

Fall 2012

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Echoes Staff

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ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Echoes

FALL 2012

Vol. 2012, No. 4

STRATEGIC PLAN 2013-2018

GOAL 1

Support and recognize excellence in **teaching, learning, innovation, and intellectual growth**—both in and out of the classroom.

GOAL 2

Give students a **vision of** the breadth of their **possible futures** and prepare them to achieve these futures.

GOAL 3

Foster a culture of **lifelong connection** with all of our constituents.

GOAL 4

Be a diverse, **globally-connected**, sought-after community in which to live, learn, and work.

GOAL 5

Be a model of a fiscally sustainable and **affordable** private institution focused on science, engineering, and mathematics education.

GOAL 6

Have **global name recognition** for the excellence of our education.





STIMULATING STEM

PROGRAMS ENCOURAGE YOUTHS TO GET EXCITED ABOUT SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM)



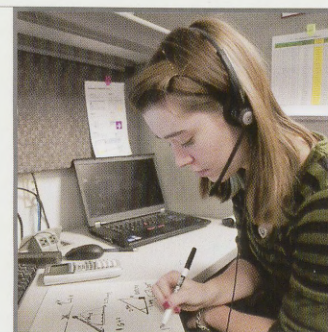
FIRST ROBOTICS' REGIONAL BRINGING THOUSANDS TO CAMPUS APRIL 4-6

High school students from throughout the country will showcase their design and engineering skills through the FIRST robotics competition's new Crossroads Regional on April 4-6, 2013, in Rose-Hulman's Sports and Recreation Center. FIRST brings the excitement of a sporting event to science and technology through a robotics competition. Under strict rules, limited resources, and time limits, 50 teams of 25 students or more build and program robots from a common kit of parts to perform prescribed tasks against a field of competitors. "This is as close to 'real-world engineering' as a young

student can get," says Crossroads Regional Chair Carlotta Berry, Ph.D., Associate Professor of Electrical and Computer Engineering. "The excitement that this event generates in young people about STEM areas is unlike anything I have ever seen before." Alumni are needed to volunteer for this event. Register online at www.rose-hulman.edu/crossroads.

'HOMEWORK HOTLINE' TUTORS BUST STEM MYTHS FOR LOCAL YOUTHS

Homework Hotline tutors have teamed with the Terre Haute Children's Museum on a two-year, free after-school "STEM Busters" project to encourage and enrich skills in science, technology, engineering, and math among Vigo County middle-school students. The program presents fun, hands-on programs that allow sixth-, seventh-, and eighth-grade students to bust or prove myths about design characteristics, structures, and culinary arts. Activities include an Egg Drop Contest, suspension bridge building, and packaging Pringles potato chips. Meanwhile, the hotline offers free tutoring for 6-12 grade students by calling 1-877-ASK-ROSE from 7 p.m. to 10 p.m. (EST) on Sundays through Thursdays.



HELPING TEENS EXPLORE ENGINEERING, SCIENCE INTERESTS

Rose-Hulman's Explore Engineering program offers fun-filled and educational activities each school year. It allows 6-12 grade youths to explore their interests in engineering, science, and technology. Activities include an introduction to robotics, learning about electronic circuits, popsicle-stick bridge building, and creating mouse trap-powered vehicles. This program has propelled students to go on to become engineers, chemists, and doctors. Learn more about the program at www.rose-hulman.edu/ExploreEngineering.

Learn More About Rose-Hulman at www.rose-hulman.edu

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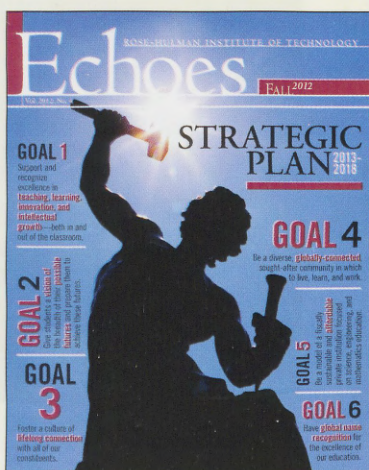
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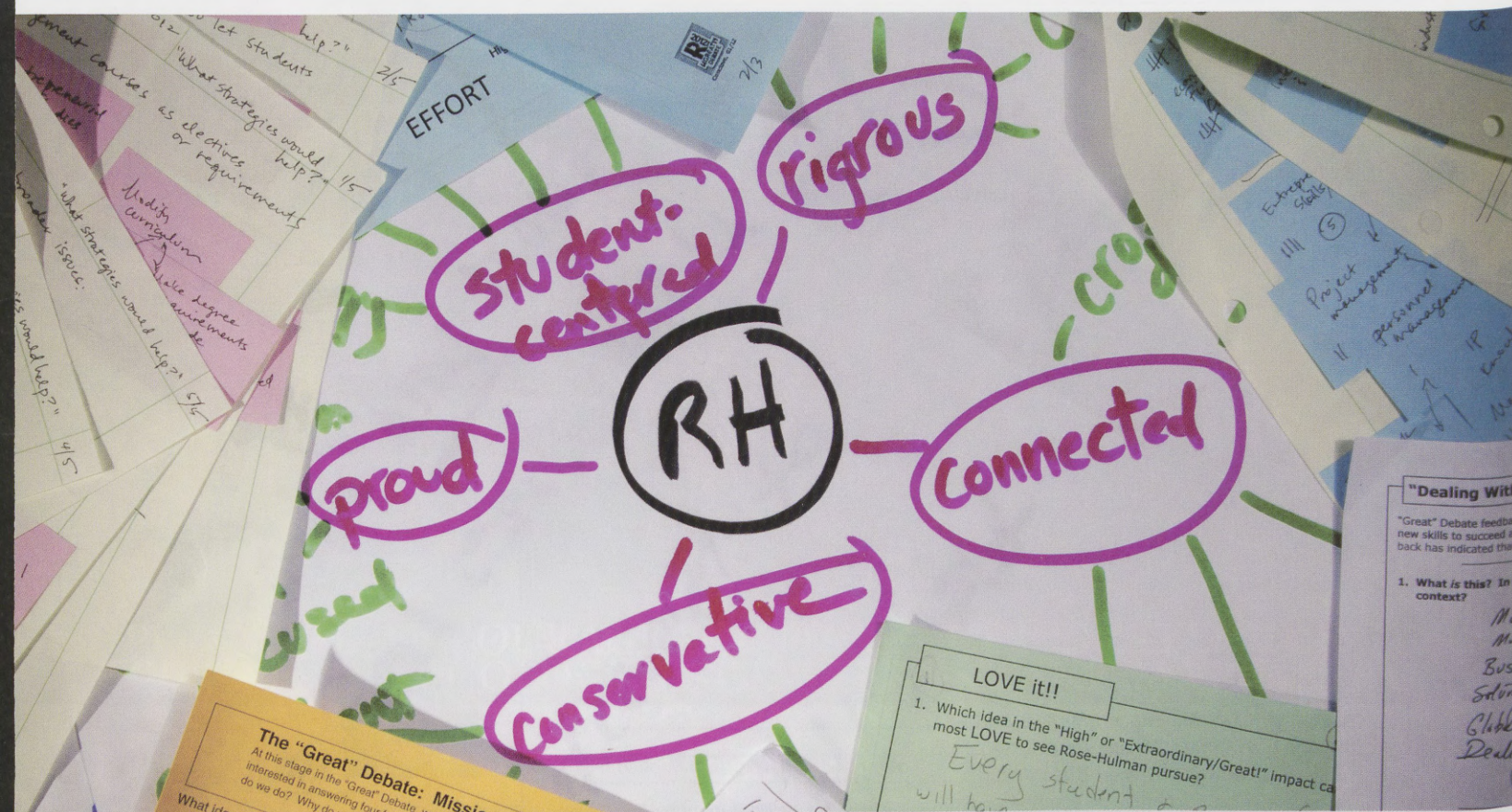
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ON THE COVER

The six goals in Rose-Hulman's 2013-18 Strategic Plan, developed through the year-long The "Great" Debate, are outlined around a photo of the campus' Self-Made Man Sculpture. Photo by Shawn Spence.



The Next Steps...

A Six-Goal Strategic Plan Will Help Us Stand Tall

by Robert A. Coons

The December 2011 issue of *Science* featured an interesting article about Rose-Hulman Institute of Technology's favorite animal—the elephant.

It seems that ever since the first elephant dissection in 1706, by a Scottish surgeon, there has been a mystery surrounding a bony protrusion within the pachyderm foot structure. For 300 years this protrusion has been unclassified. However, with the publication of this recent study, lead author, Professor John Hutchinson of the UK's Structure and Motion Laboratory of the Royal Veterinary College has concluded definitively that it is a sixth toe. This sixth toe is apparently a great evolutionary advancement that has allowed the modern elephant to grow ever larger and yet support its massive weight gracefully and with great agility.

Why is it important? Well, perhaps, we'll have to sew another toe on the Rosie costume. But seriously, this is the kind of arcane knowledge that only a Rose-Hulman scientist, engineer, or mathematician would love.

A few months ago this information came up in a discussion at just the right moment. Our strategic planning team of professors, administrators, and



Coons

Executive Cabinet members were all passionately engaged in making the most streamlined and effective strategic plan based on hundreds of ideas developed during The “Great” Debate. After many sessions of discussion and revision, the group was near the end of its significant collective energy. Yet, we came to agreement on six key strategic goals. The five-goal advocates nodded, yes. The seven-goal champions yielded. We reached a conclusion at six, ironically, after we recalled the tale of the sixth toe. Yes, six goals felt right for us.

Who can argue with a well-timed symbol?

Our Community Desires Evolution

As we recently witnessed the election of officials in Washington and in our home states this fall, we understand that as untidy as democracy is sometimes, no one has ever produced a better system for gaining the input and compiling the will of a large group of diverse people who are interested in change.

And, for this plan it was a very large group indeed! To gain the input of our entire community we visited nine cities, spoke with more than 2,000 constituents, wrote ideas down on dozens of stick-up posters and hundreds of community written post-it notes, and compiled these ideas into

OUR MISSION

The mission of Rose-Hulman Institute of Technology is to provide our students with the world’s best undergraduate science, engineering, and mathematics education in an environment of individual attention and support.

OUR VISION

Rose-Hulman graduates will be inspired and prepared for lives of purpose and success, defining and solving the problems of a complex global society.

Rose-Hulman will be a lifelong partner with our graduates and a recognized global leader in science, engineering, and mathematics education.

our new Strategic Plan, introduced on pages 6-11 of this issue.

We started this process knowing that our community wanted evolution.

I want to take this opportunity to congratulate everyone involved on a significant achievement—a year’s worth of work—in developing the ideas and in drafting a Strategic Plan that will lead us forward for the next five years. I am pleased to report that the plan was approved by our Board of Trustees at its September 2012 meeting with unanimous support and enthusiasm.

Our new Mission provides a foundation built from our past successes, reassuring all our constituents that the primary mission is essentially unchanged—“to provide the world’s best undergraduate science, engineering, and mathematics education in an environment of individual attention and support.”

New ‘Vision’ Offers A Bold Concept For Future

However, our new Vision is a bold concept of what we can accomplish as an institute and what we can inspire our students to learn, achieve, and become. The Vision is what we consider the window into the future of the institute. After all, being number one is not just a trophy to

“Everyone—no matter what age, major, location, or affiliation to Rose-Hulman—is passionate about Rose-Hulman continuing to improve while keeping intact those things that are the proven recipe to our great success: a personal, collaborative, and congenial hands-on educational experience with the best faculty in science, engineering, and mathematics.”

—Robert A. Coons, President



MESSAGE FROM THE PRESIDENT

“We will ‘institutionalize’ the process of reviewing and modifying the Strategic Plan on a routine basis to ensure that it remains a living and valuable document as our students, our leadership, our environment, and the world change.”

—Robert A. Coons, President

hang on the wall; it is a deeply significant responsibility. As a number-one ranked school for 14 years in *U.S. News & World Report's College Guide*, we believe it is time to fully live this honor by becoming a recognized, global thought leader in science, engineering, and math education.

In the early 1990s, when a small west-central Indiana engineering school set about to write a plan to become the best undergraduate engineering school in America, few would have thought it was possible.

We believe our new Vision is as equally bold as the *Vision to be*

work of reaching for these goals and making positive change happen. This fall we will engage in a focused process to develop our action plans, assign champions, develop target dates and milestones, develop progress benchmarks, and develop goals for a comprehensive fundraising campaign to support this plan.

Our Success Is Your Success

As we travelled across the country to all The “Great” Debate meetings, we saw that there was no lack of committed and loyal alumni. We know that our success is your success, and that



the Best was in the 1990s. In this statement, we see our students as a resource to “define and solve the problems of a complex global society.” What’s more, we see ourselves as a “recognized global leader.”

This is a large and purposeful Vision we have developed from our own community’s aspirations and for our community. We believe the six goals of our Strategic Plan along with their associated strategies point the way forward and will bring this Vision into reality.

We are calling the full plan “*The Next Steps...*” because it features forward-looking initiatives that will move The “Great” Debate’s energy of transforming Rose-Hulman Institute of Technology from “best in class” into one of the great science, engineering, and math institutions in the world.

Now that our Board of Trustees have approved the plan, it is time to roll up our sleeves and get started on the real

STRATEGIC PLAN 2013-2018

GOAL 1:

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Rose-Hulman will give students a vision of the breadth of their possible futures and will prepare them to achieve these futures.

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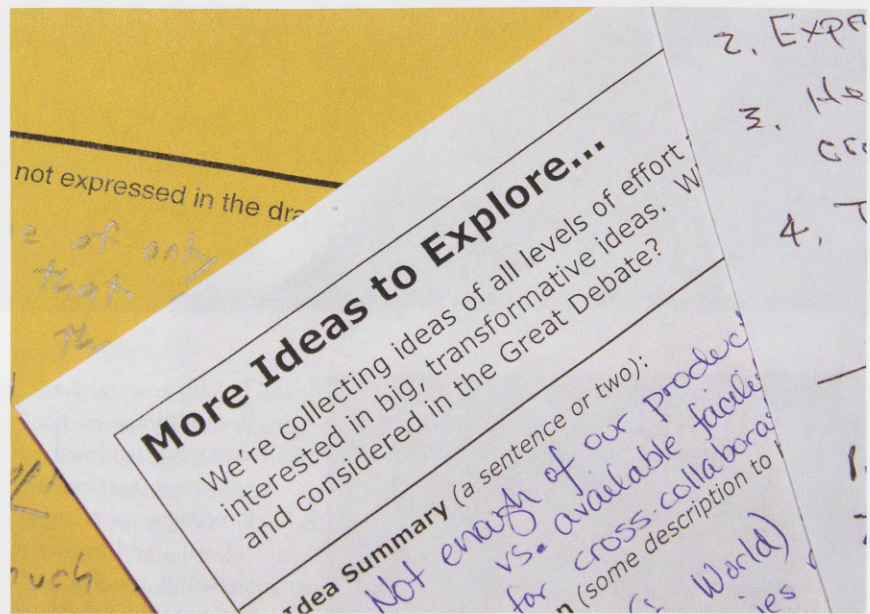
More details on pages 6-11

MESSAGE FROM THE PRESIDENT

you care about Rose-Hulman and our future as much as ever. Thank you for all the ideas and goodwill you have put into this plan. And, please join me in extending our gratitude to the tireless Rose-Hulman trustees, faculty, staff, and students who staffed the iCAST committee and the strategic planning team. Their willingness to sacrifice many nights and weekends made the collection of our entire community's best ideas for the future of Rose-Hulman possible.

As you can see in the graphic, there is a "sixth toe" on Rosie's tracks to remind us that these six goals are a great evolutionary step, allowing us to be stronger, graceful, and deft, despite carrying a larger, more significant profile into the world.

Now, let's get started on making these positive ideas happen and take the next giant steps into the future. ■



THE NEXT STEPS . . .

“ A lot of work went into arriving at our Strategic Plan, but that was the easy part. The hard part now comes for alumni to support the plan. That support can be financial, or it can mean putting the right people at your company in touch with Rose-Hulman to help facilitate meeting the goals of the plan. ”
—Jeffrey Burgan (CHE, 1977)

“ I see so many places for our constituents to insert themselves into this plan—no matter their affiliation. Everyone can find a role within this plan, from alumni to faculty and staff, to departments to Rose-Hulman Ventures. ”
—Elizabeth Hagerman (CHE, 2000), Ph.D.
Vice President for Rose-Hulman Ventures

“ There are a very limited number of institutions that can have the global impact Rose-Hulman is capable of delivering, and the world has a great need for that impact. We should work together to maximize it. This is the best strategic planning effort and product that I have seen Rose-Hulman carry out in the almost 30 years since I became a Trustee. Now, I look forward to seeing it impact the institute as we expect it will. ”
—William Schindel (MA, 1969), Trustee



LOVE it!!

1. Which idea in the “High” or “Extraord
most LOVE to see Rose-Hulman pu

Every student
have an Intel

GOAL 1

Rose-Hulman will support and recognize excellence in **teaching, learning, innovation, and intellectual growth**—both in and out of the classroom.

STRATEGIES:

- 1A:** Establish an endowed Innovation Fund to support creative, innovative, and/or timely new educational initiatives.
- 1B:** Create an endowed Center for Technologically Enhanced Education to support development of online and hybrid courses and to support and inform all activities related to science, engineering, and mathematics education.
- 1C:** Increase the number of ways Rose-Hulman supports and recognizes excellence in teaching, professional development, and learning.
- 1D:** Establish endowed faculty chairs to recognize and support excellence in scholarship, teaching, or professional skills.
- 1E:** Construct a state-of-the-art, LEED-certified teaching and learning center to provide advanced classrooms and laboratories, as well as flexible spaces for projects.

The highest standards of educational quality are infused throughout the Rose-Hulman curriculum. This has not been by accident—it has been through intentional, strategic steps. Goal 1 addresses a plan to support and recognize academic innovation in order to continue to be a leader in pedagogical change.

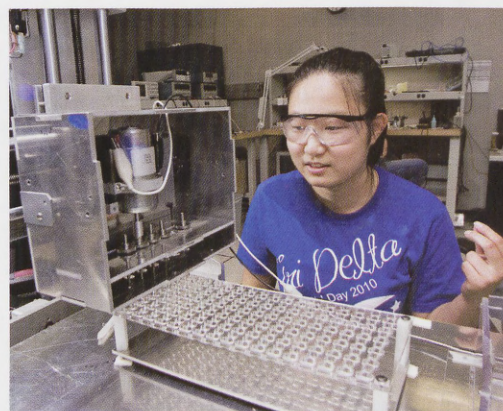
Goal 1 and its Strategies address the steps to pursue excellence vigilantly, to safeguard the quality of our educational environment, and to explore the forefront of science, engineering, and mathematics education for the next generation of students.

“What struck me during The ‘Great’ Debate was that the last time Rose-Hulman had made a significant leap in education was more than 15 years ago,” says Sarah Sanborn (CHE, 2004; MSBE, 2006) in reference to the move to co-education and requiring students to own personal laptops. “It reminds us that in order to remain best-in-class Rose-Hulman needs to be innovating in education versus continuing down the same path,” continues Sanborn.

“In the past, inventiveness and mastery of technology were characteristics of successful nations and societies,” observes William Kline, Ph.D., Dean of Innovation and Engagement. He draws a parallel to what Rose-Hulman’s leadership to the world can be. “In the future, the mastery of innovation and complexity, along with global connectivity will be necessary to survive and thrive. The ability to partner, connect, and rapidly develop new solutions and processes to create value, develop new industries, and create sustainable societies will result in prosperity and a higher quality of life.” ■

“In order to remain best-in-class Rose-Hulman needs to be innovating in education versus continuing down the same path.”

—Sarah Sanborn, CHE, 2004; MSBE, 2006
Young Alumni Representative, Board of Trustees



"Dealing With Complexity"

"Great" Debate feedback and national reports in new skills to succeed and lead in the evolving back has indicated that graduates need to be

is this? In a few sentences, w

GOAL 2

Rose-Hulman will give students a **vision of** the breadth of their **possible futures** and prepare them to achieve these futures.

STRATEGIES:

- 2A:** 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.
- 2B:** Provide students with instruction and experiences that will instill confidence in their science, engineering, and mathematics fundamentals, professional and success skills, and ability to rise to difficult challenges.
- 2C:** Require every Rose-Hulman student to have at least one meaningful international experience.
- 2D:** Empower students with the skills required to deal with complexity.

"There is a specific framework of competencies to organize and deal with complexity ... This presents an opportunity to competitively differentiate our future graduates and our school. Rose-Hulman is uniquely prepared to fill this need and make our brand of education even more distinctive."

—William Schindel, MA, 1969
Member, Board of Trustees

"Rose-Hulman can help students develop a broadened perspective of what all they can do with their engineer training earlier in life," says Elizabeth Hagerman (CHE, 2000), Ph.D., Vice President for Rose-Hulman Ventures. "We can give students a better look into their possible future choices and help them better see the opportunities that exist."

Young people interested in business or military leadership, law, medicine, entrepreneurship, or academia rarely see engineering as the best path to achieve these objectives, and yet, our alumni routinely follow these career paths and find their engineering degree was invaluable training to pave their way.

In addition to providing insight into professional choices, The "Great" Debate discussions centered on how to maintain a focus on science, engineering, and mathematics fundamentals while also providing success skills such as leadership and communication.

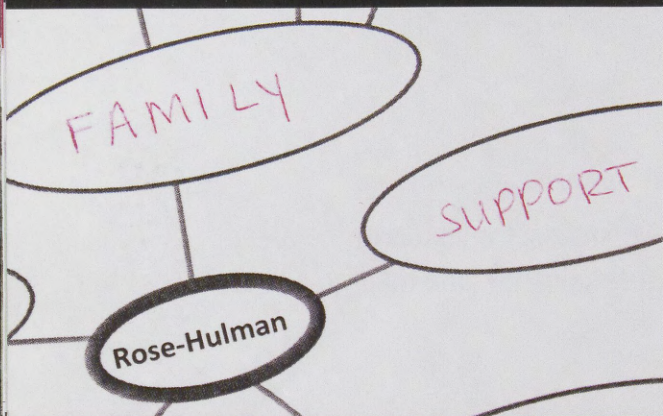
"The 'Great' Debate started broadly looking at our core values. Then, as we got further into it, we asked participants what qualities our graduates need and how we can do a better job of meeting these needs," says Sam Peffers, who as Director of Planning had a unique vantage point in the process since he attended all The "Great" Debate sessions and served as the recorder and processor of all the collected information.

"Some common themes emerged at each site discussion: business acumen, entrepreneurship, a global mindset," Peffers continues. "Many individuals referenced the complex nature of the current professional environment. This concept really clicked with our participants. If there is one priority, it would be how to help our graduates deal with complexity."

Trustee William Schindel (MA, 1969), an international expert on complex systems, agrees, "Our graduates face a world filled with ever-increasing complexity and multi-disciplinary systems. This increase in complexity is changing everything from manufacturing and business processes to professional organizations, communities, institutions, and even daily life."

He continues, "There is a specific framework of competencies to organize and deal with complexity. I feel the teaching of this framework is missing in higher education. This presents an opportunity to competitively differentiate our future graduates and our school. Rose-Hulman is uniquely prepared to fill this need and to make our brand of education even more distinctive."

Jeffrey Burgan (CHE, 1977), attorney with Leydig, Voit & Mayer, Ltd., says a strategy that resonated with him was to provide more international experience and preparation. "Our graduates will deal with people from around the world whether they go to work for a Fortune 100, or a small company, or start their own business," says Burgan, who just finished his term as alumni representative to the board of trustees. ■



GOAL 3

Rose-Hulman will foster a culture of **lifelong connection** with all of our constituents.

STRATEGIES:

- 3A:** Establish a “Forever Rose” initiative to provide increased opportunities for alumni to partner with Rose-Hulman, from participating in recruitment and admissions to enhancing a culture of connectedness and philanthropy.
- 3B:** Enhance and expand continuing education and other learning opportunities that can be offered online and in person to constituents.
- 3C:** Coordinate constituent information to ensure accessibility and transparency, and to strengthen relationships with these constituents.

“The Rose-Hulman family culture is among our greatest strengths and most unique characteristics,” says Trustee William Schindel (MA, 1969). “However, at the end of the four-year campus experience, we don’t maintain the relationship very well. Other institutions have shown that it is possible to continue to cultivate a relationship for life.”

Vice President for Academic Affairs Phillip Cornwell, Ph.D., notes that during The “Great” Debate alumni said they are quick to attribute their academic success to positive relationships with their professors. However, alumni report they soon lose touch after graduation.

“Why not strategically continue this four-year investment in an intense and meaningful relationship to a place and its people?” says Cornwell. In addition, Cornwell points out, there are many connections already in place—from corporate networking and recruitment, to Rose-Hulman Ventures and senior design project opportunities, to alumni coming back as mentors and speakers.

“Alumni are our best representatives and many enjoy meeting potential students,” says Cornwell, who suggests that alumni can be organized to better help with our student recruitment efforts.

“There is no reason why our lifelong relationship with our alumni has to be limited to nostalgic memories, some periodic visits to campus at Homecoming, or receiving a publication from time to time,” continues Schindel. He envisions an ongoing relationship that transcends the boundaries of space and time. There is also high demand for continuing and professional education among our alumni—with a special interest in online opportunities. ■

“The Rose-Hulman family culture is among our greatest strengths and most unique characteristics.”

—William Schindel, MA, 1969
Member, Board of Trustees



GOAL 4

Rose-Hulman will be a diverse, **globally-connected**, sought-after community in which to live, learn, and work.

STRATEGIES:

- 4A:** Enhance the campus cultural environment of inclusiveness and achieve goals for the diversity of our student body, faculty, and staff.
- 4B:** Provide more opportunities for community members to experience the world and its diversity.
- 4C:** Become a globally connected community with a physical presence outside the United States.
- 4D:** Be a great place to work and the employer of choice for prospective employees.
- 4E:** Build a next generation, LEED-certified student life center that will include dining options, meeting space, student organization space, and informal gathering areas.

"We are fortunate to have a safe, close-knit community—Goal 4 is devoted to enhancing that community through improved diversity, better student facilities, and more global experiences. We want Rose-Hulman to be the best place in the world to live, learn, and work," says Phillip Cornwell, Ph.D., Vice President for Academic Affairs. He also mentions that improving opportunities for our community can improve recruiting and retaining high-quality faculty and staff.

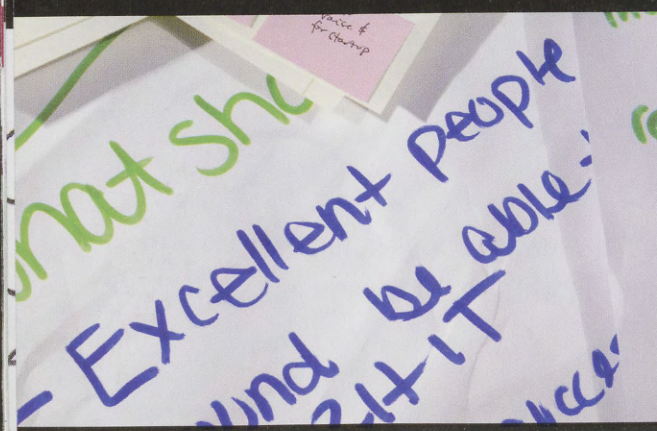
Rebecca DeVasher, Ph.D., Associate Professor of Chemistry and a member of the Strategic Planning Team, adds, "Rose-Hulman is like a briar patch—a safe, nearly idyllic place to learn, tucked away, and full of comfort and security so students can focus."

The environment must always have students at the center. "Once our students get here, we often hear them say: 'This place really gets me excited to learn,'" explains Richard Stamper (ME, 1985), Ph.D., Interim Dean of Faculty. "Rose-Hulman can find more ways to do this. We can respond by saying, 'We know the engineering mind and we know the toys you'll like.'" ■

"Once our students get here, we often hear them say: 'This place really gets me excited to learn.' Rose-Hulman can find more ways to do this. We can respond by saying, 'We know the engineering mind and we know the toys you'll like.'"

—Richard Stamper, Ph.D., ME, 1985
Interim Dean of Faculty





GOAL 5

Rose-Hulman will be a model of a fiscally sustainable and **affordable** private institution focused on science, engineering, and mathematics education.

STRATEGIES:

- 5A:** Launch a comprehensive, five-year fundraising campaign, which will include specific goals for current, capital, and endowment support and a specific focus on student scholarship/financial aid support.
- 5B:** Increase the percentage of average demonstrated student financial need met by 15 percent over the course of the next five years.
- 5C:** Adjust the institute's revenue mix and cost structure to enhance significantly the affordability of a Rose-Hulman education and thereby strengthen the long-term sustainability of the institute.
- 5D:** Expand alternative educational offerings and revenue sources to support the core mission of the institute.

While re-examining our core values, The “Great” Debate identified a new core value to address—the ability to offer an affordable, but high-caliber education.

“The cost of a Rose-Hulman education is of the utmost concern. How we deal with that will determine our future,” says Former Alumni Trustee Representative Jeff Burgan (CHE, 1977). “That was a repeated issue raised as I spoke with alumni from every age group and location. The cost of our education has increased at a greater rate of inflation than the starting salaries of our graduates,” he continues.

Addressing this issue, President Robert A. Coons states, “A personalized, cutting-edge technology education is a very expensive proposition. We invest more than one million dollars annually just to ensure we have state-of-the-art labs.”

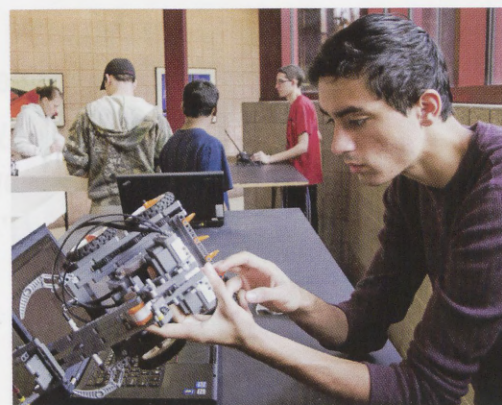
He continues, “Our quest is always to be equipped with technology that’s ahead of most industries—so our graduates have an edge when faced with the demands of the real world.”

Clearly, sacrificing our high standards will not be the answer. Coons points out two interrelated factors when addressing affordability and the institute’s current financial model: our endowment dollars per student are not nearly as high as our competitors and other private premier schools; and Rose-Hulman has not had a comprehensive fundraising effort for nearly a decade. This lack of adequate resources has had an impact on scholarships and technology enhancements.

“Many top schools guarantee that they will meet the demonstrated financial need of all their students,” explains Coons. “While we compete academically for students that may ultimately attend any of those fine institutions, we can’t currently compete with their endowment resources.” ■

“Our quest is always to be equipped with technology that’s ahead of most industries—so our graduates have an edge when faced with the demands of the real world.”

—Robert A. Coons, President



GOAL 6

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

STRATEGIES:

- 6A:** Create and launch an integrated, strategic marketing plan to enhance recognition of Rose-Hulman's excellence and accomplishments through both earned and paid media.
- 6B:** Create "Ambassadorship Programs" to empower alumni, faculty, staff, and students to promote Rose-Hulman.
- 6C:** Encourage and support faculty, staff, and students in activities that bring recognition to Rose-Hulman, such as assuming leadership roles in national and/or international academic and professional organizations.

Rose-Hulman attracts talented students from around the country. Our college enjoys high demand in recruitment and national accolades for the quality of our graduates and our faculty. Our graduates have some of the highest starting salaries in the country, and our career placement rate for graduates is nearly 100 percent.

"We are in an enviable position by many measures," says President Robert A. Coons. However, he adds, alumni consistently are disappointed by the institute's poor name recognition beyond Indiana. "Rose-Hulman has a strong reputation among our peers and with many corporate recruiters, but with the explosion of communication channels available today, more work needs to be done to have name recognition commensurate with our reputation," he says.

Some benchmarking and preliminary work has already started on this goal, reports Coons. "Rose-Hulman has never embarked upon a formal strategic marketing plan to shift public perception from limited, niche recognition to a heightened awareness among extended audiences and geography," he says.

Alumni agree and are supportive. "I was most surprised at the collective desire for Rose-Hulman to be a globally recognized institute of higher learning," says Trustee Ben Giant (ME, 2003). "Taking my first job in Texas, I was frustrated at the sheer amount of people who had never heard of my alma mater. I relish the thought of not having to explain where and what Rose-Hulman is when I travel outside of the Midwest. I can't wait to see how the institute tackles this." ■

"Rose-Hulman has a strong reputation among our peers and with many corporate recruiters, but with the explosion of communication channels available today, more work needs to be done to have name recognition commensurate with our reputation."

—Robert A. Coons, President





Perfect Fit: Jacob Price (left) and Mark Calhoun (right) make adjustments to the prosthetic device specially created for Daniel Wilson in a senior-year biomedical engineering capstone project.

Personal Impact—Global Attention

Developing 'Pinchy'—a Life-Changing Learning Experience

By Dale Long

Recent Rose-Hulman alumni Mark Calhoun and Jacob Price don't consider themselves superheroes, but what they have done for an 8-year-old boy is "super" extraordinary—and showcases how technology and the innovative spirit can make a significant difference in an

individual life.

They came to work with Daniel Wilson, a curious and fun-loving Rockville, Indiana boy whose longitudinal deficiency had severely limited the use of his right arm since birth. Daniel wished to join his classmates in riding a bicycle,

swinging a baseball bat, or having fun on the playground.

Mark and Jacob used Siemens computer-aided design (CAD) and engineering (CAE) software to develop a custom-made prosthetic arm with two hooks to pinch things—hence the device's affectionate "Pinchy" name—as a senior-year capstone biomedical engineering project. Following the development process was a film crew from Siemens for a video that has become an Internet sensation after being featured on YouTube and the company's international websites as part of the "/answers" campaign about real people being impacted by Siemens technology. (See story on Page 14.)

"Daniel is an awesome kid. The

"The impact that this project has had on Daniel's life can't be described in words...Daniel is so proud that he was able to be involved in every aspect of the design process. I think that really helped boost his self-confidence. I hope that from this experience Daniel will grow up and do something like this for someone else."

—Emily Wilson, Daniel's Mother

Wilsons are an awesome family and I could not be more grateful with being given this opportunity," says Price, a 2012 graduate who is now a staff validation engineer for Performance Validation in Indianapolis. "I'll never forget seeing Daniel engaging in the meetings, seeing the pictures of him wearing his prosthetic weeks after we delivered it, and watching him using it to pick up toys and scratch his mom's back. There's no better feeling than that of making a difference in someone's life."

Calhoun, now a biomedical engineering graduate student at Ohio State University, adds: "Taking the prosthetic from the drawing board to fruition was one of the most challenging and rewarding experiences of my life. Through all the

"It wasn't until we arrived at Daniel's house a couple days later when we realized what we had just done. We had gone beyond all expectations and created something to truly improve someone's quality of life. I believe that's something truly special, and I take a tremendous amount of pride in that."

—Mark Calhoun
2012 Biomedical Engineering Alumnus

highs and lows of a tough project like this one, you find something out about yourself. I found that I truly enjoyed overcoming adversity in order to create something truly special."

He continues, "There were a few times during the process where it seemed like there just wasn't enough time to finish it. On a Friday evening, one of our last days to work on the project, we made one final push and got it finished. It wasn't until we arrived at Daniel's house a couple days later when we realized what we had just done. We had gone beyond all expectations and created something to

Daniel Wilson can use two fingers on his abbreviated right hand to use the prosthetic device.



SOFTWARE HELPS TURN STUDENTS' DREAMS INTO REALITY FOR CLIENT

Solid Edge software, from Siemens PLM Software, was utilized by Mark Calhoun and Jacob Price throughout the design process to create the special "Pinchy" prosthetic device.

The use of 3D digital prototyping ensured that the 2012 biomedical engineering students had sufficient clearances in their design to accommodate the electrical subsystems that drive Pinchy's movements. In the design process, they had to experiment with the placements of several fasteners. In one early prototype, the protruding edges of the fasteners left visible marks on the client's

arm, leading the students to conclude placing the fasteners at an angle was a better choice.

The flexibility of Solid Edge's Synchronous Technology allowed such changes to be made swiftly. "We were able to revise (the fasteners). We placed them at an angle, with counterbore holes, that made it much more comfortable for him," Calhoun told *Desktop Engineering*.

The prototypes were sent to a 3D printing technician on campus for production as ABS plastic parts.

"A lot of the printing of the part (by 3D printing machines) was made easy because we could make what we wanted to make in Solid Edge and save it as a STL file for the rapid-

prototyping machine," explains Price.

Daniel Wilson, the 8-year-old client, had input throughout the development cycle. He favored a strap-on attachment and a dual-hook gripper, rejecting concepts with a claw-like gripper and a three-finger gripper. The device is red because it is Daniel's favorite color.



Siemens PLM Solid Edge software assisted in the design of the prosthetic device.

"One of the biggest challenges was to figure out how (Daniel) would control the arm's operations," notes Calhoun. "If he cannot control it, there's no point in wearing it."

Calhoun and Price were introduced to Siemens' Solid Edge CAD software in their freshman years. Last year Siemens PLM Software provided Rose-Hulman additional in-kind grants of \$27.8 million in software.

"At Rose-Hulman, students work with the latest design and simulation programs from Siemens PLM Software in the classroom and on real-world projects and industry competitions," says Bill Boswell, Senior Director of Partner Strategy for Siemens PLM Software. ■

A HELPING HAND

truly improve someone's quality of life. I believe that's something truly special, and I take a tremendous amount of pride in that."

Daniel has cherished the device since receiving it in May, not wanting to break it, says his mother, Emily. She originally sought Rose-Hulman's assistance after reading about a similar project completed by biomedical engineering students the year before.

"The impact that this project has had on Daniel's life can't be described in words," she says. "The relationship that

blossomed with Jacob, Mark, and our whole family has affected us all. Daniel loves Mark and Jacob, and really looks up to them. Daniel is so proud that he was able to be involved in every aspect of the design process. I think that really helped boost his self-confidence. I hope that from this experience Daniel will grow up and do something like this for someone else."

Elizabeth, Daniel's precocious sister (also featured in the video), observes, "(Pinchy) wasn't just a prosthetic. It meant so much more to Daniel than we can even imagine. He's always willing to



INTERNATIONAL FILMMAKERS CAPTURE DEVELOPMENT PROCESS

Two renowned filmmakers were embedded into Rose-Hulman's campus culture as they followed the development of the prosthetic device for a mini-documentary for global innovation giant Siemens' "answers" campaign that shows real people who have benefited from the company's technology.

"They got the excitement of coming and living on campus. They lived in the residence halls with students. That helped them tell this unique story," says Bill Boswell, Senior Director of Partner Strategy for Siemens PLM Software.

Siemens learned about the project after recognizing a similar project completed by 2011 biomedical engineering alumni Sarah Telezyn, E.J. Oruche, and Clay Britton.

"After learning about the great work that Rose-Hulman was doing in this area, I contacted our Siemens corporate team in Germany to suggest we highlight this success," says Boswell. "Ideas for our campaign videos go through a very selective process, and I am personally excited because this is the first video to feature a Siemens PLM Software-related story."

The video has become the most popular in Siemens' "answers" series. ■



Independent filmmakers followed the senior-year design project's development process to create *The Helping Hand* video that premiered on Siemens' website (above).

SIEMENS' VIDEO DRAWS ATTENTION TO ROSE-HULMAN

The number of people viewing Siemens' "The Helping Hand" video keeps growing—about 210,000 and growing daily. And, the story about the senior-year design project has been featured on:

- *Scientific American*
- *Fast Company*
- *Desktop Engineering*
- Twitter
- Facebook
- Google+
- Medical Design Technology
- Global Siemens properties
- Inside Indiana Business

Learn more about the video at

www.rose-hulman.edu/siemensvideo. ■

try something new. It was very cool to be able to see that side of him."

Pinchy was one of 12 biomedical engineering projects completed by seniors during the 2011-12 school year, under the supervision of professors Kay C Dee, Ph.D, Glen Livesay, Ph.D., and Renee Rogge, Ph.D.

"Real projects for real clients help our students make real connections to what they can do with engineering," states Livesay. "The team that worked with Daniel really exemplifies what we're striving for in design: creative solutions and lots of hard work that enable our students to have a strong, positive impact on the lives of people in our community."

Dee adds, "Design projects let our students use all of the skills in their 'toolbox'—professionalism, creativity, technical knowledge, interpersonal, and communication skills, independent time management skills, hands-on building, and technical documentation skills. These are incredible learning opportunities for our students." ■

Dale Long is Rose-Hulman's Director of Media Relations.

New High-Tech Classrooms Creating Collaborative Learning Environments

Five studio classrooms utilizing the latest educational technology have created collaborative learning environments this fall in Myers Hall. These rooms have been used to teach a variety of courses in all academic departments.

"This new technology is inspiring new teaching approaches and creates an inviting classroom environment for the students and professors," says William Kline, Ph.D., Dean of Innovation and Engagement. "Technology has always been a key ingredient in the Rose-Hulman educational process. These new classrooms keep us on the cutting edge."

Two studios have five custom collaboration tables, or pods, that each feature a 52-inch high-definition flat panel monitor mounted on the wall. Any of four students can connect their laptops to the monitor or the instructor can present content from the lectern to any or all of the panels. There is a ceiling array microphone and webcam at each pod.

Other classrooms feature high-definition video conferencing and lecture

capture systems for presenting online courses or collaborative courses with other educational institutions.

Courses utilizing this technology this



Professor Brad Burchett utilizes the latest classroom technology to help students understand concepts in this fall's advanced dynamics course.

fall included those covering the practice of science (applied biology), visualizing data (mechanical engineering), computer architecture (electrical engineering), medicine in literature (humanities), introduction to math modeling, and leadership and global challenges (engineering management). ■

READY TO MAKE AN 'IMPACT' FOR COMMUNITIES

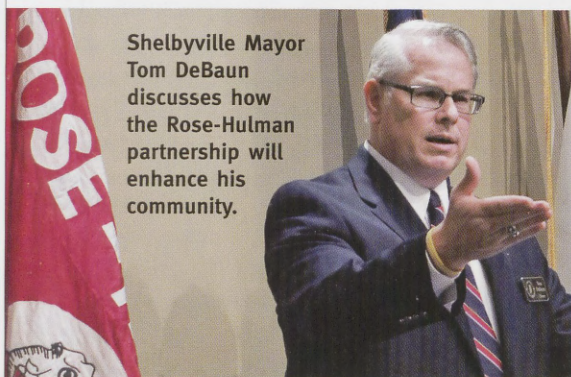
Indiana's Shelby County and the City of Shelbyville are already reaping benefits from a partnership with Rose-Hulman to create home-grown entrepreneurial talent, educate future innovators, and attract

manufacturing- and technology-based businesses.

The partnership was announced after city and county officials approved \$186,000 to support the Innovative Model: Positioning Communities for

Transformation (IMPACT 2016). The program will help attract talent and business, while gaining strength from expertise of Rose-Hulman faculty, staff, and students.

"This partnership has the potential to be a game-changer for our community's ability to retain, grow, and attract companies and talent," states Chris King (CE, 2002), past-president of the Shelby County Development Corporation. ■



Shelbyville Mayor Tom DeBaun discusses how the Rose-Hulman partnership will enhance his community.

TAKE NOTE

#1

For the 14th straight year, we were ranked the nation's top undergraduate engineering college through *U.S. News & World Report's* annual survey of engineering deans and senior faculty members. Five of our departments were also ranked No. 1 in their areas.

We were No. 9 in a recent ranking of America's Smartest Colleges by Lumosity after examining students' cognitive performance abilities. Our students were cited best in the nation for memory skills.



Our graduates earn more in their first year out of college (\$62,300 average) than graduates from Harvard (\$50,700) and other Ivy League colleges, according to the 2013 PayScale.com study. We ranked No. 10 nationally on the list.



Our students and alumni have problem-solving skills that are key assets. That's why 184 companies and more than 500 representatives attended the Fall Career Fair to fill full-time and summer positions. Interviewing activity has been brisk on campus this fall.

"People with high-tech degrees are in high demand, especially as companies seek to remain competitive in this challenging economy," says Todd Hubbell (ME, 1996), Vice President of Logistics for Endress+Hauser. ■



Rose-Hulman President Robert Coons (left) addresses guests attending a special 20-year anniversary celebration dinner at the Indiana History Center in Indianapolis, with members of the Japan-America Society of Indiana. Above, KIT President Ken-ichi Ishikawa talks with students from the institute that are attending Rose-Hulman this school year.

Bonds Strengthened with Japan University

Institutes Celebrate 20-Year Anniversary of Partnership

The 20-year partnership between Rose-Hulman and Japan's Kanazawa Institute of Technology (KIT) has been mutually beneficial for both leading technological institutions. That's why this relationship was reaffirmed during a special celebration earlier this fall.

A 19-member delegation of KIT administrators and educators visited

campus during a two-day trip. Leading the visiting group was the institute's president, Ken-ichi Ishikawa.

Featured events were the dedication of a campus cherry tree grove, several educational workshops, a dinner in Indianapolis with members of the Japan-America Society of Indiana, and a special musical concert.

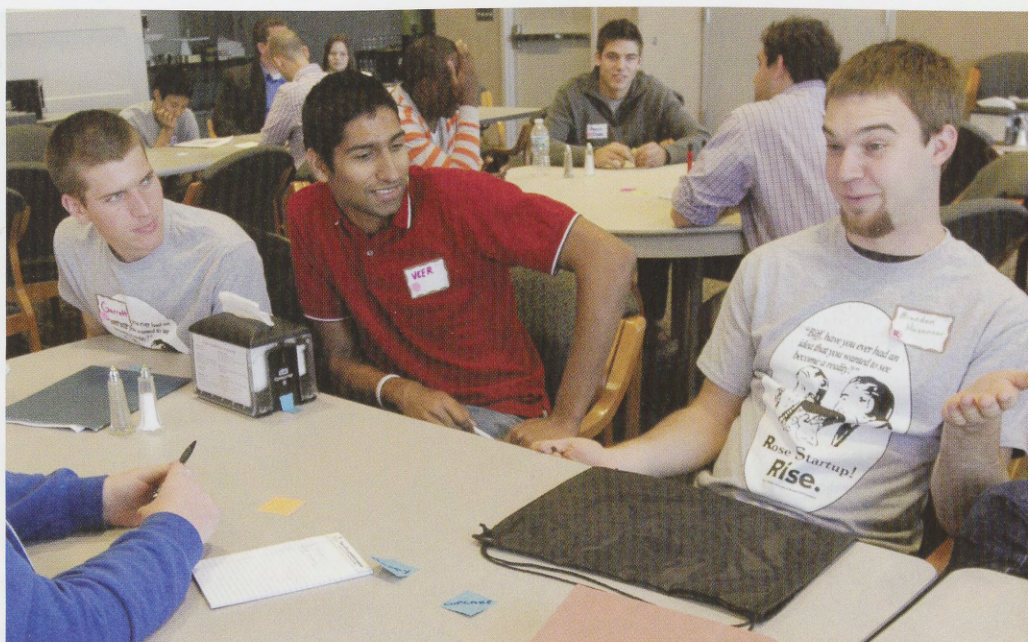
KIT is one of Japan's leading educational institutions, and Rose-Hulman is among a select group of international universities in which the institute has engaged in student exchange programs.

"We value our relationship with Rose-Hulman, which is an institution that shares our values in undergraduate education among engineering and the sciences," states Ishikawa. "I have always been impressed with Rose-Hulman's facilities, and the quality of its faculty, staff, and students."

For Rose-Hulman, students expand their global horizons by learning Japanese on campus, and then taking a semester of language and culture courses in Japan. Faculty members have also taught at KIT, and basketball and baseball teams have played exhibition games against Japanese teams.

"We have sent more than 300 faculty, staff, students, and family members to visit KIT, and we hope to send even more in the future," states Rose-Hulman President Robert A. Coons.

The cherry tree grove will be a permanent landmark to showcase the Rose-Hulman-KIT partnership. It is located near the White Chapel on the west side of campus and contains 40 trees—symbolic of each year in the partnership for both colleges. ■



Exchanging Ideas: The first Rose Startup! Conference brought together alumni, entrepreneurs, and students to discuss the steps to starting a successful business. Jeff Ready (top, left), CEO of Scale Computing, was a keynote speaker. Senior Chad Conway (bottom, left) organized the event.

Entrepreneurs Realizing Dreams, Igniting New Ones

Story by Michael Davids/Photos by James Garber

Experienced business leaders and young rock-star entrepreneurs encouraged a vibrant mix of students to follow their dreams at the first Rose Startup! Conference. This event with more than 200 attendees was organized by Rose-Hulman's new Innovative Student Entrepreneurs Club (RISE).

"I've been promoting the entrepreneurial spirit among engineers for more than 30 years now. It is really exciting to see a student-run event of this scope and magnitude," says Tom Mason, Professor Emeritus of Engineering Management.

Alumnus Beau D'Arcy (ME, 2003), partner of Chicago-based B2 Entertainment Group, adds: "I haven't seen this type of synergy for entrepreneurship on a college campus since studying for my MBA at the Harvard Business School."

Fourteen top entrepreneurs engaged in sessions covering idea creation, overcoming barriers, venture/seed

funding, and growth strategies. Nine of the speakers were Rose-Hulman alumni, including afternoon keynote speaker Jeff Ready (CS, 1996), a serial entrepreneur whose latest venture, Scale Computing, has twice been selected to Forbes' list of America's Most Promising Companies.

Other speakers were Matt Hunckler, president and founder of the VERGE community of Midwest entrepreneurs and startup investors; Yvette Kendall, president of Las Vegas' Shevinci Innovations; Jon Speer, managing partner of Indiana's Creo Quality; and Bradley Schwer, partner for Taft Stettinius & Hollister.

Alumni joining D'Arcy in passing along advice were Elizabeth Hagerman, Ph.D. (CHE, 2000), Vice President for Rose-Hulman Ventures (*see profile on pages 18-19*); Gerald Rea (ME/OE, 2004), CEO of Stray Light Optical Technologies (*see profile on page 36*); Elizabeth (Strohm) Kozman (ME, 2002) of BioStorage; and

Anthony Broadnax (CE, 1989), president of Broadnax Enterprises.

Also exchanging great ideas were Nick Mahurin (ME, 1989), CEO of InfraWare; Jeremy Clarke (SE/CS, 2009), president of Vortex Web Solutions of Middlebury; Dustin DuBois (CHE, 1992), intellectual property specialist for the Ice Miller law firm; and Michael Shepard (ME, 2007), vice president for Bostech Corporation. James Coles (EE, 1969) also represented Taft Stettinius & Hollister.

"Something exciting is bound to happen when all of these resources and creative ideas come together in one place," says senior Chad Conway, conference organizer and RISE's co-founder, with senior Wilson Kurian. Students also came from Indiana University, Purdue University, and Butler University. ■

Michael Davids is Rose-Hulman's Director of Marketing.

Coming Home:
Biomedical expert
Elizabeth Hagerman
returned to her alma
mater this year to
be Vice President for
Rose-Hulman Ventures.

"Our interns are not just learning in a real-world environment—they're adding business value for our external customers. Clients have shared that they could not have grown their business without Rose-Hulman Ventures."

—Elizabeth Hagerman, Ph.D.
Vice President for Rose-Hulman Ventures



A Perfect Match

Alumna Elizabeth Hagerman Sees Exciting Future for Rose-Hulman Ventures, An Unique Innovation Space

An Interview by Laura Stallman/Photos by Chris Minnick and Shawn Spence

Elizabeth Hagerman's expertise in bringing together diverse disciplines, teams, and companies bodes well for the future of Rose-Hulman Ventures.

Elizabeth M. Hagerman, Ph.D., (CHE, 2000) is perfectly suited to lead Rose-Hulman Ventures. Throughout her career, this biomedical expert and industry veteran has found herself at critical interfaces—where science meets medicine and scientific expertise intersects with commercial pursuits. Now, the new Vice President for Rose-Hulman Ventures finds

herself at another important interface—where academia and the business world connect to create real-life learning experiences for engineering students.

Earlier this fall, Hagerman shared her perspective on what sets Rose-Hulman Ventures apart from other innovation centers, and talks about her goals to build the program's national visibility.

Echoes: Rose-Hulman Ventures began in 2000, the same year you earned your bachelor's degree from Rose-Hulman.

How has the program evolved over the past decade?

Hagerman: Rose-Hulman Ventures was founded and later expanded with generous support from the Lilly Endowment Inc. Since then, our business model has evolved. Today, it is a successful, self-sustaining business that serves as an engineering consultant for a diverse mix of business customers—from entrepreneurial start-ups to established companies with global operations.

I wish a Rose-Hulman Ventures internship would have been an option when I was a student. It would have helped me visualize the many opportunities to translate my education into an exciting career. Our interns today can envision these opportunities in a practical, hands-on way early in their education. This offers students a big advantage as they begin to navigate various career paths.

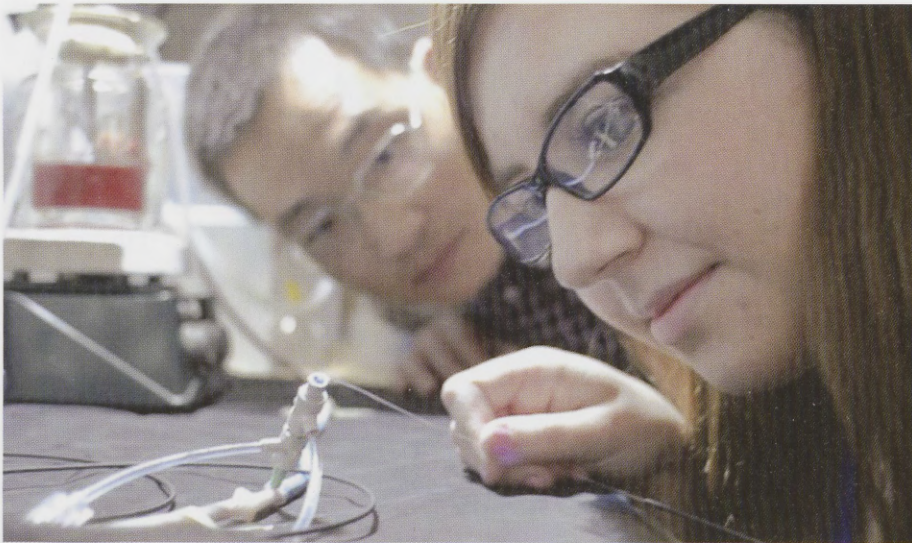
What are your immediate goals for Rose-Hulman Ventures?

One is to build national visibility for our program. Rose-Hulman Ventures is one of the institute's best-kept secrets. The quality of our work and the caliber of our students/project managers break the mold for an innovation-based collaboration between academia and industry. Our interns are not just learning in a real-world environment—they're adding business value for our external customers. Clients have shared that they could not have grown their business without Rose-Hulman Ventures. You can't get a better endorsement than that!

Building our geographic presence, expanding our portfolio of client partners, and providing students with unparalleled real-world experiences are my top priorities for Rose-Hulman Ventures.

What does success look like for Rose-Hulman Ventures?

For students, success is about connections. Connecting theoretical knowledge with real-world problem-solving. Connecting with peers outside their major through work on multidisciplinary teams. And, connecting with prospective employers



Unique Educational Model: Rose-Hulman Ventures has provided a path toward careers for alumni—like Erinn Sheridan (BE, 2010), top photo, and Sandor Pethes (CS, 2002), middle photo—to work with industry clients to develop a variety of groundbreaking technologies.

and collaborators on exciting technology-based projects.

For client partners, success is also about connections. Connecting with some of the brightest engineering students in the country. Connecting with a small consulting business for high-quality services at a competitive cost. And, connecting with future employees, entrepreneurs, and business leaders.

These connections often come full circle. In one case, as a student Erinn Sheridan (BE, 2010) was an intern with a small start-up, Fast Biomedical, and then joined the company after she graduated. She has now returned to Rose-Hulman Ventures as a client to work on projects with our student interns.

What sets Rose-Hulman Ventures apart from other innovation centers?

We offer the same creative thinking that is a hallmark of traditional incubators,

including university-based innovation centers. But Rose-Hulman Ventures expertly balances a high-quality learning experience for students with the business needs of external partners. This client-focused approach challenges students to understand and apply current industry standards. It also allows clients of Rose-Hulman Ventures to maintain the intellectual property related to their projects.

Perhaps even more unique, Rose-Hulman Ventures has its own dedicated facility in a Certified Technology Park on campus—giving students access to the same technologies and workspaces if they were working at one of our client companies. This contributes to the collegial culture of Rose-Hulman Ventures, where students are mentored by project managers. Our student interns are developing more than technical solutions—they're building valuable business acumen. ■



MEET ELIZABETH HAGERMAN, PH.D.
Vice President for Rose-Hulman Ventures

EDUCATION

- Ph.D., biomedical engineering, UCLA, 2007
- M.S., biomedical engineering, UCLA, 2002
- B.S., chemical engineering, Rose-Hulman, 2000

INDUSTRY EXPERIENCE

- Business leader with Los Angeles-based healthcare subsidiary of Baxter International, 2007-2012
- Expertise in business development, evaluation, and acquisition of emerging technologies, strategic planning, and new product development

RESEARCH EXPERIENCE

- Expert on tissue engineering, cell adhesion, bone regeneration, and tissue biomineralization
- Author of numerous biomaterials publications and presentations
- Two patent applications filed

HONORS

- Rose-Hulman Board of Trustees, 2009-2012
- Rose-Hulman Distinguished Young Alumni Award, 2008
- UCLA Outstanding Teaching Assistant, 2002

Laura Stallman is an Indiana-based freelance writer specializing in healthcare and higher education.



Bringing Science To Public:
Don Lincoln strives to
help people understand
discoveries in physics.

ALUMNI NEWSMAKER

Opening Science Horizons

Physics Alumnus Don Lincoln Helps International Team Discover Possible Higgs Boson Particle

Story by Terri Hughes-Lazzell/Photo by Ryan Lash

Rose-Hulman alumnus Don Lincoln, Ph.D., joined scientists throughout the world this summer in celebrating the discovery of a new particle, one with similar characteristics belonging to the long-sought Higgs boson.

This may be the last missing piece of the Standard Model of particle physics.

Lincoln (PH/MA, 1986) is a senior researcher at the Fermi National Accelerator Laboratory, a U.S. Department of Energy site dedicated to exploring the frontiers of high-energy physics. He also spends research time at Switzerland's CERN Large Hadron Collider, where the groundbreaking discovery was made.

The search for Higgs boson dates back

to the turn of the 20th Century when scientists were trying to understand atoms. In the 1960s, physicists developed The Standard Model, which explains the elementary particles and forces that make up the universe as we know it. However, there has been one remaining mystery—the mass of the subatomic particles. The Higgs boson is believed to be a particle or set of particles that might give others mass.

"We know what we found is something new," Lincoln says. "Metaphorically, it certainly looks like and smells like the Higgs boson, but now we need to verify the other three senses."

That verification may come in December or early next year. If it is

not the Higgs boson, but something new that looks like it, that would result in rewriting longstanding scientific theories.

"Science isn't about being right and not holding to today's ideas. If that means we need to throw out our current theory, so be it," Lincoln says.

If the discovery is indeed Higgs boson, there will be other questions for scientists to answer. The most pressing question—Why Are We Here?—may be Lincoln's challenge.

"I'm having a blast doing what I'm doing," says Lincoln, who specializes in searching for subatomic particles smaller than quarks. "The universe is an amazingly mysterious place, but mankind is teasing out its mysteries. But, even with the questions that remain unanswered, our current understanding is still fascinating."

Lincoln, who earned his Ph.D. in physics at Rice University, has co-authored more than 500 scientific publications. He is an

adjunct professor at the University of Notre Dame. He also has written two books about particle physics, both of which give more details about the Higgs boson and how scientists have searched for it.

He is a strong proponent of bringing the physics frontier to general audiences, and has given many public lectures on science matters. Earlier this year he was also a finalist to present at TED2013, and is working with the TED organization to develop science animations as part of their TED-ED initiative. ■

Terri Hughes-Lazzell is Rose-Hulman's Marketing Manager



International Experiences: Students from throughout Brazil are enjoying a year on campus through the Science Without Borders program. (Photo by Chris Minnick)

Brazilian STEM Program Expands Horizons for Students

By Dale Long

Rose-Hulman has gained a distinctive Latin flare this school year with the presence of 17 Brazilian students on campus through the South American country's new Science Without Borders (SWB) program.

They are among the approximately 2,200 Brazilian undergraduate students studying in science, technology, engineering, and mathematics (STEM) fields—part of Brazil's ambitious initiative to send up to 100,000 undergraduate and graduate students overseas to the best technology schools in the world by 2014.

Eight students arrived on campus last spring and were joined by another nine students this fall. Each are spending three quarters studying in areas of electrical engineering, computer science, software

SCIENCE WITHOUT BORDERS

engineering, and computer engineering. They will also participate in internships with U.S. companies before returning to Brazil to complete their degrees.

"These top-notch students had a number of choices, and they chose to study at Rose-Hulman," says Luchen Li, Ph.D., Associate Dean of Global Programs. "They were attracted by the excellent quality of education offered at Rose-Hulman and our welcoming community."

The Brazilian students have adapted quickly to life on campus and in America. They have lived in residence-hall rooms with other Rose-Hulman students, and

had meals at homes of faculty members. Several have also taken a spring break trip to Florida and were featured on a regional NBA television broadcast while waving a Brazilian flag to support Indiana Pacers basketball player/Brazil native Leandro Barbosa.

"It has been an amazing experience," says Luis Pelaez Covatti, an electrical engineering student. "It is going to be hard to leave."

Danielle Cunha, a chemical engineering student, adds, "We expected this to be a good experience, but it has been much greater."

To return the hospitality, the SWB students are planning a special Brazil Day in early February. ■

Welcome Home: Professor Richard Onyancha, a Kenyan native, gets an overwhelming response to a question asked to students from his homeland.



Reaching Across Borders

Faculty Strive to Bring Lighting, Educational Opportunities to Kenya By Dale Long

Through the new Faculty Without Borders program, Rose-Hulman students, faculty, and alumni are expanding global experiences in Kenya with hopes of shedding light on educational and research opportunities.

Four professors spent two weeks in the African country this summer to seek global design projects, create faculty collaborations, and open dialogue for ideas to develop alternate light sources as part of an Edu-Light Africa project.

"Lighting is a critical issue in developing countries," says Charles Joenathan, Ph.D., head of the Department of Physics and Optical Engineering. "We would like to see if there are ways our students can

FACULTY WITHOUT BORDERS

develop alternative, inexpensive light sources to help people [in Kenya and] throughout the world."

He concludes: "As engineers and scientists, if we don't lead, who will?"

Rose-Hulman is among a select number of U.S. colleges and universities participating in the National Science Foundation's Smart Lighting Project with hopes that the Edu-Light Africa initiative would be part of Rose-Hulman's contribution.

Joining Joenathan on this summer's exploratory trip were mechanical engineering professors Ashley Bernal,

Ph.D. (ME, 2006), and Richard Onyancha, Ph.D., and geography professor Michael Kukral, Ph.D. They visited Moi University in Eldoret and Egerton University in Nakuru to seek collaborative global design project experiences for mechanical engineering students. There was also dialogue with teachers and administrators at high schools in several communities to determine their current needs and inspire future engineers.

"The possibilities are endless and could mutually benefit people from both countries [the U.S. and Kenya]," says Onyancha, a Kenyan native. "Any relationship with these Kenyan

institutions could provide our students experiences that will allow them to gain a global perspective that will be so valuable in the future.”

Kukral, a former Fulbright Scholar, teaches courses in African culture. He is looking forward to returning to Kenya with several Rose-Hulman students.

“I have taken students on study-abroad programs in Japan and Europe, and we have learned much. However, putting our students and faculty in Africa will be a life-changing experience. It was for me,” he says.

Bernal is particularly interested in incorporating ideas into freshman-year mechanical engineering design projects and has joined colleagues in proposing a summer course to educate students about the Grand Challenges for Engineering as determined by a committee of the National Academy of Engineering. Challenges covering areas of energy production, providing clean water, and engineering better medicines are particular areas that need attention throughout the African continent.

New ideas under consideration in the Edu-Light Africa project may include the use of phosphorus-based paints (an inexpensive way to improve indoor light), and wind/solar-energy lighting systems to help bring light to Kenyan homes, where youths now study with little or no internal lighting. Rose-Hulman professors will encourage students to build solar/fluorescence receptors for lighting schools and surrounding areas in devices utilizing the fast growing and energy efficient technology of light emitting diodes (LEDs).

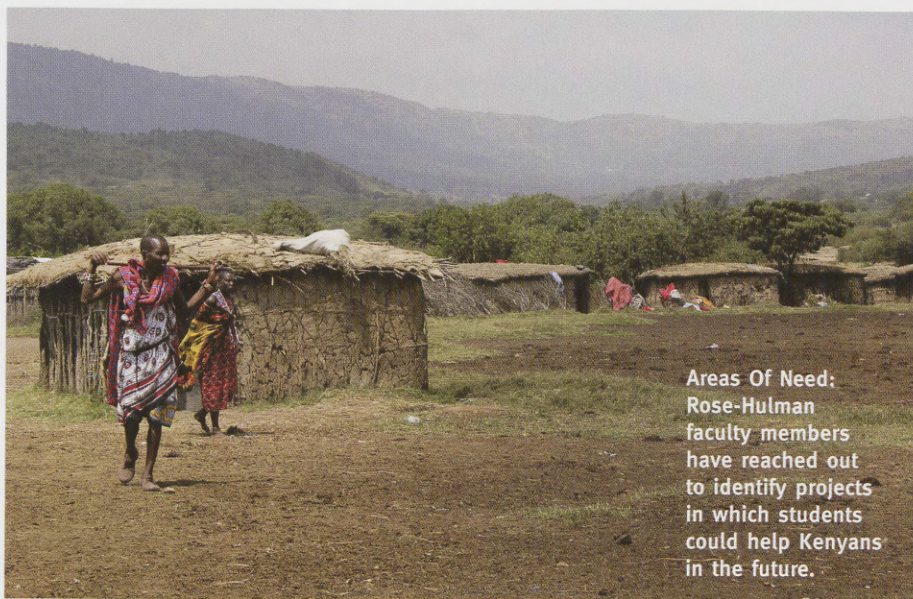
“Our students have the skills to meet these enormous needs,” says Bernal. “We have to find a way to reach across the world to help those in great need.”

Onyancha adds, “We’re keeping our eyes open to new projects and ideas, especially in areas of sustainability.”

An educational goal for the project is supporting the Kenya government’s efforts to expand educational benefits throughout the country. Special emphasis will be made toward reaching out to help students in elementary and middle



Making Friends:
Professors Ashley Bernal (ME, 2006) and Michael Kukral reached out to help people of all ages during the trip to Kenya.



Areas Of Need:
Rose-Hulman faculty members have reached out to identify projects in which students could help Kenyans in the future.

schools. Also, the Faculty Without Borders program hopes to develop faculty/student collaborations to enhance joint projects between Rose-Hulman and Kenyan universities.

“If you provide education and the infrastructure to enable learning, people will become self-reliant in their education,” says Joenathan. “Education is the key to uplifting people out of poverty and developing collective awareness to eradicate poverty through self-learning and self-sufficiency. We could make a big

difference to this region.”

This summer’s trip also had humanitarian aspects. The group presented clothing and gifts from Rose-Hulman faculty and staff members to Kenyan high-school students. The trip was supported by the Office of Academic Affairs, Office of Global Studies, and Department of Mechanical Engineering, Department of Physics and Optical Engineering, and Department of Humanities and Social Sciences. ■

HOMECOMING RECAP

Exciting Game: Alumni and current students helped the football team score a thrilling 28-26 victory over Manchester University.



HOMECOMING 2012

Alumni Come 'Home' to Remember, See What's New

This year's homecoming was a time for reflecting on the past, enjoying the present, and looking toward the future.

The Innovation Center was named in memory of Matt Branam and his many contributions to the campus and its students. Branam, a 1979 alumnus and the institute's 14th president, fostered the development of a large open-concept building for students to build innovative projects.

"Starting his career at UPS as a civil

engineer, Matt Branam built a lot of big garages—some of the biggest in America. However, he had never built one with such a fun and exciting purpose as this one," says President Robert A. Coons.

The William Alfred Cook Laboratory for Bioscience Research was also unveiled on the south side of Crapo Hall. This "living laboratory" was provided by trustee and Cook Group CEO Carl Cook on behalf of his late father, a life sciences pioneer. It will help cultivate

plants for experiments and research, and create a cradle-to-grave engineering environment for students to examine the recyclability factor of materials made from plants.

"This laboratory gives our biological science program a major boost, and showcases that Rose-Hulman is placing a strategic emphasis in the sciences," states Applied Biology Professor Peter Coppinger, Ph.D. ■

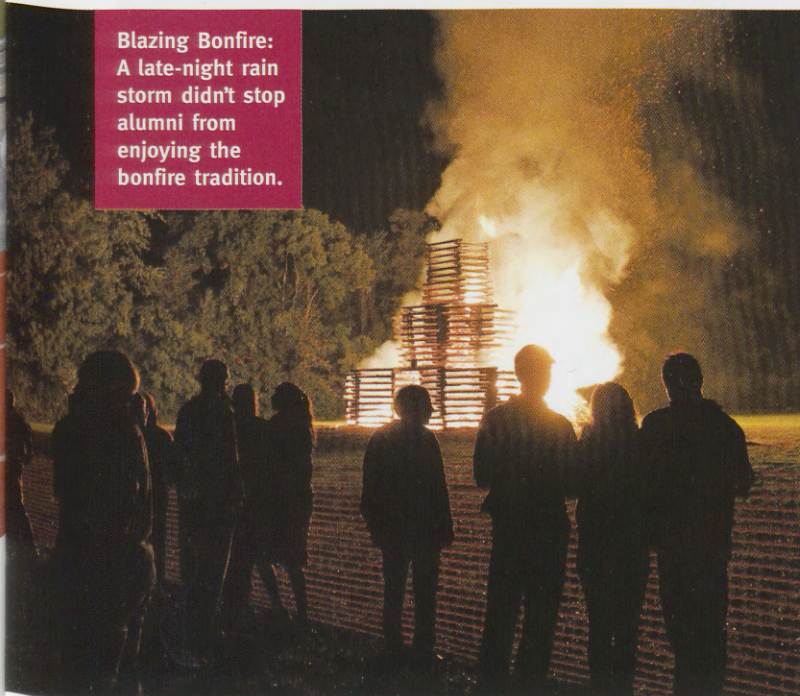
HOMECOMING RECAP



Royalty: Escort Daniel Maginot shows his support for homecoming queen Alex Bledsoe, a senior chemistry major.



Remembering Matt Branam: Family and the campus helped rename the Branam Innovation Center in memory of the late President Matt Branam, a 1979 alumnus.



Blazing Bonfire: A late-night rain storm didn't stop alumni from enjoying the bonfire tradition.



Planting A Seed: Trustee Tom Dinkel (ME, 1972), left, tours the new William Cook Laboratory for Bioscience Research, designed by Hank Doherty (CE, 1979), second from left.



Sharing Memories: Homecoming allows alumni to share special times with family.



Catching Up: Alumni meet new members of the Rose-Hulman Family throughout homecoming.

The Alumni Association recognized four alumni during Homecoming with the Honor Alumni Award, based on their loyal, unselfish and meritorious service to the institute; contributing to the national interest of our country; and professional achievement.

Profiles by Steve Kaelble

Finding Her Real 'Toy Story'

"Working in a toy company as a mom is a lot of fun," says Erica (Snyder) Buxton, who serves as Director of Corporate Strategic Planning at Mattel. But toys are a serious business, as the 2002 chemical engineering graduate has found out while helping the toy giant meet challenges in a competitive marketplace.

This is not exactly where she originally pictured herself when attending Rose-Hulman. She figured she would settle into the healthcare business as a development engineer. But after about three years on the job, "I was getting a little lonely in the lab and was interested in the overall company and how decisions were made."

So, Buxton and her husband, Rob (ME, 2001), decided to attend Harvard Business School's MBA program. "We sold our house, sold our car, quit our jobs, and moved," she reflects.

Then, with MBAs in hand, the couple landed consulting jobs in Los Angeles.



HONOR ALUMNI AWARD WINNER:
ERICA BUXTON

"I got interested in the consumer space," she says. That led to her job at Mattel. "What's more fun than working with toys?"

Buxton oversees the toy giant's annual strategic planning process, working with key executives to create a strategic plan. "I work with leadership to figure out how we will continue to drive shareholder value for the company," she says. "You have a lot of people who want money for different things. We have to figure out how to fund investments and prioritize them."

The latest strategic plan was presented to the Mattel Board of Directors in September, and now leaders are operationalizing the plan. Buxton helps to oversee progress throughout the year, but she's already thinking about

elements of next year's strategic plan. Even as the company moves into the 2012 holiday season with the latest Hot Wheels variations and a new high-tech Barbie doll, Mattel already has top-secret showrooms previewing next year's hot toys.

Buxton believes it's time for Rose-Hulman to take on the world in its strategic planning. She asks: "How can you get the Rose-Hulman name out and get more students from around the world to Rose-Hulman, and how can you get students a more global experience?"

Closer to home, Buxton is making plans for family growth. She has one child approaching age 2, and a second due next spring. "That keeps us busy." ■



HONOR ALUMNI AWARD WINNER:
PETER KRATZ

Picking the Right Answers in Juicy Markets

It was a civil engineering degree that Peter Kratz had in hand when he left Rose-Hulman in 1976. However, the most important skills he picked up went beyond engineering: “Rose-Hulman teaches about how to solve problems and think logically, and I have used that my whole career—trying to understand processes and make them better.”

Kratz put that learning to use in management roles from the start, overseeing processes and people in Procter & Gamble’s paper-making operations. He also took on large projects for Pepperidge Farm, including a technology makeover at an apple juice facility. “They asked me to stay and manage the facility, so I made the final transformation from project engineering to management,” he says.

“I went to bigger and bigger plant management jobs from there,” Kratz continues. At Sara Lee, he helped

turn around a startup facility that was struggling out of the gate. His last 13 years have been with Harry & David, an Oregon-based company known for its gifts and treats, particularly delicious pears. Kratz is executive vice president for operations in a company known for an unusual way of operating.

“It’s a very unique company, vertically integrated,” he says. Harry & David grows its own pears, handles its own baking and candy making, assembles its own product collections, conducts its own direct marketing, and operates its own stores.

Under Kratz, Harry & David has made significant improvements to a wide range of processes. It has adopted new technology that automatically sorts the fruit by quality and environmentally friendly practices that have earned multiple sustainability awards. “We update our strategic plan each year,” he

says, “deciding what size we want to be, what products we want to offer, and how we are going to sell those products.”

His knack for strategy also helped the company through a managed Chapter 11 bankruptcy without interrupting service or disrupting relations with vendors. “That’s where I really used all of the skills I had gotten at Rose-Hulman and through the years,” he says. Not surprisingly, Kratz sees that kind of problem-solving, logic-focused teaching as an important asset to retain and build upon as the institute plans for the future. “I’ve been blessed that Rose-Hulman really wants to teach people to think and solve problems. And, it has done a great job of sticking with its undergraduate program and being No. 1 in that area. Rose-Hulman has to keep thinking about what its brand is.” ■



Well Prepared for the Ride of His Life

James Nordmeyer doesn't take his Rose-Hulman education for granted. He grew up in Batesville, Indiana, as the youngest of seven siblings, and was the first to attend a four-year university. A high-school counselor suggested that he would make a good engineer. "I was always interested in chemistry, and chemical engineering became a major of choice."

A summer internship with B.F. Goodrich led to a full-time offer upon graduation in 1978, and he helped the company develop processes to manufacture ultraclean polymers. Corporate growth and change yielded lots of interesting opportunities, helping start a facility in Ohio and turning around a struggling polymer operation in Australia.

When Nordmeyer returned to the U.S., Goodrich's chemical operation had taken the name Geon, and he helped implement common business systems when the company merged with M.A.

Hanna Company. He helped the new firm, PolyOne, expand its textile printing ink business to China and Europe. Then, his supply chain and business process expertise led him to his present role as global vice president of business process systems for Fortune 500 glass container manufacturer Owens-Illinois (O-I).

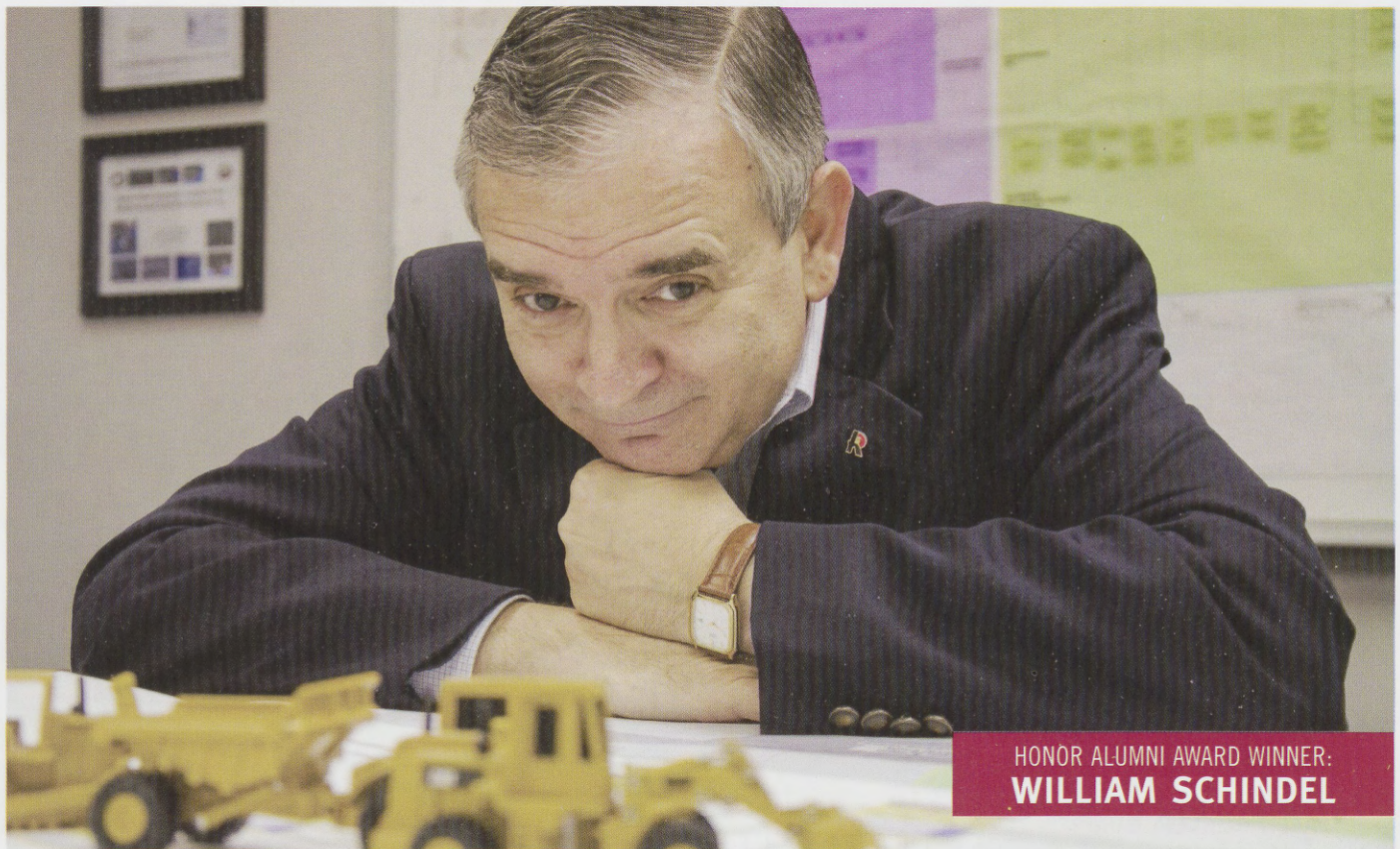
The journey has been "a great ride," but Nordmeyer notes that "30 years ago, doing supply-chain work and global-business processes would have been the furthest thing from my mind. Doing pure science—I haven't done that since I left Australia."

Nevertheless, he still applies the same problem-solving abilities learned at Rose-Hulman, and tells today's students that they will use those same skills "in many ways...ways you haven't thought of." For instance, Nordmeyer is now helping O-I determine how business processes are positively impacting various elements of

its corporate strategy.

Strategic planning at Rose-Hulman is not all that different, he believes: "What are the things that Rose-Hulman is doing that are going to move strategic elements forward?" Perhaps the most important thing, he says, "is to continue providing the real hands-on education that I received and current students receive. Rose-Hulman students are head-and-shoulders above the rest in their ability to take on challenges, because they get a real-life experience from their professors."

Nordmeyer has enjoyed giving back to his alma mater by serving the past year as Alumni Association President and joining the Lambda Chi Alpha fraternity's chapter housing corporation board. He also cherishes time spent with his wife and family—along with cycling, a hobby he started in 1977 and now he covers several thousand miles a year. ■



HONOR ALUMNI AWARD WINNER:
WILLIAM SCHINDEL

Making the Complex More Systematic

William Schindel felt right at home when he studied at Rose Polytechnic Institute in the 1960s, and he's rarely strayed far from home. After graduating in 1969, he spent a short time in New York, designing airborne military systems and innovation tools for IBM Federal Systems. But, he soon returned and earned a master's degree from the institution that had just been renamed Rose-Hulman. He has maintained close ties ever since.

In the 1970s, Schindel was involved in starting Applied Computing Devices, a Terre Haute company that supplied specialized computer systems for the telephone industry. It grew to about 170 employees before being acquired in the 1990s. At the same time, his relationship with Rose-Hulman included teaching math, electrical engineering, and computer science as a faculty member, and directed the computing center. He earned tenure status, then left to pursue

other business ventures.

Maybe "left" is not the correct way to describe Schindel's move to launch International Centers for Telecommunication Technology in 1983. That's because the company, now ICTT System Sciences, had startup ties to Rose-Hulman, and has employed interns, faculty, and graduates.

The firm's focus pertains to systems engineering, an increasingly important engineering field that diagnoses and cures what Schindel describes as complexity sickness. "It arose in aerospace in the 1950s," he explains, and has since spread to other industries that have grown increasingly complex and started to suffer from the ills of disorganized system complexity, including telecommunications, healthcare, and the automotive industry.

As that joint venture was getting up and running, Schindel joined Rose-Hulman's

Board of Trustees in 1984.

The complexity ICTT deals with on a daily basis is something engineers of all stripes must be prepared to tackle. Rose-Hulman is responding nicely, Schindel says, "looking for effective ways to respond to what companies say future graduates need." The recently added master's degree program in systems engineering is one answer to industry demands that speaks to Schindel's interests and expertise.

"Rose-Hulman is doing a good job of strategic planning," he adds, being impressed with how planners are using the concept of modeling to understand the institute and its relationship with the outside world. It's a vast improvement over from-the-gut planning that is not as objective and evidence-based. "In strategic planning, it's a way to have everybody on the same sheet of music," he says. ■

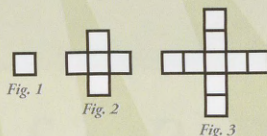
Bailey Challenge

By Professor Emeritus Dr. Herb Bailey

I found the Super Bonus problem for this issue in a list of "most popular math problems." It had escaped my notice for 87 years and is a long division problem with 33 unknown digits and one known digit. You must find the 33. I solved it, but neither quickly nor elegantly. Bonus problems No. 1 and No. 2 are slight hints to the solution of the Super Bonus and should not be read by the brave solver with nothing much else to do.

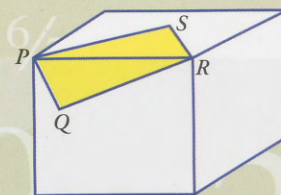
FALL PROBLEM NUMBER 1

A sequence of figures is formed by starting with one square and adding four additional squares to obtain successive figures. Figures No. 1, No. 2, and No. 3 are shown. How many squares will be in Figure No. 2012?



FALL PROBLEM NUMBER 2

A rectangular piece of paper, $PQRS$, has $PQ = 15$ and $QR = 20$. This piece of paper is glued on the surface of a large cube so that P and R are on vertices of the cube. Note that PQR and PSR lie on the front and top faces of the cube, respectively. Find the shortest distance from Q to S , as measured through the cube.



FALL BONUS PROBLEMS

In the long division problem shown, each of the original digits has been replaced by the letter x except the number eight. Any x that is a leading digit is never 0.

$$\begin{array}{r} x x x \overline{) x x x x x x x x x} \\ \underline{x x x} \\ x x x x \\ \underline{x x x} \\ x x x x \\ \underline{x x x} \\ x x x x \\ \underline{x x x} \\ x x x x \end{array}$$

FALL BONUS 1

Show that the three-digit divisor is less than 125.

FALL BONUS 2

Show that the three-digit divisor is greater than 111.

FALL SUPER BONUS

Reconstruct the division problem by replacing the x s with their original values. You need only report the dividend and divisor. Some information on how you arrived at your solution would be nice.

SOLUTION TO THE SUMMER CHALLENGE: You did well on this challenge, but some "skirted" around the rope pulling solution by using calculus. I give one possible calculus solution. Let x be the variable length (in feet) of rope that has been pulled up, λ the weight density of the rope (in pounds per foot) and D the value of x such that the work done from 0 to D is equal to the work done from D to 100. We have: force = $\lambda(100 - x)$, distance = dx , and work = sum of force times distance. Thus $\int_0^D \lambda(433 - x) dx = \int_D^{433} \lambda(433 - x) dx \Rightarrow -\frac{\lambda(433 - D)^2}{2} + \frac{\lambda(433)^2}{2} = \frac{\lambda(433 - D)^2}{2}$

So, $100 - D = \sqrt{5000}$ and Sally need only pull the first 29.29 feet to do her fair share of the work.

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

Congratulations to the following solvers of the summer problems:

ALUMNI: C. Hirschfield, 1954; D. Camp, 1955; B. Hall, 1955; J. Chinn, 1956; C. Cooper, 1956; A. Sutton, 1956; H. Brown, 1957; D. Bailey, 1959; R. Archer, 1961; L. Hartley, 1961; R. Ireland, 1961; J. Ray, 1961; J. Tindall, 1961; J. Snyder, 1962; C. Crawford, 1963; C. DeWeese, 1963; T. Wegman, 1967; K. Metz, 1969; J. Spear, 1969; J. Born, 1970; T. Kraft, 1970; E. Bodine, 1973; M. Marinko, 1973; D. Wheaton, 1974; M. Bailey, 1976; J. Schroeder, 1976; B. Bayles, 1977; P. VandeMotte, 1977; T. Greer, 1978; R. Priem, 1979; R. Joyner, 1980; J. Farrell, 1981; R. Roll, 1981; M. Taylor, 1982; R. Dauer, 1983; J. Bell, 1984; J. Reynolds, 1986; G. van Alkemade, 1986; E. Cegielski, 1990; G. Heimann, 1990; R. Antonini, 1993; B. Burger, 1991; R. Hochstetler, 1991; P. Kimmerle, 1991; M. Pilcher, 1998; P. Maurer, 2001; D. Dominik, 2006; K. Hassler, 2006; T. Perme, 2006; J. Whitten, 2008; J. Ausserer, 2010; W. Bro, 2011; and R. Dutton, 2012

FRIENDS: L. Ball, D. Crisler, T. Cutaia, B. Lackey, L. Gaintner, J. Hasselbring, J. Ley, M. Rosene, D. Stevens, G. Tikijian, and E. Wern

ALUMNI PHOTO ALBUM



Seeking Engineers: Valeo Sylvania's Paul DeStefano (PH, 1990), middle, and Cameron Betz (EE, 2012), right, were among alumni that sought students at the Fall Career Fair to fill positions in 2013.

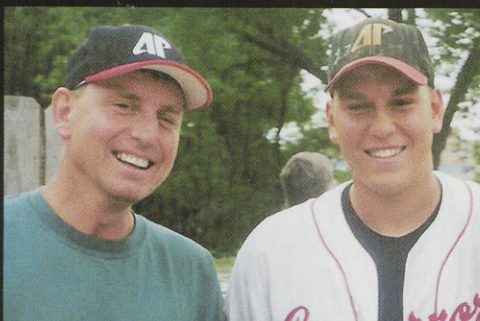


Sharing Ideas: Shelby County Development Corp. Past-President Chris King (CE, 2002) talks with Rose-Hulman Vice President Elizabeth Hagerman (CHE, 2000) at the kickoff of the IMPaCT 2016 program.

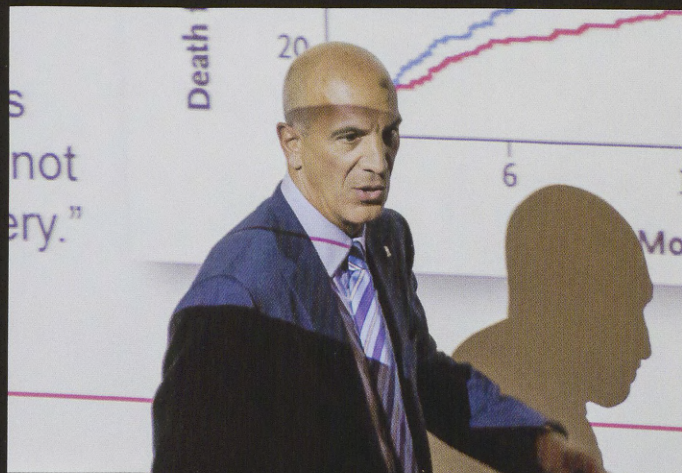


Championship Memories: Members of the 1981 championship football team relived gridiron memories with their coach, Joe Touchton, during a homecoming reunion. The group included (front row, from left) Rex Phillips (1982), Gary Quick (1982), Dan Wolodkiewicz (1982), and John Gregor (1982). In the back row (from left) are Tom Heckel (1981), Randy Hancock (1982), Pat Freeland (1982), Ben Brian (1982), Mike Donoghue (1982), and Dan Swanson (1982).

Athletic Roots: Athletic Hall of Famer Gary Ellis (CE, 1978) has reasons to be proud of his son, AJ, who became the starting catcher for the Los Angeles Dodgers this summer.



Following In Footsteps: Michael Cain (ME, 1985) is among several alumni with legacies in this year's freshman class. His daughter, Cassidy, is a member of the soccer and basketball teams.



Keynote Speaker: Michael Mussallem (CHE, 1974), Chairman and CEO of Edwards Lifesciences, made a campus presentation as part of this year's Interdisciplinary Research Collaborative Symposium.



Proud Jackets: Ed Kelley (ME, 1964) and his wife, Lynn, received Chauncey Rose Society jackets in recognition of their financial contributions to the institute.

CLASS NOTES

1943

John T. Newlin (CE) earned the 2012 Handclasp Award from the Kiwanis Club of Terre Haute, Indiana, for outstanding professional and civic service. He is chairman of Newlin-Johnson Co. Inc., a real estate business.

1972

John Cross (CE) was a finalist for the Chicago CFO of the Year Award, recognizing financial leaders for their contributions to a business or non-profit. He serves as vice president of market development and finance for American Institute of Steel Construction.

1975

Nicholas M. Ryan (CE) is CEO and president of Marquette Real Estate Investments in Naperville, Illinois. The company has designed, developed, acquired, and operated more than \$2 billion worth of industrial properties.

1983

Gregory C. Swinehart (CHE) has been named national leader of Deloitte Financial Advisory Services' new analytics service area. Based in New York, he previously served as national leader of the forensic service area.

1986

Les Haman (EE) is manager for Matrix Technologies Inc., a 2012 Control Engineering System Integrator of the Year. He develops integration strategies and supervises the deployment of visualization, control, and supervisory systems.

1987

Ed Hemmersbach (ME) has been named vice president of operations for Alcoa Global Packaging-North America. He will supervise all manufacturing processes at operations in Evansville, Indiana and Alcoa, Tennessee.

1990

Steven E. Pryor (CE) earned the American Society of Civil Engineers' 2012 Raymond C. Reese Research Prize for a paper that examined the experimental seismic response of a full-scale six-story light-frame wood building. He is the international director of Building Systems for Simpson Strong-Tie Company.

1994

Zac Chambers (ME) was a key speaker at the 2012 North America Engine Expo's Open Technology Forum in Novi, Michigan.

1996

Ashvin Lad (CHE) attended the Republican National Convention as a member of the Illinois delegation.

Jeff Ready (CS) writes the "Deep In The Trenches" blog about entrepreneurship issues for Forbes.com. A recent entry, "Visionary Entrepreneurship: A Life Story," highlights a new product, HC3, for his Indianapolis-based Scale Computing.

1997/1999

Michael C. Moser (ME) and **Joseph R. Puthoff (ME)** were recognized as two of the 2012 "Top 40 Under Forty" by *Aviation Week & Space Technology*, for being pioneers in the industry. Moser is chief functional engineer of the AE 3007 Engine for Rolls-Royce. Puthoff is chief project engineer for the Trent 1000-Ten Engine.

2000

David S. Fisher (ME) was the keynote speaker at the Indiana Icon Society Appreciation Dinner at the Indiana State Museum and Historic Sites. Fisher spoke on "The Imagined Technology of Robots in the 'Star Wars' Movies."

FIVE IN 20TH ATHLETIC HALL OF FAME CLASS

This year's inductees into the Rose-Hulman Athletic Hall of Fame on October 6 were:

Zach Johnson (ME, 1998)—Basketball

Jennifer (Krause) Lawrence (CE, 2002)—Volleyball/Basketball

James McTaggart (CHE, 1895)—Track and field

Rob Nichols (ME, 1999)—Baseball

David Yeager (ME, 1968)—Basketball

Learn more about this year's class at www.rose-hulman.edu/athletics.aspx. ■



2012 Athletic Hall of Famers: This year's inductees into the Athletic Hall of Fame included (from left) Zach Johnson, Rob Nichols, Jennifer (Krause) Lawrence, and David Yeager.



G.O.L.D. Circle Donors: Graduates of the Last Decade earning G.O.L.D. Circle Awards for their support include (front row, from left) Jennifer Meyer (CHE, 2002), Tracy (Neal) Lockhart (ME, 2002), and Becky (Kilgore) Levinson (CHE, 2005). In the back row (from left) are Donald Harrington (ME, 2002), Peter Bryson (CS, 2002; MSEE 2004), Vice President for Institutional Advancement Rickey McCurry, Frank Levinson (ME, 2003), and Jason LaBella (ME, 2004).

2001

Gregory M. Gotwald (CHE) was winner of the 2012 Indy's Best and Brightest Award in the law category, presented by Junior Achievement of Central Indiana. He is a partner with Plews Shadley Racher & Braun LLP.

2002

Fiona Haulter (CE) is program manager for CBRE's global client services/global change management program, based in Nashville, Tennessee.

Tracey (Neal) Lockhart

(ME) was a 2012 Indy's Best and Brightest finalists in the manufacturing, retail, and services category. She has had many roles with Rolls-Royce Corporation.

2003

Dedric A. Day (CHE) was a Health/Life Sciences finalist for the 2012 Indy's Best and Brightest Award. He is a process engineer for Eli Lilly and Company.

2005

Lance W. Gassert (CE) has rejoined Terre Haute's Garmong Construction Services as a project manager.

2006

Nicholas B. Dunning (ME) has been promoted to manager of division of restoration for Karins Engineering Group, Inc.'s office in Sarasota, Florida.

2011

Andrew Hubble (ME), a Peace Corps volunteer, installed a Play Pump water filtration system to bring a reliable source of fresh drinking water to his South African community.

2012

Eric Liobis (CE/MA) was a member of the American Institute of Steel Construction's IDEAS² Awards Jury, recognizing excellence and innovation in the use of structural steel. He is a graduate student at the University of Illinois. ■

ALUMNI NEWSMAKERS



WOODWORTH NAMED CEO OF MARATHON OIL NORWAY

With 34 years of experience in the petroleum industry, Kenneth M. Woodworth (ME, 1978) was a natural fit to become managing director/CEO of Marathon Oil Norway, a subsidiary of the Marathon Oil Corporation.

Woodworth has held several national and international leadership positions at Marathon, including serving as managing director of Equatorial Guinea and Canada operations.

"The company has delivered excellent results over many years. I want to build on and maintain the good relationships the company has with the Norwegian authorities," says Woodworth in a company news release.

Woodworth started his Marathon career in 1977 as an engineer at the company's refinery in Robinson, Illinois. He also has a master's degree in project management from George Washington University.



UMPLEBY NAMED CATERPILLAR GROUP LEADER

Success with Caterpillar Inc.'s Solar Turbines business has led Jim Umpleby (ME, 1980) to be elected president for the corporation's energy and power systems business. He succeeds the retiring Gerard Vittecoq on January 1.

"Jim understands the highly complex and global nature of the customers we serve in the energy, rail, and power industries," says Caterpillar Chairman and CEO Doug Oberhelman.

Umpleby was named a Caterpillar vice president and president of Solar Turbines in 2010. During his career with Solar Turbines, he has worked around the world in positions with increasing responsibilities in engineering, manufacturing, sales, and customer service.

The Alumni Association recognized Umpleby with the Career Achievement Award in 2000.



OLIVENCIA GETS STEM EXECUTIVE EXCELLENCE AWARD

Great Minds in STEM has awarded its 2012 Executive Excellence in Technology Award to David Olivencia (EE, 1994), Verizon's director of IT strategy and planning.

Award winners represent highly accomplished STEM professionals who have achieved academic and professional success in their respective fields and private sectors. They serve as role models to aspiring STEM students and private industry professionals.

Olivencia is responsible for IT strategy and communications to enable Verizon's business imperatives. He also serves on the board of Congressional Hispanic Leadership Institute with 10 members of the U.S. Congress, and is co-founder and board member of the Hispanic IT Executive Council.

"My STEM education and career have enabled many opportunities for me and it is vital that we put more resources into STEM to ensure America's future economic prosperity and competitiveness," he stated at the awards ceremony.

Olivencia has also been honored with *Hispanic Business Magazine's* Most Influential Hispanics in America, *Latino Leaders Magazine* Maestro Award for Innovation, and *Crain's* Detroit 40-under-40 Award. ■

ALUMNI PROFILE

The Young Alumni Council recognized four alumni during Homecoming with the Distinguished Young Alumni Award for graduates from the last 10 years with notable endeavors in the areas of career achievement, continued education, community service and/or commitment to the institute.

Profiles by Steve Kaelble



**DISTINGUISHED YOUNG ALUMNI AWARD WINNER:
LEO MORAND**

A Natural at Building Bridges as a Career, in Life

With two uncles in the construction business, Leo Morand has long known his career calling. He turned to Rose-Hulman for the keys to realize those dreams after attending the institute's summer Operation Catapult program.

"That solidified my interest that I would be an engineer and would go to Rose-Hulman," he says.

Morand earned a civil engineering degree in 2002, and a decade later is just as committed to construction and Rose-Hulman. The construction part comes through designing roadway and public utility projects for Gewalt Hamilton Associates in Illinois.

Those responsibilities go quite a bit deeper than the physical design of the projects for communities and school districts. He's also an integral part of the strategic planning and background work that make publicly financed projects possible. "I assist them with

obtaining federal funds and planning future improvements," Morand says. Public funds don't grow on trees and accountability is critical. "You're seeing more people trying to plan and stretch dollars more, and people want to be sure their dollars are being spent appropriately," he says.

Because the work goes far beyond the drawing board, Morand's skills go well beyond engineering. "I think the communication side is extremely important," he says. The good thing is, "Rose-Hulman does a great job teaching you to communicate."

That's one of the things he tells students and parents while representing Rose-Hulman at college fairs. He is about as dedicated an ambassador for the institute as you'll find anywhere, serving on the Young Alumni Council and directing talented prospects (including siblings) to attend Rose-Hulman.

Morand, in fact, sees communications as something Rose-Hulman should continue to expand, not only to students, but also in outreach to alumni and other supporters.

Away from work, he's a new parent, which understandably takes up a lot of free time. He's been active in a lot of ways, including serving on the committee that's planning a multipurpose facility for his church, and working with Habitat for Humanity. It seems that he's a builder even away from work, and he's thankful to have entered life after college with the confidence that comes from completing a rigorous Rose-Hulman education. "If you have this down, you can do anything." ■

Photograph by Mark Fletcher



DISTINGUISHED YOUNG ALUMNI AWARD WINNER:
MICHAEL DOCKINS

Finding the Right Career 'Formula'

It's no secret that internships play a critical role in preparing for a career, and as a chemical engineering student, Michael Dockins landed enviable internship work at pharmaceutical leader Eli Lilly & Company. However, it didn't lead to a great career in chemical engineering, but steered him down a completely different path.

At Lilly, Dockins wasn't interested in following in the footsteps of engineers who spent several years working on a single project. Instead, he was intrigued by networking opportunities with Lilly's general legal counsel and patent attorneys.

So, he went to law school at the University of Toledo after graduating in 2002. Patent attorneys are required to have a scientific background, and his Rose-Hulman background met that requirement easily. "It seemed like a natural fit."

Dockins was a whiz in law school, graduating cum laude, serving as technical editor on the law review, and getting published in a legal journal. He passed the Ohio and Indiana bar exams, along with the patent exam, and landed a job with the law firm Fraser Clemens Martin & Miller near Toledo. He has processed more than 125 patent applications in everything from alternative energy to plastics to automotive components.

He also dove into the world of corporate strategy by serving for a time as in-house counsel for First Solar, a leading manufacturer of thin-film photovoltaic devices. "Being on the cutting edge is a cool place to be," he observes, but that also means navigating through technology challenges which leaders face more often than followers. Competition in alternative energy is fierce and the playing field

is anything but level, especially with governments such as China's showering their home teams with support.

Just as players in industry must keep the whole world in mind, Dockins believes Rose-Hulman needs to think strategically on a global scale and work hard to get its name out more broadly. Rose-Hulman is widely known within some engineering circles, but must spread that recognition much farther, "to have a larger portion of the population realize how great the school is."

Dockins does his part by, among other things, representing Rose-Hulman at college fairs. He's also been an advisory board member of the Phi Gamma Delta fraternity's campus and international organizations. And, like lots of his peers who are a decade out of undergraduate studies, "it's all family, all the time." ■

NOMINATIONS SOUGHT FOR 2013 AWARDS

The Office of Alumni Affairs is accepting nominations for the 2013 Distinguished Young Alumni awards. Visit www.alumni.rose-hulman.edu to nominate a Rose-Hulman alumnus who graduated between 2003 and 2012.

Photograph by Mary Pencheff

Shedding New Light on Big Events

It's a long way from Terre Haute's Wabash Avenue to Hollywood Boulevard. But outside the 84th Academy Awards, Gerald Rea helped movie stars show off their fashion exclusives with a revolutionary lighting system that the 2004 Rose-Hulman graduate describes as "sunlight in a box."

Rea, co-founder and CEO of Indiana-based Stray Light Optical Technologies, was invited to help the Oscars go green. The lighting device was powered by another company's cutting-edge fuel cell. And, if that wasn't cool enough, "I got an all-access backstage pass."

Not bad for a native of Scottsburg, Indiana who attended Rose-Hulman because "I've always loved to create stuff. I just didn't know what kind of stuff I was going to create." He studied optical and mechanical engineering, and got several hands-on experiences at Rose-Hulman Ventures.

After graduating, he started a consulting business, doing research and development for large manufacturers and industrial firms. "About four years ago, I started to look at my skill set and that of my team members [including Chief Technology Officer Robert Drake, a fellow mechanical engineering alumnus], and started to make a real business out of it. We went into high-efficiency plasma lighting."

Rea's description of the technology sounds much simpler than it is: "We essentially create a small ball of plasma and float it in the middle of a quartz crystal. It's sunlight in a box," he says. The light fixture is long-lasting, energy-efficient, and bright. "This is disruptive technology. It's not a new concept—the surface of the sun is plasma—but its commercialization is really new."

This year's Academy Awards wasn't



**DISTINGUISHED YOUNG ALUMNI AWARD WINNER:
GERALD REA**

the only high-profile event lit by Rea's newfangled light. It also illuminated the last manned shuttle launch for NASA.

Getting Stray Light Optical Technologies to this point clearly required exceptional engineering talent, but also lots of strategic planning and business smarts. And, that kind of learning, Rea says, could be an even bigger part of Rose-Hulman's future.

"Rose-Hulman already does a world-class job of preparing students for the

real world," he says. "It really isn't about making it better, but deciding if Rose-Hulman is going to go beyond engineering, looking at entrepreneurship, and bringing more business-oriented processes into the curriculum." Engineers who can think entrepreneurially could be valuable to a lot of employers, he points out. "A lot of small players are very nimble, and a lot of companies are trying to make small departments more nimble." ■

Up, Up And Away: Brian Knaup sits in the back seat of this Air Force jet during a refueling training flight.



DISTINGUISHED YOUNG ALUMNI AWARD WINNER:
BRIAN KNAUP

Flying High and Committed to Causes

When Brian Knaup goes to work, he reaches for the sky. In June, he became developmental test flight dynamics leader for the U.S. Air Force's KC-46 aerial refueling and transport aircraft. "I lead the planning effort for testing to begin in the summer of 2014, when the first aircraft rolls onto the flightline," he says.

Knaup has been flying high ever since earning his mechanical engineering degree in 2004.

"I commissioned into the Air Force and was stationed at Edwards Air Force Base," he recalls. "I was the lead subsystems engineer for F-22 flight tests. In 2007, I transitioned from the active duty Air Force to government civilian, but stayed in the same position. In 2007 and 2008, I was the lead engineer for F-22 icy runway testing in Alaska."

His work included developing innovative new test processes, and making presentations throughout the world with

another test pilot about their processes. As he moved into program management, Knaup picked up an Indiana University MBA and a master's degree in mechanical engineering from UCLA.

"Rose-Hulman provided me with the technical background to do the work I'm currently doing, but it takes more than just knowing the right equations to use when doing engineering analysis," Knaup says. "The teaching engrained a problem-solving process that effectively finds solutions for all problems."

He has no doubt that the excellent educational experience will continue to be the standard on campus. "Maybe just as important is for Rose-Hulman to increase its outreach into high schools, to get more kids interested in science, math, and engineering, and pursuing careers in those areas."

Knaup developed strong time-management skills at Rose-Hulman that

he says "have really been essential in both work and the other aspects of my life." That includes time spent with wife

Beverly (Kocher), a 2004 mechanical engineering alumna and former Air Force test pilot, and their two daughters.

These days the couple dedicates much of its time volunteering and doing fundraising for the Lupus Foundation of America and the Walk for Lupus Now.

"Bev was diagnosed with systemic lupus erythematosus in 2007, and over the last five years, she has led Team Knaup raise more than \$50,000," he says proudly.

"The team and Bev have been in the top three in fundraising in the Los Angeles area each of the last three years." ■



Obituaries

1938

Norman G. Wittenbrock (CHE), 96, died on July 30 in Seattle. He worked for the United Nation's International Energy Agency in Vienna, Austria and the U.S. government's Hanford Nuclear Reservation in the state of Washington. Survivors include three sons and three grandchildren.

1942

James R. Brown (CE) died on

September 5. He was the former president of Brown Engineering Company in Phoenix, Arizona. Survivors include his son, James (CE, 1970), two daughters, six grandchildren, and one great-grandchild.

1943

Richard Driskell (ME), 90, died on May 18 in Wellsboro, Pennsylvania. He was an engineer for Convair and Humphrey Electronics in

San Diego, and AVCO in Cincinnati. He is survived by wife, Lucile, three sons, and two grandchildren.

1944

Charles B. Butts (EE), 88, died on September 20 in Bowling Green, Kentucky. He retired as leader of the metrology department of General Motors' Allison Gas Turbine. He is survived by three children and six grandchildren.

1945

Stephen Liddle (ME), 86, died on March 11 in Englewood, Fla. He worked as a machine design engineer at RCA for 37 years, and was awarded several patents for his designs in the music and video recording industry. Survivors include his wife, Barbara; son, David (ME, 1972); one daughter; six grandchildren; and eight great-grandchildren.

1947

Alfred M. Lawson (CE), 90, died on December 11, 2011 in Princeton, Indiana. He was superintendent of the Kings Mine in Indianapolis and was a former president of the Indiana Mining Institute. Later, he was president of Southwind Construction and vice president of Koester's Construction. He is survived by his wife, Lois; three sons, including Dennis (ChE, 1964) and Timothy (CE, 1989); one daughter; eight grandchildren, including Wayne (ME, 1988); and three great-grandchildren.

Richard G. Olson (EE),

89, died on September 22 in Dearborn, Michigan. He was one of the first to land on Utah Beach for World War II's D-Day. He worked for the Detroit Edison Company

for 41 years, serving as senior nuclear engineer. He was also the control and kinetics manager for the Atomic Power Development Association Inc. He is survived by his wife, Virginia; two children; and three grandchildren.

Harold R. Payne (ME), 90, died on February 5 in Detroit. He was an engineer at Chrysler for 38 years. Survivors include his wife, Dorothy; and four sons.

1948

George R. McNeil (EE), 86, died on October 17 in Sun City, Arizona. He is survived by his wife, DeLee; two daughters; and two grandchildren.

Claiborne Motsinger (CE), 85, died on February 3 in Lakeside, Ohio. He worked at Cleveland Electric Illuminating Company/First Energy for 38 years. Survivors include three sons, two daughters, six grandchildren, and one great-grandchild.

1949

Charles W. Foreman (EE), 89, died on September 2 in Vienna, Virginia. He worked at Analytic Services, Inc., until his retirement. Survivors include his son Mark.

Robert L. Kahl (ME), 88, died on April 13 in Flushing, Michigan. He retired from General Motors. Survivors include his wife, Avonne; two sons; two daughters; 10 grandchildren; and one great-grandchild.

1955

Herbert E. Smith (EE), 78, died on August 11 in Bel Air, Maryland. He was a former vice president of the Siemens Corporation. In retirement, he

HISTORICAL LEGACY

INNOVATIVE ENGINEER: JOHN R. PIES Alumnus Cited in 'History Detectives' Show About Radio Development



John R. Pies (EE, 1939) was acknowledged on this season's PBS television series "History Detectives" about the creation of the first commercially sold transistor radio, the Regency TR-1, in 1954. Pies co-founded Regency Electronics Inc. in 1945.

The Regency radio is historically significant because it kicked off a worldwide demand for small and portable electronic products, which pioneered the path for all electronic devices, including the personal computer, that have become a part of people's daily lives.

The Regency TR-1 featured four germanium transistors operating on a 22.5-volt battery that provided more than 20 hours of life. Texas Instruments developed the germanium junction transistor, but no major radio builders were willing to put it in their products. It found a partner in Regency and the radio was developed for the Christmas market in 1954. The first batch sold out almost immediately at a cost of \$49.95 per radio.

"If you owned one, you were the coolest thing on two legs," stated *Fortune* magazine.

Before developing Regency, Pies worked at RCA from 1940-45. He spent the final years of his career at MicroFab Technologies near Dallas, where his name appeared on 10 patent awards. He died in 2004.

View the "History Detectives" show on the Regency TR-1 at www.pbs.org/opb/historydetectives/investigation/first-transistor-radio. ■

became the first construction manager of Harford Habitat for Humanity. Survivors include his wife, Katherine; three sons; and four grandchildren.

1962

Thomas H. Rose (EE), 70, died on January 11 in Denton, Texas. He was a highly regarded acoustical consultant/engineer. Survivors include his wife, Marguerite, and one son.

1966

Robert W. Haddix (ME), 69, died on August 1 in Lutz, Florida. He was a pioneer in

designing co-generation power plants and later formed his own consulting company. He is survived by his wife, Gretchen; two sons; and one grandson.

1967

David Grove (MA/PH), 68, died on February 18 in Topeka, Kansas. He worked for AT&T/Bell Telephone Systems. Survivors include his wife, Mary, and two sons.

1971

Kenneth A. Kerchner (ME) died on July 17 in Conroe, Texas. He is survived by his

wife, Donna, and two sons.

1973

Donald M. Graden (ME), 71, died on August 4 in Portage, Indiana while working at U.S. Steel. He is survived by two sons and five grandchildren.

1975

Ronald A. Damm (ME), 59, died on April 21 in Claremont, Illinois. He was a petroleum engineer for Texico Oil, Marathon Oil, Rex Energy, and Team Energy, and was a consultant for Pioneer Oil. He is survived by his wife, Rita;

two sons; and one grandchild.

1976

Michael J. Cherbak (EE), 58, died on October 5 in Bloomington, Indiana. He was former president of Rose-Hulman's Phi Gamma Delta fraternity chapter. He served as clinical engineer for Indiana University Health until his retirement after working for RCA and Harmon Motive. He is survived by his wife, Rhonda; two daughters; and two grandchildren. ■

Marriages

2000

Wesley Bolsen (EE) and Rebecca Johnson were married on October 7 in Wheaton, Illinois. He is chief marketing officer and vice president of Codexis in California.

2009

Matthew M. LaCross (ME) and Rosie Mattingly were married on August 18 in Lebanon, Indiana. He is an engineer at Harman International Industries.

Zachary Sanders (ME)

married Jillian Swan on June 30 in Williamsburg, Indiana. **Tyler Thornton (ME, 2012)** was best man while **Calvin Buetel (CHE, 2010; EMGT, 2011)** and **Ryan Pattenau (CE, 2008)** were groomsmen. LaCross is an application engineer at Cone Drive Operations, Inc., in Traverse City, Michigan, where the couple lives.

Andrew Steward (BE) and Courtney Byrnes were married on

August 4 in the White Chapel at Rose-Hulman. He is pursuing a Ph.D. in biomedical engineering at the University of Notre Dame in conjunction with Trinity College-Dublin in Ireland.

2010



Birt/Beaty

Kyle Beaty (CE) and Bailey Birt were married on June 30 at the DePauw University Nature Park in Greencastle, Indiana. He is employed at Exxon Mobil. The couple resides in Houston.

2011

Andrew Kruth (SE/CS) and **Johanna Moore (AB)** were married on July 21 in



Moore/Kruth

Rose-Hulman's White Chapel, in a service officiated by Assistant Dean of Student Affairs Erik Hayes. Andrew and Johanna are former resident assistants. They now live in Austin, Texas, where he is a software consultant for Avalon Consulting LLC and she attends the University of Texas.

2012

Kenton Hochstetler (ME) and Katherine Trusedell were married on October 20 in Indianapolis. He is a product engineer at Hydro-Gear. They live in the Indianapolis area. ■

Rosebuds



1997

Micah (EE) and **Tiffany (EE/MSEM) Trusty** welcomed daughter Zoey on August 20. Micah is general manager for the Indiana office of Outbound Technologies. Tiffany is senior staff engineer for Motorola Solutions.

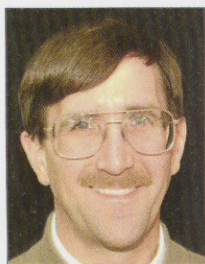
2005

Adnan Ayub (ME) and his wife Rida announce the birth of their daughter Aleen on January 10. He works for Isotherm in Arlington, Texas. ■



ALUMNI NEWS

McCleary, Sanborn Elected Alumni Trustees; Lockhart Takes Over as Association Secretary



Kenny McCleary



Sarah Sanborn



Tracey Lockhart

Alumni will have two new representatives on Rose-Hulman's Board of Trustees, with former Alumni Association President Kenny McCleary and Young Alumni Council Past-President Sarah Sanborn starting two-year terms in February 2013.

Meanwhile, Tracey (Neal) Lockhart is the new Alumni Association Secretary, taking office during homecoming.

McCleary (CHE, 1983) joins Bob Pease (CHE, 1980) as alumni representatives on the board. He served as Alumni Association President in 2006, was an advisory board member for four years, and has been a class agent since graduation. The West Lafayette, Indiana resident is director of environmental, health, safety, and security at Evonik Degussa Corporation's Tippecanoe Laboratories.

Sanborn (CHE, 2004; MSBE, 2006) is one of two young alumni representatives as trustees, joining Ben Giant (ME, 2003). She serves on the Department of Chemical Engineering's Board of Advisors, assists recruiting efforts, and hosts alumni events in the Cincinnati, Ohio area. She is a senior engineer for Procter & Gamble.

Lockhart (ME, 2002) is another former YAC President and has served as the Alumni Association Board's Homecoming Chair. She is a Senior Engineer with Rolls-Royce Corporation and lives in Greenwood, Indiana with her husband, Nathan (ME, 2002), and son, Hans. ■



Leadership Exchange: Jeff Myers (EE, 1987), left, took over as Alumni Association President at Homecoming following the term of James Nordmeyer (CHE, 1978).

ALUMNI CALENDAR

ROSE ON THE ROAD EVENTS

Grand Rapids, Michigan | December 5
Detroit, Michigan | December 6
Greenville, South Carolina | February 6

SUPPORTING THE ARTS EVENTS

Hatfield Hall Theater, Rose-Hulman
Russian National Ballet Show | January 9, 7:30 p.m.
Mountain Heart Show | January 19, 7:30 p.m.
Doctor Kaboom! Show | January 22, 7:30 p.m.
Jack Hanna Show | March 9, 2:30 p.m.

YOUNG ALUMNI COUNCIL EVENTS

Young Alumni Ski Trip | January 26
Perfect North Slopes, Lawrenceburg, Indiana

NATIONAL MONTH OF SERVICE | APRIL

Terre Haute, Indianapolis, Chicago, Cincinnati, and Kansas City

CROSSROADS FIRST ROBOTICS | APRIL 4-6

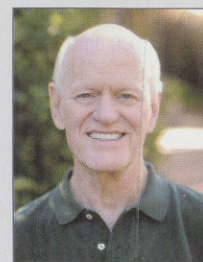
Sports and Recreation Center, Rose-Hulman

Visit www.alumni.rose-hulman.edu/events

GOLDSMITH SPEAKING AT ECONOMIC CLUB

Alumnus Marshall Goldsmith, Ph.D., will be featured speaker at the Economic Club of Indiana's luncheon on January 8, from 11:30 a.m. to 1:30 p.m., at the 500 Ballroom of the Indiana Convention Center.

Goldsmith (MA, 1970) has been recognized as the No. 1 leadership thinker in the world (Harvard Business Review's Thinkers 50), and the best-selling author or editor of 31 books, including *Mojo: How to Get It, How to Keep it, How to Get it Back if You Lose It* and *What Got You Here Won't Get You There*. Register to hear Goldsmith at www.economicclubofindiana.com.



Marshall Goldsmith

Presidential Search Seeks Alumni Input

The Rose-Hulman Presidential Search Committee welcomes alumni assistance in identifying strong candidates to bring forward to the Board of Trustees as finalists for the institute's next President.

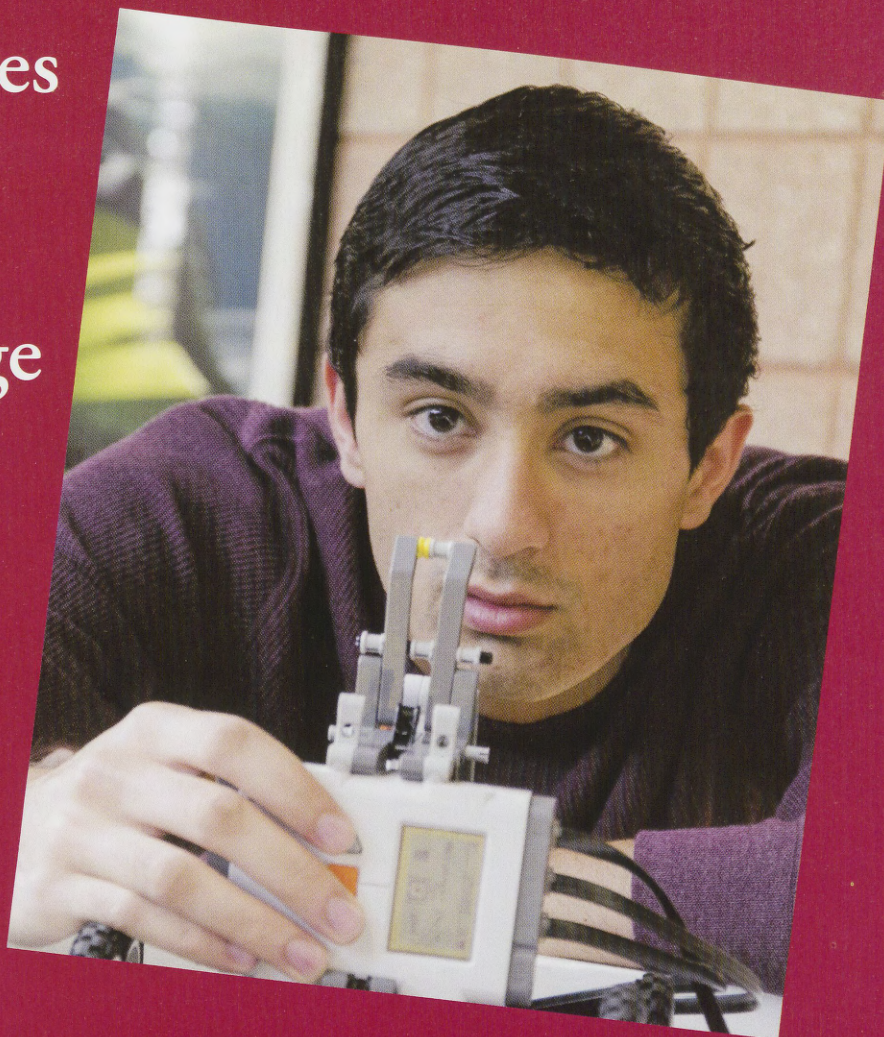
The executive search firm Heidrick & Struggles, Inc., is assisting the committee, led by Trustee Bill Schindel (MA, 1969; MSMA, 1972). Candidacy inquiries can be directed to: Rose-Hulman Presidential Search, Heidrick & Struggles Inc., 303 Peachtree Street NE, Suite 4300, Atlanta, GA 30308; 404-682-7400; or rh@heidrick.com.

Alumni joining Schindel on the committee include trustees David Hannum (ME, 1981), Chris Mack (EE, 1982), Darin Moody (CHE, 1987), and Andy Williams (EE, 1988); and Alumni Association President Jeff Myers (EE, 1987). ■

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The following lifetime gift recognition circles are determined by the total of all gifts received, including corporate matching gifts and matching gift expectancies.

- Platinum Torchbearer (\$10 million)
- Diamond Torchbearer (\$5 million)
- Torchbearer (\$1 million)

CHAUNCEY ROSE SOCIETY

Recognizing cumulative gifts made from the donor's first gift to Rose-Hulman through June 30, including corporate matching gifts and matching gift expectancies.

- Chieftain (\$500,000)
- Fellow (\$250,000)
- Member (\$50,000)

PRESIDENT'S G.O.L.D. CIRCLE

Recognizing cumulative young alumni giving for the first 10 years following graduation, including corporate matching gifts and matching gift expectancies.

- Gold (\$5,000)
- Silver (\$2,500)
- Bronze (\$1,000)

ANNUAL GIVING CIRCLES

Recognizing annual gifts from July 1 to June 30, including corporate matching gifts and matching gift expectancies.

- Herman Moench Circle (\$25,000)
- Hulman Circle (\$10,000)
- Founders Circle (\$5,000)
- Trustees Circle (\$2,500)
- Presidents Circle (\$1,000)
- Deans Circle (\$500)
- Rose and White Circle (\$250)
- Century Circle (\$100)

1874 HERITAGE SOCIETY

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or www.rose-hulman.edu/offices-services/development.aspx

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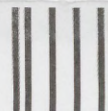
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Annual Giving Circles

Recognizing annual gifts from July 1 to June 30

Herman Moench Circle	\$25,000
Hulman Circle	\$10,000
Founders Circle	\$5,000
Trustees Circle	\$2,500
Presidents Circle	\$1,000
Deans Circle	\$500
Rose and White Circle	\$250
Century Circle	\$100

President's G.O.L.D. Circle

Recognizing Cumulative Young Alumni Giving

Gold	\$5,000
Silver	\$2,500
Bronze	\$1,000

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PARTING SHOT

Continuing A Homecoming Tradition

Students spent several days constructing this year's Homecoming Bonfire, putting the finishing touches—along with the outhouse on top—on the evening that it was set ablaze. Construction team members took a moment to bask in the glow of dusk to admire their achievement. The group included Kyle Boone (sitting), Jake Sheard, Chris Good, Robert Gilbert, Kirk Hubbard, and Greg Frech. (Photo by Larry Ladig)