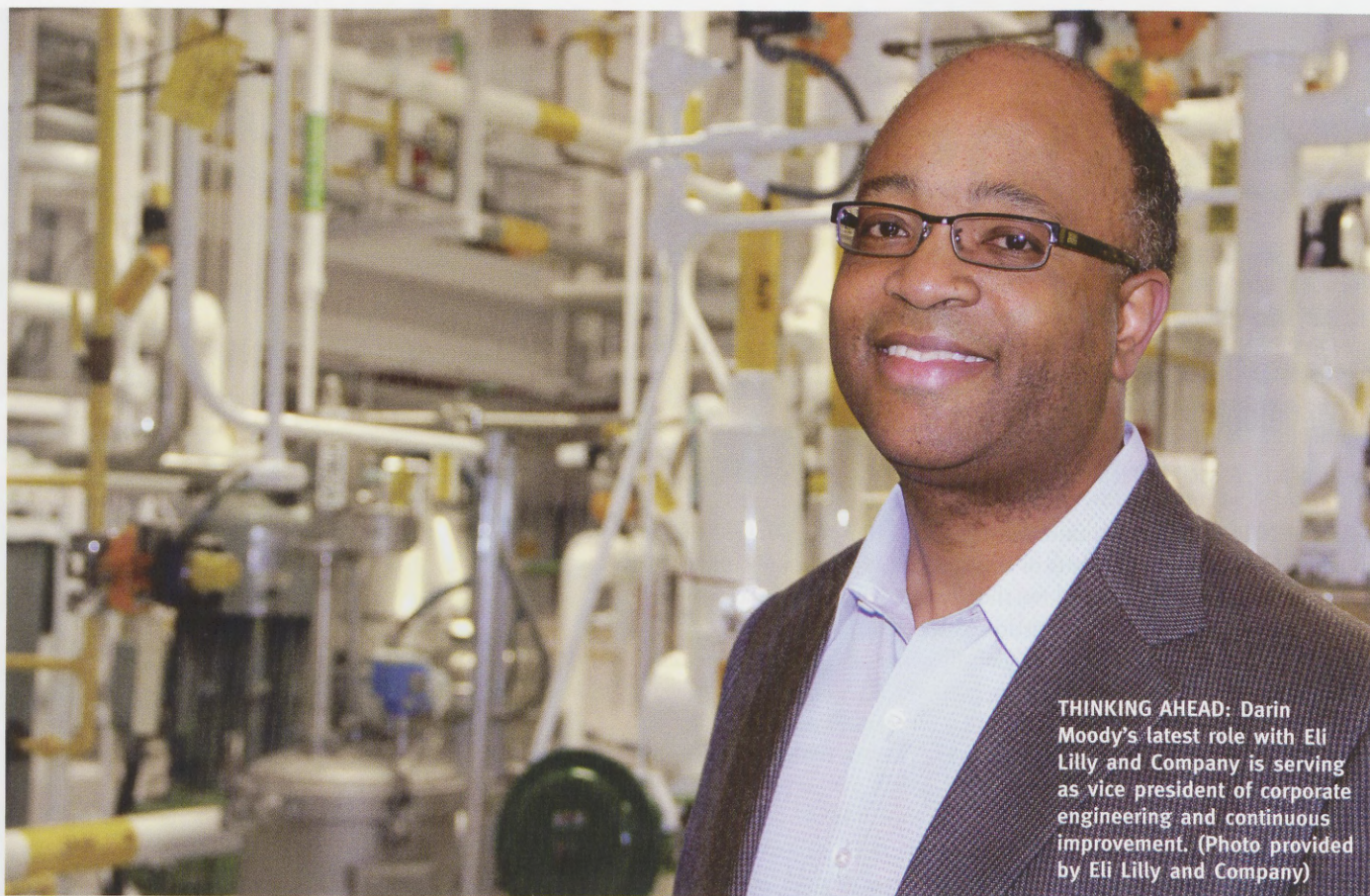
Life for Ayers has had a global flair ever since he left Rose-Hulman in 1971 with bachelor's degrees in mathematics and electrical engineering. After military service as a Navy missile officer, he returned to Terre Haute to earn a master of business administration at Indiana State University. He then went to work for Texas Instruments, which had manufacturing operations in faraway places. After that came Toshiba in 1981.

When Ayers was learning his craft in the 1960s and 1970s, there was less preparation for global careers because there wasn't the need that there is now. Even so, his Rose-Hulman experience provided a global perspective. "The humanities program gave a perspective of global culture," he says.

While international experiences are increasingly critical for today's engineering students, Ayers says it's important not to lose sight of the engineering itself. "I think a strong engineering foundation is still very key," he states. "We can usually globalize engineers within with our internal programs, but we're still looking for fundamentally good engineers."

And, those engineers will find themselves with a ticket to a very big world. "Engineering is a very good career for people who want to work in the global industries," he says. ■

Steve Kaelble is an Indiana-based freelance writer.



THINKING AHEAD: Darin Moody's latest role with Eli Lilly and Company is serving as vice president of corporate engineering and continuous improvement. (Photo provided by Eli Lilly and Company)

Moody Helps Expand Lilly's Global Impact By Steve Kaelble

When Darin Moody took his bachelor's degree in chemical engineering to work for Eli Lilly and Company in 1987, he didn't have to travel far, starting at the company's Clinton Laboratories near Terre Haute. In the 26 years since, his journey with Lilly has taken him around the world.

As vice president of corporate engineering and continuous improvement, Moody is responsible for the engineering activity at Lilly manufacturing plants around the world. He previously spent about three years as general manager of a plant in Liverpool, England. Though he's based in Indianapolis now, Moody spends about a quarter of his time on the road, often in faraway places.

"We have manufacturing operations on five different continents, and I am

also responsible for all of our delivery of capital construction projects," he says. "We have construction projects going on at our various sites around the world."

He adds, "I've been able to walk on the Great Wall of China, and stand next to the Sphinx and the Great Pyramid at Giza. Growing up in Jeffersonville, Indiana, I never thought I'd be doing those kinds of things."

The percentage of Lilly's activity outside the U.S. has grown significantly during Moody's career. That makes his work challenging and intriguing.

"We regularly work in teams that come from different parts of the world, which teaches you to not make assumptions about people having the same experience," he says.

"You really have to understand the various cultures where your operations are and

understand how the cultures affect how the work is done," Moody further explains. "How do you operate with consistent standards across so many cultures? How do you acknowledge the aspects of their cultures while maintaining a consistent approach?"

Moody notes that his first significant exposure to people from other cultures came through his Rose-Hulman experience. He's pleased to see the institution increasing its international opportunities. "There is a much greater emphasis and exposure to international perspectives on campus now," he remarks.

Lilly, a Fortune 500 company based in Indianapolis, has about 900 practicing engineers on the payroll, with about 40 percent of them outside the United States. "I'm proud of the fact that Lilly is the largest employer of Rose-Hulman graduates," says Moody, noting that more than 200 alumni have found work at Lilly. ■

Steve Kaelble is an Indiana-based freelance writer.



Lessons Learned

Institute Sets a Course to Meet the Need of Developing Next Global STEM Leaders

By Luchen Li, Associate Dean of Global Programs

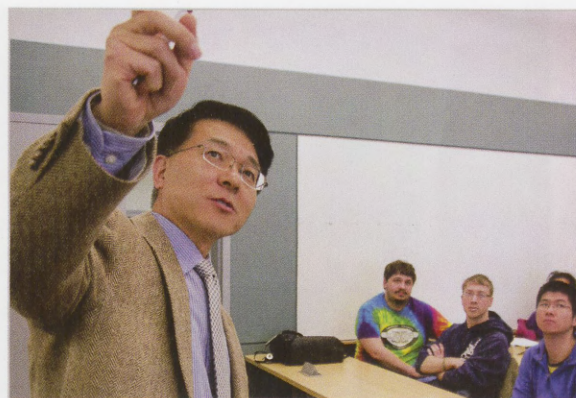
In the 2011 Academic Alumni Survey, our alumni encouraged the institute to add more global components in student learning, and they underscored the importance of global education for their careers, professions, and lives.

We listened and three of the institute's six goals have strategies to make Rose-Hulman and its students more globally connected. (*See sidebar below.*)

We're well on our way to achieving these goals, with many exciting international activities and global learning opportunities now being offered to our students, faculty, and staff members. These activities include senior design projects overseas, new courses with global components, faculty global engagement, more study abroad, and international internships.

There's a new second-major academic program in international studies, and new courses in International Team Management and Leadership and Global Challenges are models of curricular innovation that integrate global components into teaching and student learning. Geography professor Mike Kukral, PhD, and mechanical engineering professor Richard Onyancha, PhD, are taking 12 students to Kenya this summer for a two-week field studies program to explore the landforms, ecology, culture, and wildlife of the country's Rift Valley. Rose-Hulman is certainly benefiting from the campus community's growing passion in exploring and learning about the world.

These global learning experiences provide students with new knowledge, fresh perspectives, and multidimensional skills in problem-solving, leadership, and their overall competitiveness. Our graduates will be equipped with global agility, a skill required for success in a fast-paced international context. The global experience will help them make better choices, land better jobs, and lead better lives. They will also become better leaders in their fields and they will help make the world a better place to live. ■



GLOBAL MISSIONS: Luchen Li (top), PhD, associate dean for global programs, teaches a leadership and global challenges course; professor Ashley Bernal (ME, 2006), PhD, was among a Faculty Without Borders group visiting Kenya last summer; and computer science and software engineering students have spread Rose-Hulman's name across Sweden and Turkey during international design projects.

INSTITUTE'S GLOBAL STRATEGIES

GOAL 2, STRATEGY A:

Convey the message to current and prospective students that a science, engineering, and mathematics education can lead to a diverse range of futures that can positively impact the world.

GOAL 2, STRATEGY C:

Require every student to have at least one meaningful international experience.

GOAL 4, STRATEGY B:

Provide more opportunities for community members to experience the world and its diversity.

GOAL 4, STRATEGY C:

Become a globally connected community with a physical presence outside the United States.

GOAL 6:

Rose-Hulman will have global name recognition for the excellence of our education. ■



POPULAR DUO: Professors Marc Herniter (left) and Zac Chambers (ME, 1994) will introduce Chinese students to Model-Based Design principles this summer.

Faculty 'Rock Stars' Ready for China Teaching Tour

Story by Marianne Messina/Photo by Shawn Spence

Picture a typical empty classroom with seating for about 30 students. Then add students streaming in until there are 85 students anxious to hear the upcoming lecture.

That's the scene Rose-Hulman professors Marc Herniter, PhD, and Zac Chambers, PhD, encountered when teaching an introductory model-based systems design course last summer at Jilin University, China's largest automotive educational institution.

They came away feeling like rock stars as the Chinese students applauded their arrival and their exit each day.

"I'm the rock star; he's the brains,"

jokes Herniter, professor of electrical and computer engineering.

Both professors are returning to China this summer to take the four-day mini-course on the road to classrooms across China. And, in rock-concert fashion, they've called the upcoming adventure The Model-Based Design Power Tour. The Office of Global Programs is sponsoring it.

Herniter and Chambers, co-faculty advisors for the EcoCAR sustainable vehicle development project, earned expertise in model-based systems design the same way they teach it—through hands-on experience.

"We worked on three different hybrid vehicle systems over the past 10 years with about five integrated software vendors, and taught three different model-based design courses," says Herniter.

Course material came from notes on their projects, with some modification for the Chinese audience. "It's normally a two-day course that we're teaching in four days," says Herniter. Several hands-on activities and one-on-one learning have been built into the curriculum.

"We teach them the Model-in-the-Loop (MIL) portion of EcoCAR, building a MIL model of a hybrid vehicle using MATLAB, Simulink, and Stateflow," says Herniter. "MIL is the first level of testing, and relies on models that are completely digital, requiring no hardware," he states.

For students, working with MIL means "you can change parameters rather quickly," says Chambers (ME, 1994), an associate professor of mechanical engineering. He points out

engineers can also save money on expensive real-world trial-and-error techniques. "We have blown up thousands of virtual engines," he says. "That is way cheaper than doing it for real."

Rose-Hulman's three model-based design courses also feature instruction in Hardware-in-the-Loop (HIL) and Software-in-the-Loop (SIL), levels of physical components model testing. Graduates with knowledge in these areas are highly sought by manufacturers in several technical career fields. MathWorks and Freescale are providing software for the upcoming tour, and these professional relationships attract cutting-edge product development resources to Rose-Hulman.

Follow the Model-Based Design Power Tour in a blog that will be featured on www.rose-hulman.edu. ■

Marianne Messina is Rose-Hulman's web manager.



Careers take Cartwrights Across Globe

Story by Steve Kaelble/Photo by Terry Miller

Todd and Fred Cartwright may have taken their engineering degrees into different industries, but both found global understanding to be a powerful career asset.

"As an engineer, while it is absolutely possible to affect the world from wherever you are located, we both realize that maximum benefit comes from first-hand experience in the relevant culture," says Fred Cartwright.

Earning his mechanical engineering degree in 1980, Fred Cartwright drove into the automotive industry, spending more than 30 years working for various

"It's impossible to work at General Motors and not be affected by the rest of the globe."

—Fred Cartwright, ME, 1980
Former GM Executive

divisions of General Motors. He started with Allison Transmission, moved to work with customers throughout the world, and then served as vice president for alliances and new business development for GM's European operations.

"It's impossible to work at General Motors and not be affected by the rest of the globe," Fred Cartwright says. "You always have some linkage to the rest of the world."



WORLD TRAVELERS:
Todd (left) and Fred
Cartwright have
seen the world since
leaving Rose-Hulman.

That's not just for executives, but also engineers.

"I've had to consider global needs on virtually everything I do," he says.

In April, Fred Cartwright left GM, but has retained his focus on the automotive industry. He is now the executive director of Clemson University's International Center for Automotive Research. (See story on Page 29.)

Todd Cartwright followed his brother to Rose-Hulman, graduating with a mechanical engineering degree in 1989, and has spent his career with CB&I, a global engineering/construction company specializing in energy-related projects.

"One of my goals was to try to explore the world a little bit. CB&I has allowed me opportunities to travel and see different places," he says.

In 24 years with the company, Todd Cartwright has moved 14 times. After a two-year training program, he landed just outside of Johannesburg, South Africa. Then, it was onto Chicago, Dubai, and Saudi Arabia, a stop in Texas, time in Australia, back to Chicago, and finally to Houston last year. He now serves as vice president of LNG sales.

"Having that international experience helps you know how to adjust your approach based on the local customs and customers, and knowing how to deal with people of different nationalities who have different requirements and expectations," he says. ■

Steve Kaelble is an Indiana-based freelance writer.



INTERNATIONAL FACULTY FLAVOR: Electrical and computer engineering professors Jianjian Song (left) and Xiaoyan Mu (middle) are from China, while Yang Jin is a visiting scholar this year from China's Hubei University of Automotive Technology.

The China Experience: Exchange and Enrichment

Story by Marianne Messina/Photo by Shawn Spence

When China's Hubei University of Automotive Technology offered Yang Jin, PhD, the opportunity to expand her educational horizons anywhere in America, she chose to become a Rose-Hulman Visiting Scholar and lend her technical expertise to the institute's EcoCAR2 team.

It has been a win-win situation all around. After all, Jin teaches automotive theory, mechanical vibration, and LabVIEW programming in Hubei's Department of Automotive Engineering. Her aptitude for model-based software

is being utilized as a co-advisor for the EcoCAR2 team's Hardware-in-the-Loop controls. This software allows for virtual testing of component parts, saving the time and cost of testing with real components.

"Professor Jin brings perspectives and experience in automotive software development that's invaluable to our EcoCAR2 team members," says mechanical engineering professor Zac Chambers, director of the institute's advanced transportation program.

Jin is also benefiting from her time on campus. She will be taking home

lessons from attending classes taught by Rose-Hulman's award-winning faculty members. "The teaching here is top-level and very engaging. I can see why Rose-Hulman is the best in undergraduate education," she says.

Lessons learned from a year's sabbatical at Delphi's advanced engineering group in Shanghai, China, has helped Electrical and Computer Engineering (ECE) Professor Xiaoyan Mu, PhD, bring leading-edge automotive technology lessons to her classes. She received first-hand experience with pattern-recognition technology for advanced driver assistance, as Delphi engineers develop systems that recognize and take corrective action in potentially hazardous driving situations.

Professor Mu, a graduate of China's Northeastern University, has brought back challenging, industry-based projects that have Rose-Hulman students exploring technology that might be a component in future automobiles.

"Our students have really great ideas that Delphi engineers don't think about," she says.

Meanwhile, Rose-Hulman is developing educational partnerships with several Chinese institutions. Students from Huazhong University of Science and Technology (HUST) have spent the past two summers on campus taking a high-speed digital design course and serving as mentors for the Operation Catapult program for American high school students.

"Our classes are eye-opening to Chinese students. They're used to just memorizing all the facts," says program coordinator Jianjian Song, PhD, an ECE professor and HUST graduate. It doesn't take long for the Chinese students to appreciate Rose-Hulman's project-based learning style. "They become very innovative," he states.

Song and mechanical engineering professor Patsy Brackin, PhD, have visited HUST to establish an Operation Catapult-like program, and ECE professor Mark Yoder, PhD, has taught one semester at the Chinese institution. ■

Marianne Messina is Rose-Hulman's web manager.



REALIZING HER DREAMS:
Rose-Hulman has provided Chinese native Ruoyun "Keri" Li with skills to become a mechanical engineer.

STUDENT FEATURE

Chinese Native Gets Most from Campus Life

Caring Atmosphere Helps Student Make Transition

Story by Terri Hughes-Lazzell/Photo by Chris Minnick

Rose-Hulman is gaining an international reputation with an all-time high 182 students on campus this year from around the globe.

Ruoyun "Keri" Li found her way to campus from China, where her interest

in engineering was encouraged at a prep school in Nanjing, the capital of Jiangsu province in the eastern regions of the Asian country. She learned English while studying at a bilingual middle school—where English and Mandarin were

taught—and continued to excel in the second language throughout high school.

Her plans for college turned to the United States and Rose-Hulman, in particular, because of the institute's top ranking for undergraduate engineering, according to *U.S. News & World Report's* annual survey of American college presidents and engineering academic deans.

Leaving her home and country behind wasn't easy, but Li knew Rose-Hulman was the right choice. A global scholarship helped make the decision affordable. The junior mechanical engineering student hasn't been disappointed with her decision.

"I have been very impressed that Rose-Hulman cherishes its students," she says. "The administration is always seeking student opinions about campus life, new facilities, and what new academic courses to offer."

Rose-Hulman faculty and staff members also extended the welcome mat, helping make a smooth transition between cultures and learning styles.

"I feel truly fortunate to have all the great Rose-Hulman professors. They are the key factor to the high-quality education," Li states.

"Although I always earned good grades in English classes in high school, it was still quite challenging to take all the college classes in 100-percent English," she recalls. "In my freshman year, I received a lot of help from my professors and friends. I quickly adjusted to the living and studying environments, and started to enjoy my college life," she adds.

Li helped a team win a freshman year LEGO-based robotics competition, has become a leader in the campus' Society of Asian Scientists and Engineers chapter and other student organizations, and even competed on the varsity rifle team this winter.

"Being an engineer has always been my dream, and I made the right choice coming to Rose-Hulman," she says. "I appreciate the opportunities that the college has afforded me. It has stimulated my fullest potential as a college student." ■

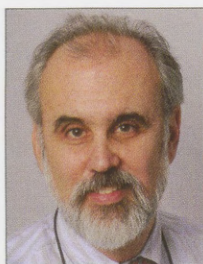
Terri Hughes-Lazzell is Rose-Hulman's marketing manager.

'Brazilian Day' Brings Spirit, Visitors to Campus



Rose-Hulman celebrated the culture, food, and goodwill of Brazil by hosting a special Brazilian Day campus event, featuring the largest gathering of Midwest students participating in the South American country's Science Mobility Program. Seventeen students from throughout Brazil have been attending the institute for the past year. In a letter of gratitude for the event, Paulo Canargo, Consulate General of Brazil in Chicago, states, "Your commitment made possible a unique and multifaceted international exchange that is showing signs of inspiring similar events in other locations." ■

HARDYMON PROVIDING INSIGHT AS COMMENCEMENT SPEAKER



Felda Hardymon

Felda Hardymon, PhD, one of the world's notable experts in entrepreneurship education and venture capital, will receive an honorary doctorate degree and address members of the Class of 2013 during this year's commencement exercises.

Hardymon, a 1969 mathematics alumnus, is a partner with Bessemer Venture Partners (BVP), one of the oldest venture firms (founded in 1911) and now a global organization with \$1.6 billion under management. He has led Bessemer Venture Partners' investment with a number of young companies in the software, communications, and retail sectors. Since 1998, Hardymon also has taught and conducted research at Harvard Business School and is currently a visiting professor of finance at the London School of Economics.

Hardymon has been named several times to the Forbes Midas 100 List of Venture Capitalists who possess the proverbial "golden touch" and is co-author of the bestseller *Venture Capital and Private Equity*. ■

TAKING NOTE

MATH PROFESSOR SHINES IN MICROSOFT'S BLOG

The approach of mathematics professor Diane Evans, PhD, to motivate students has been featured on Microsoft's Daily Adventures blog to showcase the



importance of STEM education. Anthony Salcido, vice president of education for Microsoft's worldwide public sector organization, points out Evans' commitment to lifelong learning "inspires students and educators alike to innovate, take risks, and push boundaries." ■

TV SHOW SPOTLIGHTS BRAIN SURGERY DEVICE

The NICO Myriad brain surgery device developed and manufactured by Indianapolis-based NICO Corporation, with assistance from Rose-Hulman Ventures, was used in the premiere episode of the TNT cable network show, *Monday Mornings*. The device saved a baby who suffered from chronic laughing seizures—mirroring the story of Nico Bastolla, the first patient operated with the NICO Myriad.

TEAM WINS INDIANA ASCE DESIGN TITLE

A design project for Ghana's Boankra Inland Container Depot by seniors (from left) Chaela Jean, Justin Kerns, and Priscilla Magee won in this year's

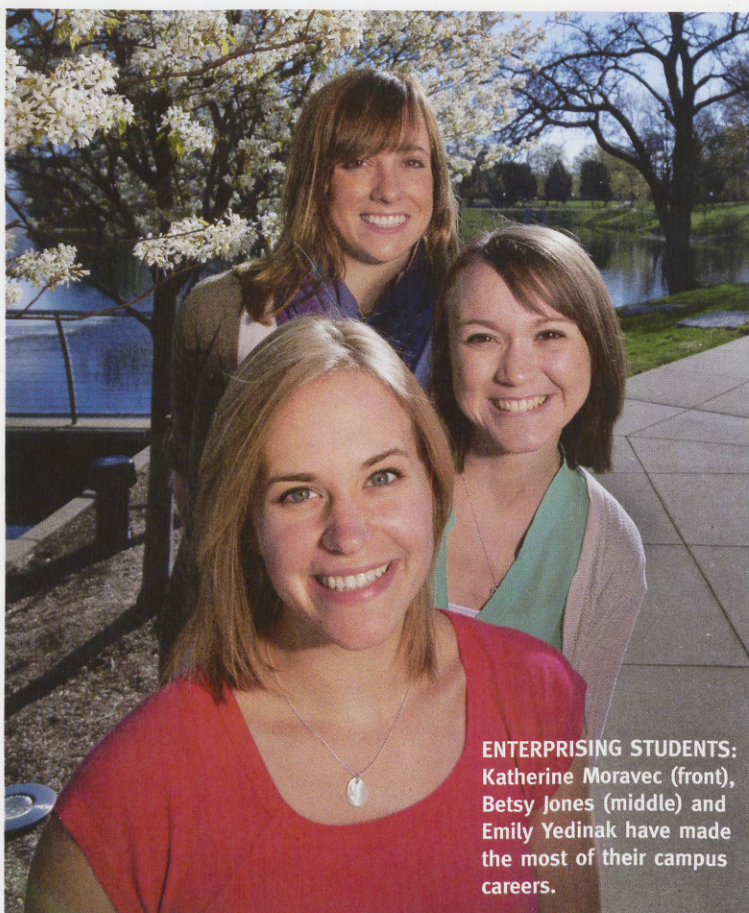


American Society of Civil Engineers' Indiana Section competition. The team had weekly Skype meetings to work with students at Ghana's Kwame Nkrumah University of Science and Technology on the project.

LILLY ENDOWMENT CONTINUES PRISM SUPPORT



The PRISM program will continue to provide free online resources for Indiana middle-school educators in STEM fields through a \$950,000 grant from Lilly Endowment Inc. The program has also joined with the Vigo County School Corporation on a \$450,000 Math Science Partnership grant, awarded by the Indiana Department of Education, to provide summer teacher workshops for the next three years. ■



ENTERPRISING STUDENTS: Katherine Moravec (front), Betsy Jones (middle) and Emily Yedinak have made the most of their campus careers.

Global Scholars

Students Earn Top Postgraduate, Summer Research Opportunities

Oxford, Harvard, and University of Santiago are the destinations for three students after being named a Fulbright U.S. Student, Goldwater Scholar, and Whitaker Fellow—three of the most prestigious honors in undergraduate science and engineering education. These awards are based on outstanding scholarship achievements, research activities, community and campus service, and a desire to become a future leader in their career fields.

Stories by Dale Long/Photos by Shawn Spence and Larry Ladig

Fulbright Program Allowing Yedinak to Realize Global Dreams

Emily Yedinak packed everything into her four years at Rose-Hulman. Now, she will soon pack her bags as a Fulbright U.S. Student, working as a student researcher in a special graduate studies program at the University of Santiago in Chile.

Fulbright is the flagship international educational exchange program sponsored by the United States government, designed to increase mutual understanding between the people of the U.S. and people of other countries.

Yedinak, a senior who will earn degrees in chemical engineering and chemistry, will be researching carbon nanotube and electro ceramic composite materials. This study may assist in the detection of hydrogen peroxides for diabetes diagnosis.

"As far back as high school, I always wanted to travel abroad. However, I was so academic (3.85 GPA) and career focused that there was never enough time. I almost gave up on that dream," says Yedinak, a native of Lake in the Hills, Illinois.

That adventure will begin in March 2014, as one of only 13 U.S. undergraduate and graduate students in the program to study in Chile next year. Only 17 percent of Fulbright Program applicants wanting to study in South America were accepted this year.



Emily Yedinak:
Fulbright U.S. Student

At Rose-Hulman, Yedinak has completed a research project for the Independent Projects/Research Opportunities Program, has been president of the Tau Beta Pi engineering honor society, and had the lead as Roxie in the drama club's musical production of *Chicago* this spring.

"I like to keep busy," she says.



Betsy Jones:
Whitaker Fellowship

"Betsy epitomizes something of the new ideal of a Rose-Hulman graduate, combining a high level of technical competence coupled with a deep knowledge of the political and social world around her."

—Terrence Casey, PhD

Head of the Department of Humanities and Social Sciences

Whitaker Scholarship Providing Jones with Oxford Adventure

Betsy Jones is living a dream that will take her all the way to England's prestigious Oxford University to expand her biomedical engineering studies as one of 40 American college students studying abroad in 2013-14 through the Whitaker International Program.

The fellowship encourages emerging U.S. biomedical engineering leaders to see the career from an international perspective through a self-designed overseas project. This will allow Jones to conduct research in orthopedic biomechanics while earning a master's degree in biomedical engineering at Oxford—continuing a journey that has included educational opportunities at Rose-Hulman and industry experience with global medical pioneers Cook Medical and Eli Lilly and Company.

"I love biomechanics," the senior says. "I want to contribute to research that will improve the quality of life for people by improving their mobility."

Jones also has a deep passion for international studies and will be among three students being awarded Rose-Hulman's first undergraduate degree in international studies. Her senior international studies thesis on the approval process for medical devices in the U.S. and Europe combined her interests in biomechanics and international studies.

"I'm thrilled and grateful to study what I love at Oxford as a Whitaker Fellow. I can't wait to experience biomedical engineering from an international perspective," Jones says.

Research Interest Leads Moravec to Goldwater Award, Summer at Harvard

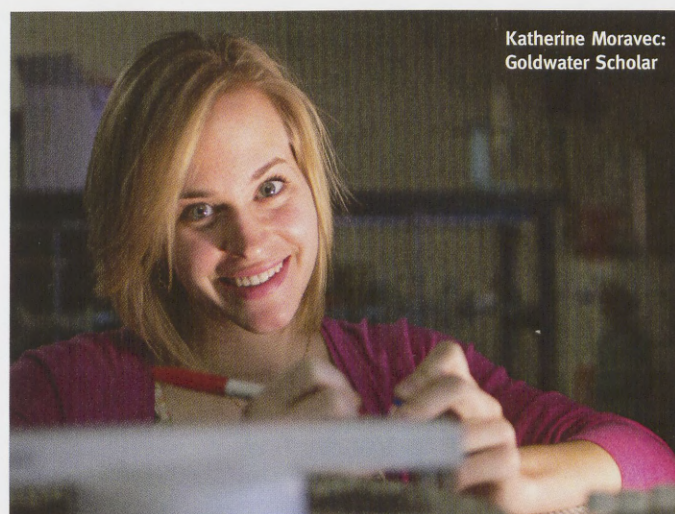
Katherine Moravec's love of science and research was rewarded with her selection among an elite group of America's Goldwater Scholars, one of the most prestigious honors for undergraduate science, engineering, and mathematics students.

This news comes after the junior chemical engineering major was chosen to participate in a summer internship at the Harvard Medical School's Stem Cell Institute.

"Research is so exciting. It's where I feel that I can make a difference," Moravec says. "You read about all of the exciting medical discoveries being made every day, and it all starts in the research laboratory."

Moravec has spent two years working alongside Chemistry and Biochemistry Professor Ross Weatherman, PhD, on a project examining new compounds to treat tamoxifen-resistant breast cancer. She is interested in continuing research at medical school, preferably in the field of stem cells. That's where this summer's internship at Harvard's Stem Cell Institute could pave the way for her future.

"Katherine's intellect, perseverance, and social skills are her greatest strengths," Weatherman says. "She does not have many weaknesses. I think the summer undergraduate experience at Harvard will help her crystallize decisions about her future in medical research."



Katherine Moravec:
Goldwater Scholar

"Katherine's intellect, perseverance, and social skills are her greatest strengths. She does not have many weaknesses."

—Ross Weatherman, PhD

Chemistry and Biochemistry Professor



BATTLE-TESTED ROBOTS: High-school teams clear the playing field after six robots completed a competition round at the FIRST Robotics' Crossroads Regional on campus this spring.

Robots Score for STEM at FIRST Regional; Kamen Surprise Visitor

Rose-Hulman's FIRST Robotics regional was a highly spirited, three-day competition with robots designed by students at 50 high schools from seven Midwest states, along with a surprise visit by FIRST Founder Dean Kamen. The event was conducted in the Sports and Recreation Center on April 4-6.

Three-team alliances worked together to score as many Frisbees as possible into goals at opposite ends of the large playing field during two-minute and 15-second matches. Then, robots climbed pyramids located near the middle of the field.

Carmel High School's TechHOUNDS joined with Indianapolis Perry Meridian High School's Cyber Blue and Lafayette

Jefferson's Precision Guessworks teams to capture top honors.

"This was the most competitive regional in my 14 years involved with FIRST Robotics," says Steve Florence, Indiana FIRST regional director. "From the very first qualifying match, you could tell that this was going to be a top-flight event."

Kamen, who founded FIRST to inspire tomorrow's STEM leaders, was also impressed with the enthusiasm displayed by students, teachers, mentors, and event organizers at Rose-Hulman.

"This may be the hardest fun game that these kids have ever played," remarks Kamen, inventor and founder of DEKA

Research and Development. "This is the sport of the future."

The regional was organized by a committee of volunteers led by Carlotta Berry, PhD, associate professor of electrical and computer engineering. Several faculty and staff members, students, and alumni assisted as judges, production assistants, and support staff.

"We hit the ball out of the ballpark with this event," Berry says. "The fact that Dean Kamen came made our regional so special."

Jason Zielke (ME, 2000; MSEM, 2002), president of Precise Path Robotics, earned the regional's Volunteer of the Year Award. ■

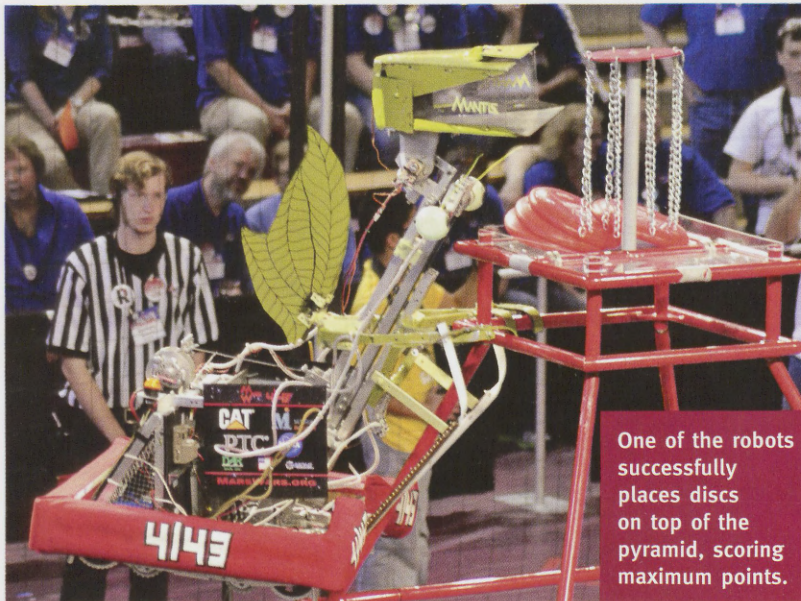
FIRST ROBOTICS REGIONAL



Professors Carlotta Berry, Phillip Cornwell, and David Voltmer admire the robots during the competition. Berry was event director.



Competitors, parents, and fans filled the Sports and Recreation Center's Hulbert Arena during the three-day event.



One of the robots successfully places discs on top of the pyramid, scoring maximum points.



A member of Carmel High School's TechHOUNDS team shows his excitement in winning top honors.



Members of Pike High School's RoboDevils team were having fun getting the most from their robot.



FIRST Robotics Founder Dean Kamen exchanges ideas with regional participants during a surprise visit to campus.

Bailey Challenge

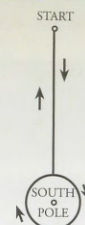
By Professor Emeritus Herb Bailey, PhD

IT HAS BEEN STATED that there are no new puzzles, only variations of old ones. Electrical and Computer Engineering Emeriti Professor David Voltmer recently brought to my attention The Blue Eye Puzzle, reported to be the world's hardest logic puzzle. This issue's Super Bonus problem is my variation of this puzzle. One hint for solving any hard problem: Start by posing and solving an easier one that is similar.

SPRING PROBLEM NUMBER 1

A grandmother gave each of her granddaughters the number of dollars equal to the number of granddaughters. She also gave each of her grandsons the number of dollars equal to the number of grandsons. If she gave her grandchildren a total of \$65 then find all possible distributions of grandsons and granddaughters. (If my wife used this gifting plan, we would be out some \$45. What can you conclude about our grandchildren?)

SOLUTIONS TO THE WINTER CHALLENGE: The walking problem was to walk 10 miles south, then 10 miles east and finally 10 miles north, ending where you started. One starting point could be the North Pole. Another is near the South Pole, with the second leg a circle around the pole with a circumference of 10 miles. The first leg has a length of 10 miles and leads south to this circle. The third leg then returns to the start. The circle radius is 1.59 miles and thus the start is 11.59 miles north of the South Pole. There are an infinite number of additional solutions that are similar. For example, the circle could have a circumference of five miles and the walker takes two trips around before returning to the starting point.



Send your solutions to Herb.Bailey@rose-hulman.edu or to Herb Bailey, Department of Mathematics, Rose-Hulman, 5500 Wabash Ave., Terre Haute, IN 47803. Alumni should include their class year.

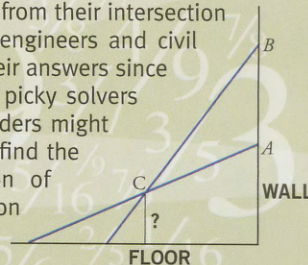
Congratulations to the following solvers of the winter problems:

ALUMNI: K. Hauser, 1948; T. Jones, 1949; D. Camp, 1955; B. Hall, 1955; C. Cooper, 1956; David Bailey, 1959; R. Archer, 1961; J. Tindall, 1961; C. McCoy, 1962; J. Snyder, 1962; J. Albertine, 1969; D. Crisler, 1969; R. Dutton, 1969; B. Meyers, 1969; S. Jordan, 1970; R. Pasco, 1972; R. Collins, 1973; W. McNiece, 1973; M. Marino, 1973; R. Andrews, 1974; S. Sims, 1974; D. Wheaton, 1974; D. Starr, 1975; J. Turner, 1975; M. Bailey, 1976; J. Schroeder, 1976; W. Bayles, 1977; P. VandeMotte, 1977; T. Greer, 1978; R. Priem, 1979; R. Joyner, 1980; R. Roll, 1981; M. Taylor, 1982; D. Batta, 1983; M. Talley, 1985; L. Cramer, 1986; G. Van Alkemade, 1986; B. Wright, 1986; D. Johnson, 1987; M. Lancaster, 1987; C. Abdnour, 1989; S. Terek, 1989; G. Heimann, 1990; B. Burger, 1991; R. Hochstetler, 1991; P. McCrudden, 1993; J. Atkins, 1994; C. Rettig, 1994; C. Hintz, 1995; B. June, 1996; M. Ley, 1997; M. Pilcher, 1998; P. Swickard, 1998; M. Henderson, 2002; B. Waggoner, 2003; T. Claffey, 2005; T. Perne, 2006; L. Deutschy, 2008; D. Schluneker, 2008; J. Sedoff, 2009; A. Johnson, 2011; and L. Mehringer, 2012

FRIENDS: J. Andrews, A. Cutaia, T. Cutaia, J. Ley, D. Leversen, F. Li, J. Marks, M. North, F. Otero, P. Parshall, L. Puetz, J. Przybylinsk, G. Tikijan T. Wade, and E. Wern

SPRING PROBLEM NUMBER 2

Two 25-foot ladders lean against a vertical wall at points A and B, where A is 10 feet above the floor and B is 20 feet above the floor. Find the distance from their intersection point C to the floor. Mechanical engineers and civil engineers will be able to check their answers since the figure is drawn to scale. (For picky solvers who refuse to solve since the ladders might be sliding, their assignment is to find the intersection height as a function of time with suitable assumptions on masses and friction coefficients.)



SPRING SUPER BONUS

A group of people with various eye colors is on a Greek island. They are all great logicians, like their forefathers. They can see the eye color of the others, but not their own. They gather every day at noon and at that time a mysterious foreigner appears and tells them whether or not he sees any grey eyes. One at a time (in random order) they then state either, "I know that I have grey eyes," or "I do not know that my eyes are grey." If anyone reports that he knows that his eyes are grey, he leaves the island and the rest stay on the island to repeat the procedure the following noon. If there are initially 100 residents with grey eyes and 100 residents with brown eyes, then who leaves the island? And on what day? (This initial distribution of eye colors is not known to the islanders, they know only what they can see. Also, they cannot communicate with each other.) Hint: Start with an initial population of 1,1 instead of 100,100.

The original Blue Eye Puzzle has the same setting as the Super Bonus, except the foreigner comes only once and tells them that he sees some blue eyes. Then, at noon on each successive day, they are to leave the island if they know the color of their own eyes. If there are initially 100 residents with blue eyes and 100 residents with brown eyes, then who leaves the island? And on what day?

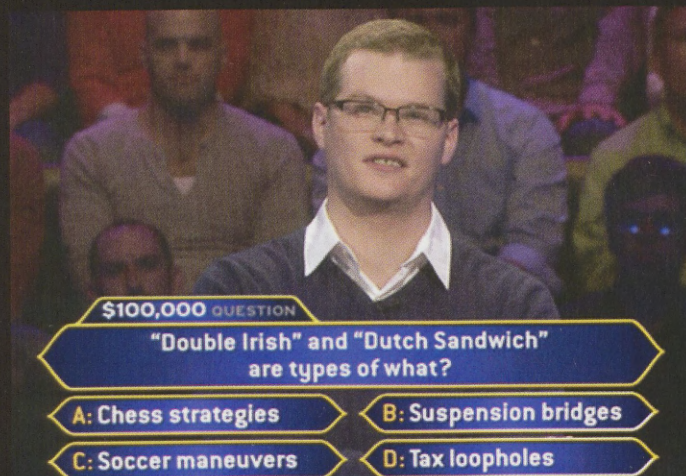
ALUMNI PHOTO ALBUM



TOP VOLUNTEER: Jason Zielke (ME, 2000; MSEM, 2002), left, earned a Volunteer of the Year Award for his longstanding support as a mentor for the FIRST Robotics program.



HELPING OTHERS: Sami (Dick) DeVries (ME/BE, 2008; MSBE, 2010) helped provide prosthetic devices to amputees in Sierra Leone through the New Life with Limbs group.



'MILLIONAIRE' WINNER: Jon Papp (ME, 2010) won \$25,000 on the nationally syndicated "Who Wants to be a Millionaire?" television show. He was stumped on the \$100,000 question.



SEEING DOUBLE: Kris (Dobbins) Whittington (SE, 2008) is featured on recruiting materials for Interactive Intelligence, where she is a test engineer.



ON CENTER COURT: Central Indiana alumni and guests took a special tour of Bankers Life Fieldhouse, home of the National Basketball Association's Indiana Pacers.



MINNESOTA MEETING: Alumni living in Minnesota enjoyed dinner and conversation during a gathering this winter in Minneapolis.

Franko on Front Lines as Green Beret

Story by Dale Long/Photo by James Garber

The challenges are numerous for Richard Franko as an elite United States Army Special Forces Officer, a Green Beret, serving his country amid conflicts and high tensions in the Middle East and South America.

For example, soon after joining Operation Iraqi Freedom, Franko's 591st Sapper Company came under fire during a routine route clearing in Mosul, Iraq. A lieutenant colonel serving as a battalion commander was killed, along with his security detachment, and an Iraqi interpreter.

Franko watched as Iraqi Army partners heroically attempted to save the lives of the U.S. soldiers from a burning vehicle and returned fire on the enemy (their fellow country citizens). They joined with U.S. forces in completing the mission, moved to America in 2010, and became important role players for the Army Special Forces unit at Fort Bragg, North Carolina.

"I work with a small group of people who are really committed to what they're doing," says Franko, who related the story to Rose-Hulman's residence life staff members while receiving this year's Jess Lucas Alumni Leadership Award. The honor recognizes former residence life student leaders for distinguished career and personal achievements.

LUCAS AWARD
WINNER: Richard
Franko (CE, 2007)
received this year's
Jess Lucas Alumni
Leadership Award.



The 2007 civil engineering alumnus remembers once sitting among the group, serving as a resident assistant and sophomore advisor. He was also a four-year Army ROTC cadet, commander of the Wabash Battalion cadet unit, and was a national ROTC George C. Marshall Award winner.

Not surprisingly, Franko's honorable military career has continued after his commissioning. He was an honor graduate of the engineer basic officer leadership and Army Sapper leader courses, received the Steel Order of the de Fleury Medal for exemplary platoon leadership as a junior engineer battalion leader, and recently was a honors graduate of the Special Forces qualification course and Army Ranger School.

As a Green Beret, Franko is prepared to lead missions dealing with

combatting terrorism, unconventional warfare, foreign internal defense, special reconnaissance, and information operations—on call during peacetime, conflict, and war.

"The training scenarios I have been exposed to have progressively become more and more realistic and demanding. However, none of them have been as demanding as the day-in, day-out grind of a Rose-Hulman student, and I am grateful for that each day as an Army officer," he says. "Like the Green Berets, Rose-Hulman's residence life staff is comprised of a small group of individuals who truly care about their mission to help the students attain their degree, while becoming better engineers and leaders." ■

Dale Long is Rose-Hulman's director of media relations.

1966

James W. Lane (CE) and wife, Catherine, received the 2013 Service to Mankind Award from the Old Capitol Sertoma Club of Iowa City, Iowa, for their many community contributions. He is an investment consultant with Heartland Investment.

1971

Dan J. Davis (CHEM) has been appointed chairman of the Department of Chemistry and Biochemistry at the University of Arkansas. He has been on faculty at UA since 1979.

David J. Schramm (CHE), was the keynote speaker at this year's Clean-Tech Investor Summit, presented by the International Business Forum. He is CEO of Maxwell Technologies.

1972

Robert J. Marks II (EE; MSEE, 1973) was named one of The 50 Smartest People of Faith by thebestschools.org. His Evolutionary Informatics Lab has demonstrated severe constraints on the creative potential of Darwinian-style algorithms. He is distinguished professor of electrical and computer engineering at Baylor University.

1977

Philip H. Wehl (ME) retired from Kennametal Inc. on December 31, 2012. He is now consulting for firms pursuing operational excellence.

1978

Lawrence R. Gavin (ME) has been appointed executive director and chief procurement officer of Columbus McKinnon Corporation. He recently served as procurement director for Navistar International.

1981

Randal J. Braker (CE) was honored for 25 years as general

manager for the Duck River Utility Commission, which provides water resources to south central Tennessee customers.

1984

John T. Bingle (ME) is now responsible for investor relations, in addition to being treasurer, with Ferro Corporation, a global supplier of technology-based performance materials. He joined the company in 2004 after positions in finance, treasury, and investor relations with Steris Corporation, Invacare Corporation, and BFGoodrich.

1986

Russell C. Tharp (ME) has been appointed to the Texas Emissions Reduction Plan Advisory Board. He is an engineer and director of regulatory affairs for Goodman Manufacturing Company.

1988

Brian P. Major (ME) has joined AlixPartners LLP as managing director in the global business advisory firm's enterprise improvement unit. He brings broad consulting experience from McKinsey & Company.

David L. Troyer (ME) is the new managing director of high yield and leveraged finance research for the Seaport Group, an emerging leader in global credit markets.

1992

William N. Eccles (EE) is principal electrical engineer for Bloomy Controls, Inc. His responsibilities include equipment design, business development, and new product development.

1995

Phillip E. Gralik (CE) is the new city engineer for Hobart, Indiana, after being district traffic engineer for the Indiana Department of Transportation.

Abbas (Adam) Razavian

(MSEE, 1995; MSEM, 1997) is the new technical director at the Naval Surface Warfare Center in Crane, Indiana.

1998

Ryan J. Loftus (CHE) is a Six Sigma Black Belt process engineer for DuPont and lives in Terre Haute with his wife, Mandy, and three children.

2000

Mandy L. (Smith) Loftus (EE) is the site electrical engineer for Bemis Company's Terre Haute

plant. She lives in Terre Haute with her husband, Ryan, and three children.

2002

Michael Henderson (CPE) and family are moving to Dar es Salaam, Tanzania in October as missionaries with Africa Inland Mission. He worked for 11 years as an information security professional.

William A. McKenna

(CS/MA) has been named a partner with the Indianapolis law firm of Woodard, Emhardt, Moriarty, McNett & Henry LLP.

ALUMNI NEWSMAKERS



CARTWRIGHT ACCEPTS NEW CHALLENGE AT CLEMSON

Seasoned auto industry executive Fred M. Cartwright (ME, 1980) is now leading one of the world's foremost automotive research campuses into an exciting new era of research and collaboration. He has been appointed executive director of the Clemson University International Center for Automotive Research, after spending 30 years in the automotive industry with General Motors.

Cartwright's experience includes design and development of advanced powertrains for commercial and military vehicles, management of GM's hybrid bus program, and numerous new business-development initiatives involving other auto manufacturers. He was vice president for alliances and new business development for General Motors Europe and most recently was director of new business initiatives based in Detroit.



WEBER NAMED PRESIDENT/CEO OF VEHICLE MANUFACTURER

Mark D. Weber (ME, 1979) has been selected president and chief executive officer of Supreme Industries Inc., a leading manufacturer of vehicles including truck bodies, buses, armored vehicles, and specialty vehicles. He brings a market-based strategic perspective, a high level of customer focus, and a strong commitment to talent development.

Since 1996, Weber served as an executive at Federal Signal Corporation, being a group president responsible for five divisions supporting global customers in the firefighting, municipal cleaning, industrial access, and industrial-cleaning market segments. He also spent 17 years at Cummins Engine Company, serving in a variety of operations management and new product development assignments. ■

CLASS NOTES

2005

Janae Chaney (ME) was a finalist in Cincinnati's Finest Finale campaign, which honored the city's finest young professionals. She is an engineer for Duke Energy.

2007

Gautham Venugopalan (ME) earned a doctorate in bioengineering at the University of California-Berkeley, and started a non-profit (www.futurescientist.org) for engineering design education in third-world countries.

2010

Elaine F. Houston (BE) has received the Carnegie Science Award for outstanding

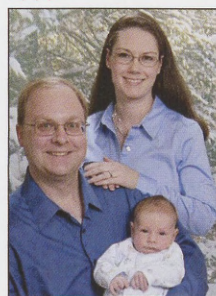
university/post-secondary student. She is a graduate student at the University of Pittsburgh. Houston has dedicated countless hours toward research projects, including a motorized wheeled appliance with robotic arms.

2012

Chad C. Conway (ME), a mechanical design engineer for Tesla Motors in California, is combining his passions for entrepreneurship and cycling to ride 100 miles, starting June 2 in Lake Tahoe, Nevada, in a @1dollar4cancer campaign to raise awareness and support for cancer patients and advanced research. Support Chad's efforts at 1dollar4cancer@gmail.com. ■

Rosebuds

1997



Erich R. Kunnemann (CHE) and wife, Lonnlei, had a son, Coen, on September 22, 2012.

1999

Kimberly (Hayden) Henthorn (CHE) and husband, David, had their second daughter, Charlotte, on April 11, 2013. Both parents are chemical engineering professors at Rose-Hulman.

2000

Andrew Wlazlo (ME) and wife, Mary, had their second child, Mark, on September 22, 2012.

2005

Christopher D. Cummings (ME) and wife, Alexis, welcomed their third daughter, Lovie, on February 13, 2013. The family lives in Greencastle, Indiana, where he is an energy solutions engineer for GEM Energy.

2002



Robert F. Guratzsch (CE) and wife, Joana, had a daughter, Clara, on February 24, 2013 in Rio de Janeiro, Brazil. He is a drilling and measurements field engineer for Schlumberger's international mobile division, after earning a doctorate from Vanderbilt University in 2007.

2008



Chris Achard (CPE) and Brittany (McNeill) Achard (CS) had a son, Leo, on December 1, 2012.

2009

Zach Gilmore (ME) and wife, Tina, welcomed their first child, Rosalee, on October 18, 2012. The couple was married on November 12, 2011.



2010

Tina (Trivett) Gilmore (ME) and husband, Zach, had a daughter, Rosalee, on October 18, 2012.

Darcie (Thomas) Jones (BE; MSEM, 2012) and husband, Steven, had a daughter, Raelin, on December 28, 2012.



2011

Steven Jones (ME) and wife, Darcie (Thomas), had a daughter, Raelin, on December 28, 2012.

Steven Juszczak (ME) and wife, Katie, had their first child, Liam, on November 2, 2012. The couple was married in 2011 in Portage, Indiana, and now lives in Burns Harbor, Indiana, where he works for ArcelorMittal. ■

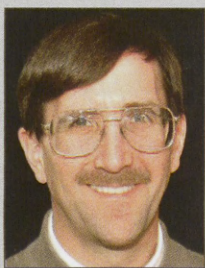
ALUMNI NEWSMAKERS



LI A DECISION-MAKER FOR GLOBAL INVESTMENTS

As managing director of Pacific Crest Security's team in China, Jason Li (MSEE, 1995) has spearheaded opening the firm's Beijing office. He has been a significant contributor to its investment banking activities in China, including the completion of successful public offerings for 21Vianet, AutoNavi, ChinaCache, Renren, Taomee, and Youku.com.

Prior to joining Pacific Crest in 2007, Li had more than 13 years of international and China experience, holding various senior positions for multinational corporations, joint ventures, and domestic Chinese companies, including Nokia and China Mobile.



MCCLEARY SOON TO COMPLETE MARATHONS IN 50 STATES

Kenny McCleary (CHE, 1983) will become the newest member of an exclusive group of marathon runners, the 50-State Club, when completing the Mayor's Marathon in Anchorage, Alaska, on June 20. He ran his first marathon in 2001 and became intrigued by the chance to visit every state in the U.S. while visiting family and Rose-Hulman alumni along the way.

"I run marathons because finishing one is a hard thing to do," he says. "There's no way to fake your way through it. You have to put in the work and complete the preparation. Other Rose-Hulman graduates and students can probably identify with the satisfaction from completing something that is a real challenge—either mental or physical." ■

Obituaries

1947

Richard F. Rieman (ME), 90, died on March 9, 2013, in Zionsville, Indiana. He spent 35 years as an engineer for Western Electric before working 11 years for Ertel Manufacturing.

1948

Robert J. Cooney (CE), 91, died on January 28, 2013, in Avon, Indiana. He served as director of public works for Indiana and chief engineer for the Indiana Utility Regulatory Commission.

Richard J. McDaid (CE), 86, died on March 18, 2013, in Wooster, Ohio. Career highlights include serving as Wayne County (Ohio) engineer, being a design engineer at United Steel Fabricators, and founding Engineering Associates.

1949

Gerald C. "Jerry" Miller (CE), 86, died on January 30, 2013, in Rocky River, Ohio. He was president and owner of Miller Engineering & Construction Company, and plant engineer for the Kentile Corporation.

William A. Nichols (ME), 88, died on November 17, 2011, in Troy, Ohio.

Allen B. Stewart (CE), 93, died on January 8, 2013, in Chicago. He worked for Factory Mutual Global.

1953

John R. Rinker (ChE), 81, died on March 13, 2013, in Camden, South Carolina. He retired as a senior research engineer in a 33-year career with DuPont.

Lynn M. York (EE), 85, died on April 22, 2012, in Palestine, Illinois. He was a space industry civilian subcontractor.

1955

Albert (Ed) Whitner (ME), 79, died on March 20, 2013, in Sebring, Florida. He retired as director of the quality evaluation lab for the Naval Warfare Support Center's fleet logistics support division in Crane, Indiana.

1957

Velmar E. Howard (EE), 82, died on February 21, 2013, in Veedersburg, Indiana. He worked for Hurlerton and Delco.

Joseph P. Innis (EE), 82, died on January 20, 2013, in Plano, Texas. He was a member of Rockwell Collins/Collins Radio's team responsible for the UHF and EHF communications suite utilized in NASA's Gemini and Apollo space programs. He retired after working five years for Chrysler Technologies.

1958

Joseph E. Blastic (ME) died on February 8, 2013.

1959

Robert G. Jackson (EE), 75, died on January 25, 2013, in Middletown, Rhode Island. He was a systems engineer for Raytheon, and also worked for NASA and the Power Equipment Company.

Laurence J. Logue (ME/MA), 75, died on January 13, 2013, in Marietta, Georgia. He was a professor at several colleges, including Rose-Hulman, and was head of the Department of Mechanical Engineering at Southern Polytechnic State University.

1960

Jack L. Smith (ME), 73, died on January 3, 2013, in Richmond, Indiana. He was a quality control engineer for Western Electric and Alcatel.

1965

Jerry L. Copenhaver (EE), 69, died on March 10, 2013, in Florida.

1972

Thomas W. Birt (CS), 60, died on January 31, 2011, in Fort Worth, Texas.

Gary J. Schofe (ChE), 62, died on December 23, 2012, in Barberton, Ohio. He had been plant manager for ICI Paints

in Georgia and worked with Nutrutech in Akron, Ohio.

1973

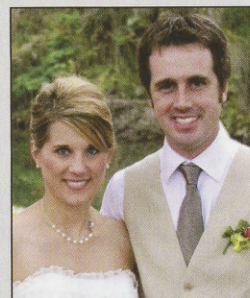
Robert A. Fleming (BIO), 60, died on June 17, 2011, in Dallas, Texas. He was an engineer for IBM.

1995

Steven J. Russell (EE), 39, died on December 23, 2012, in Peachtree, Georgia. He was staff engineer and a project leader with Panasonic. ■

Marriages

2004



Clinton T. Bryant (CE) married Jane Santucci on March 22, 2013, in Crystal River, Florida. He is a field engineer for the Indiana Department of Transportation. Four of the groomsmen were alumni: **Grant Bryant** (CE, 2001), **Noah Fehrenbacher** (CE, 2004), **Brian Kindinger** (CE, 2004), and **Jim Nagel** (OE, 2004). The couple resides in North Terre Haute, Indiana.

2006

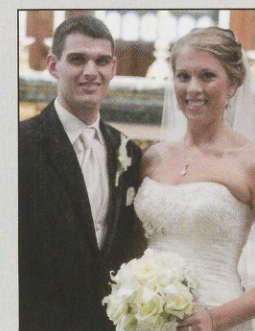
Ryan Gulden (ME) married Jessie Pollack on September 22, 2012.

2010

Zachary T. Hocutt (CHE) married Janelle Krupowicz

on December 28, 2012, in Zionsville, Indiana. He is an engineer at Tredegar Corporation in Terre Haute, where the couple resides.

2011



Stephen Owen (CE) married **Theresa Henke** (CE) on September 1, 2012 and now lives in Virginia Beach, Virginia. He works for Moffatt & Nichol, while she works for Kimley-Horn and Associates.

2012

Kenton C. Hochstetler (ME) and Katherine Trusedell were married on October 20, 2012, in Indianapolis, where he is a product engineer at Hydro-Gear. ■

ALUMNI NEWS

New Online Service Helps Keep Alumni Connected

By Jeff A. Myers, Alumni Association President

I am proud to welcome our newest members, the Class of 2013, into the Alumni Association, and can't wait to read about their accomplishments in future issues of *Echoes*. The association will enjoy their enthusiasm, ideas, and involvement in our organization.

Rose-Hulman's Strategic Plan seeks to "foster a culture of lifelong connection" and particularly with alumni, to increase opportunities for you to partner with Rose-Hulman, from participation in recruitment and admissions to enhancing a culture of connectedness and philanthropy.

Many of you have asked for faster and easier services, and we have listened. Now, a one-stop shop (RoseSTEM) service has been launched to provide alumni with such services as:

- Find old friends and classmates
- Help campus locate "lost" alumni
- Register for social events and other activities
- Submit your news and Class Notes for future *Echoes* issues
- Update your contact information
- Connect with networking and professional opportunities
- And, even live chat

Take a few minutes to explore the new RoseSTEM at www.rose-hulman.edu/rosetem.



Jeff Myers

1993 Trio Earn Career Achievement Awards

Three members from the Class of 1993 returned to campus this spring to receive the Alumni Association's Career Achievement Awards. They were Steven Bakota (EE), responsible for Texas Instruments' high voltage point of load power semiconductor product line; Jeffrey Haggerty (ME), president and chief executive officer of Digitrace Inc.; and Jeff Papa (ECON), chief of staff and chief legal counsel for the Indiana Senate. Look for more news about these award-winning alumni in a future issue.

Alumni Get Tours of Colts, Pacers Playing Sites

Several central Indiana alumni, family members, and friends took advantage of the opportunity this spring for special behind-the-scenes tours of Lucas Oil Stadium, home of the Indianapolis Colts, and Bankers Life Fieldhouse, home of the Indiana Pacers. The alumni office also hosted an event on the Pacers' regular-season finale against the Philadelphia 76ers. The fieldhouse tour (see photo on Page 27) was led by Rick Fuson, chief operating officer for Pacers Sports & Entertainment and the proud father of 2013 alumnus Matthew Fuson.

Another Busy Summer Planned

If you haven't already noticed, summer is right around the corner, and there are several activities being planned to involve alumni, family members, and friends. The Summer Scholarship Golf Scramble is June 20 at Prairieview Golf Course in Carmel, Indiana. As its name suggests, this event raises much needed scholarship funds, raising more than \$150,000 since 2007 for students from the Wabash Valley and central Indiana. Contact Annual Fund Coordinator Jennifer Kenzor at 812-877-8217 to play. Then, there's Rose-Hulman's annual July 4th baseball and fireworks extravaganza at the Indianapolis Indians' Victory Field. ■

Jeff Myers is a 1987 electrical engineering alumnus who lives in Greenfield, Indiana.

ALUMNI CALENDAR

Check latest events at rose-hulman.edu/rosetem

SPECIAL ALUMNI EVENTS

St. Louis Cardinals-Chicago Cubs Baseball Game, St. Louis | **June 19**
Indianapolis Indians Baseball Game and Fireworks | **July 4**

'Rose On The Road', Seattle | **July 27**
Chauncey Day, Throughout Country | **September 12**

INDIANA STATE MUSEUM SCIENCE NIGHTS

Offering a real-world look into futuristic technologies and science behind the *Star Wars* movies

June 6 | 7-8 p.m.

Lasers: What Are They? Past, Present and Future!

Presented by Charles Joenathan, Ph.D.

July 11 | 7-8 p.m.

Fact or Fiction: The Droids from Star Wars

Presented by David Fisher (ME, 2000), PhD

August 29 | 7-8 p.m.

Where is My Rocket Car?

Presented by Zac Chambers (ME, 1994), PhD

\$10 per museum member; \$15 per non-member
(includes the Millennium Falcon experience)

Call 317-232-1637

save the date for
HOME COMING
2013
SEPTEMBER 20-21

SEPTEMBER 20 MAJOR EVENTS

Alumni Golf Outing | **8:15 a.m.**

1874 Heritage Society Luncheon | **Noon**

All Alumni Reception | **5-7:30 p.m.**

Pep Rally, Queen Coronation and Bonfire | **8:30 p.m.**

SEPTEMBER 21 MAJOR EVENTS

Rosie's 5K Run/Walk | **8 a.m.**

Alumni Awards Breakfast | **8 a.m.**

Alumni Association Meeting | **10:30 a.m.**

Academic Department Open Houses | **11 a.m.-1 p.m.**

Football, vs. Defiance College | **2 p.m.**

50 Plus Club Golden Gala | **5:15 p.m.**

THIS YEAR'S CLASS REUNIONS | REUNION CHAIRS

1953 – 60th | Dave Badger

1958 – 55th | Ron Reeves and Bill Newby

1963 – 50th | Bill Nicewanger and Rich Daugherty

1968 – 45th |

1973 – 40th | David Robinson

1978 – 35th | Jim Nordmeyer

1983 – 30th | Kenny McCleary

1988 – 25th | Todd Kost

1993 – 20th | Michael Waldbieser

1998 – 15th | Ryan Loftus

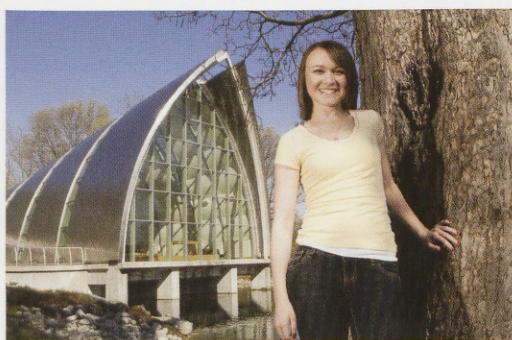
2003 – 10th | Heidi Davidson and Amy Haymaker

2008 – 5th | Ashley Erffmeyer

Check full Homecoming schedule and registration
at rosetem.rose-hulman.edu/Homecoming

HELP OUR STUDENTS EXPERIENCE THE WORLD

Global experiences provide students unique cultural exchanges, amazing educational opportunities, and unforgettable life experiences throughout the world.



Senior biomedical engineering/international student Betsy Jones has studied at the University of Cambridge in England, and will be returning to the country this fall as a Whitaker International Scholar at the University of Oxford.

“That first summer at Cambridge opened my eyes to the world,” she says. “I’m very grateful to Rose-Hulman for making these international experiences a reality.”

LeKisha Bradley has spent this academic year studying German language and culture, along with completing an internship, as part of the Congress-Bundestag Youth Exchange for Young Professionals Program. The sophomore mechanical engineering student was one of 75 young Americans selected to participate this year.

“I will be a better student when I return to Rose-Hulman because of my year abroad,” she says.



James Folberth, a senior physics and mathematics major, took his education down under to Australia this winter to help Professor Richard Ditteon, PhD, install new instrumentation. This will enhance Rose-Hulman’s Southern Sky Observatory near New South Wales, Australia.

“The trip was a once-in-a-life opportunity,” he says. “Our work will make better research opportunities for students in the future.”

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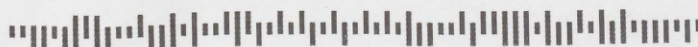
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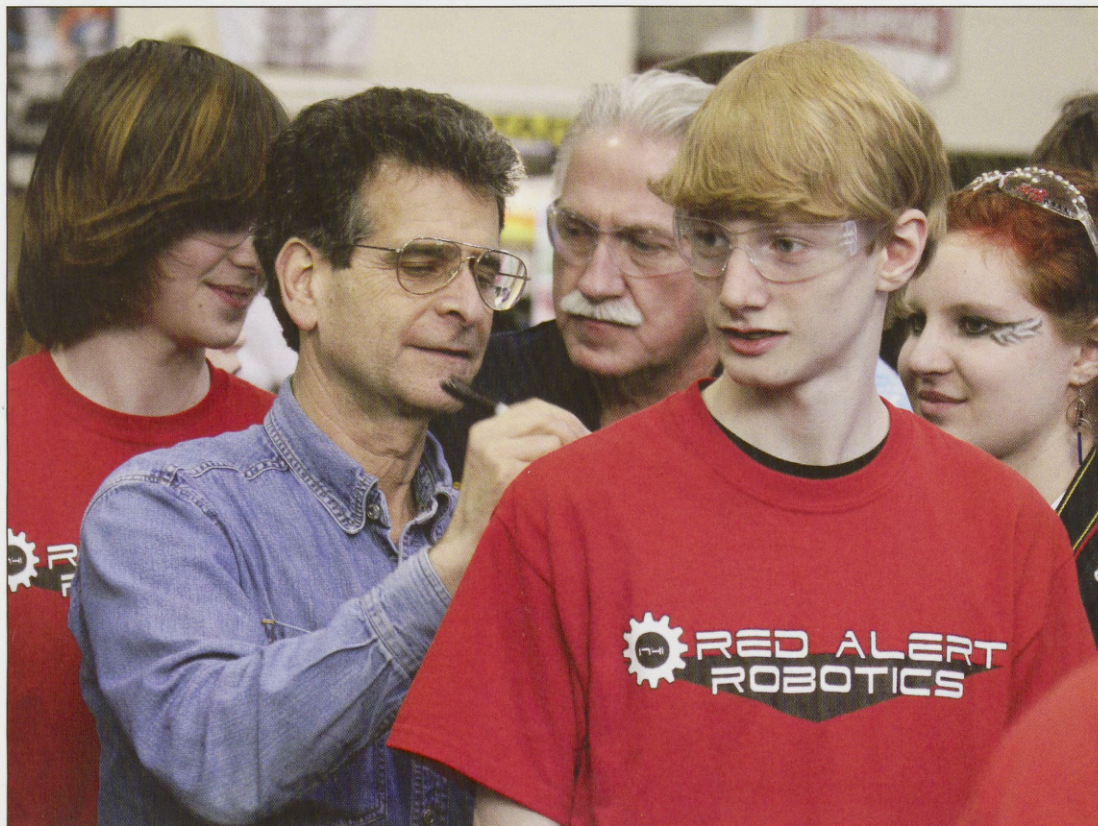
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PARTING SHOT

Making Special Event Even More 'Special'

The Crossroads Regional FIRST Robotics Competition, hosted by Rose-Hulman on April 4-6, was a hit even before FIRST Robotics Founder/Famed Entrepreneur Dean Kamen made a surprise appearance. He was delighted to see the enthusiasm for science, engineering, and technology among high school students making up 50 teams from seven Midwest states. Kamen, founder of DEKA Research and Development, is best known for inventing the product that would become known as the Segway PT. He was our 2012 commencement speaker and received an honorary degree. (Photo by Steve Voltmer)