

Summer 2013

## Volume 2013 - Issue 3 - Summer, 2013

Echoes Staff

Follow this and additional works at: [https://scholar.rose-hulman.edu/rose\\_echoes](https://scholar.rose-hulman.edu/rose_echoes)

---

### Recommended Citation

Staff, Echoes, "Volume 2013 - Issue 3 - Summer, 2013" (2013). *Rose Echoes*. 80.  
[https://scholar.rose-hulman.edu/rose\\_echoes/80](https://scholar.rose-hulman.edu/rose_echoes/80)

This Book is brought to you for free and open access by the Other Institute Publications at Rose-Hulman Scholar. It has been accepted for inclusion in Rose Echoes by an authorized administrator of Rose-Hulman Scholar. For more information, please contact [weir1@rose-hulman.edu](mailto:weir1@rose-hulman.edu).



# Echoes

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

SUMMER<sup>2013</sup>

Vol. 2013, No. 3

**LIGHTING  
THE WAY TO THE**

**INNOVATION**  
**ECONOMY**

Alumni Leading Plasma  
Lighting Startup Company





# FACULTY EXPERTISE

## PROFESSORS USE SKILLS TO MAKE A DIFFERENCE



### PROFESSORS EXPLAIN SCIENCE BEHIND *STAR WARS*' TECHNOLOGY

Mechanical engineering and optical engineering professors provided insight into futuristic technologies and the science behind science fiction movies, like *Star Wars*, as part of the Indiana State Museum's Science Nights summer education series. Charles Joenathan (pictured on left), PhD, led a session on laser technology; David Fisher (ME, 2000), PhD, discussed whether *Star Wars*' Droids are a mechanical possibility; and Zac Chambers (ME, 1994), PhD, highlighted future automotive technology. These special events complemented the museum's *Star Wars: Where Science Meets Imagination* exhibition. See the excitement at [www.rose-hulman.edu/StarWars](http://www.rose-hulman.edu/StarWars).

### HAAN STUDIES TORNADO DAMAGE TO RECOMMEND BETTER BUILDING PRACTICES

Mechanical engineering professor Fred Haan, PhD, was part of the National Science Foundation Rapid Response Exploratory Research Team that studied structures left in the path of destruction from this spring's tornadoes that swept through Moore, Oklahoma. He has studied the effects of winds on structures for more than 20 years, and is joining other engineers and scientists to influence building practices through design code improvements and general safety guidelines to have structures withstand future storms. Read about Haan's discoveries at [www.rose-hulman.edu/Haan](http://www.rose-hulman.edu/Haan).



### MACH WORKSHOP ENCOURAGES EDUCATORS TO BECOME STEM CHANGE AGENTS

For the second straight summer, higher education STEM leaders and educators from throughout the country came to Rose-Hulman to be empowered to make a difference on their campus through the Making Academic Change Happen (MACH) workshop. Each educator came with one or two projects he/she would like to implement in his/her classrooms and/or campuses. Eight Rose-Hulman faculty members facilitated the discussions, led by MACH co-organizers Julia Williams, PhD, executive director of the Office of Institutional Research, Planning, and Assessment, and Donald E. Richards, PhD, 2012-13 director of the Center for the Practice and Scholarship of Education. Learn more at [www.rose-hulman.edu/MACH](http://www.rose-hulman.edu/MACH).

Learn more at [www.rose-hulman.edu](http://www.rose-hulman.edu)

## columns

Page

Message from the President .....	2-3
Bailey Challenge .....	27

## feature section: shining the light on innovation

The Innovation Economy.....	4-6
Q&A with Felda Hardyman.....	7
Innovation Alumni Profile: Robert Hillis .....	8
Innovation Alumni Profile: Chris Mack .....	9
Innovation Alumni Profile: Dustin Sapp .....	10
Innovation Alumni Profile: Gerald Rea .....	11
Innovation Alumni Profile: Elaine Houston.....	12
Innovation In Action: The Next Big Idea .....	13-15
Innovation Feature: Measuring Success at Rose-Hulman Ventures.....	16-17
Innovation Executive Profile: Scott Atkin .....	18

## alumni news

Alumni Photo Album .....	28
Alumni News Feature: Robert Wilkins Nominated for Judicial Bench .....	29
Class Notes .....	30-31, 35
Career Achievement Award Profile: Steve Bakota.....	32
Career Achievement Award Profile: Jeff Haggerty.....	33
Career Achievement Award Profile: Jeff Papa .....	34
Alumni Office News & Schedule of Events.....	36

## campus news

Faculty Expertise: Professors Use Skills to Make a Difference .....	Inside Front Cover
Latest Campus News .....	19
Campus Feature: Something For Drew Christy .....	20-22
Commencement Recap .....	23
Academic Feature: Kenya Field Adventure .....	24-25
Student Feature: Liz Evans .....	26
Development News: Alumni Giving Back Support.....	Inside Back Cover
Parting Shot .....	Back Cover



A special part of this issue is the Honor Roll of Donors (Pages 36-52) – our way to recognize and thank the many alumni, parents, friends, and other benefactors who contributed to our success from July 1, 2012, through June 30, 2013.



## ON THE COVER

Four Rose-Hulman alumni and a senior intern are bringing bright ideas to the Innovation Economy through their work with Stray Light Optical Technologies. The Scottsburg, Indiana startup has earned federal and state innovation awards for its plasma lighting system. The group includes (back row, from left) David W. Badger (ME, 1993), production manager; Robert A. Drake (ME, 2004), chief technical officer; and Andrew Klusman, a senior electrical engineering student intern. In front (from left) are Gerald W. Rea (ME/OE 2004), chief executive officer, and Charles I. Lehman (SE/CS, 2005), senior software engineer. (Photo by Shawn Spence)



Page 2



Page 10



Pages 20-22



Page 29

## PUBLICATION CREDITS

**Vice President of Communications and Marketing:** Mary G. Barr  
**Vice President of Institutional Advancement:** Rickey N. McCurry  
**Alumni Association President:** Jeff Myers, Class of 1987

**Office of Alumni Affairs:** James A. Bertoli, Executive Director;  
 Ali O'Leary, Associate Director, and Bretta Schriner, Administrative Assistant

**Office of Communications and Marketing:** Hyung-Jung Chang, Web Developer and Publications Specialist; Terri Hughes-Lazzell, Marketing Manager; Michael Kratage-Dixon, Marketing Manager; Dale Long, Director of Media Relations; Greg McMullen, Web Manager; Traci Nelson-Albertson, Brand Manager; Alia Shuck, Coordinator; and Steve Voltmer, Web Manager

**Office of Institutional Advancement:** Chris Aimone, Director of Planned Giving; Dawn Allee, Database Specialist; Hugh Baker, Regional Development Director; Dick Boyce, Senior Director of Development; Juliana Bradford, Executive Assistant to the Vice President; Kathy Cooper, Administrative Assistant in Development; Jason Scott Embry, Executive Director of Development; Grace Findley, Director of Major Gifts; Felisa Javier-Holt, Manager of Prospect Research and Tracking; Jennifer Kenzor, Annual Fund Coordinator; Jennifer Lawrence, Director of Foundation Relations; Danielle Merkel, Executive Director of Advancement Services; Alan Morrison, Special Projects Gift Officer; and Tammy Schaffer, Director of Donor Relations and Executive Assistant to the Board of Trustees; Camille Wallace, Special Events Manager and Planned Giving Assistant; Brandon Zollner, Director of Corporate Relations

**Issue Editor:** Dale Long

**Contact e-mail:** Dale.Long@rose-hulman.edu

**Contributing Writers/Designers:** Herb Bailey, Carolyn Duffy Marsan, Terri Hughes-Lazzell, Steve Kacble, Michael Kratage-Dixon, Margaret Loftus, Dale Long, Marianne Messina, and Traci Nelson-Albertson

**Photographers:** James Bertoli, Bryan Correll, Mark Dannenhauer, James Garber, Bill Kline, Larry Ladig, Dale Long, Terry Miller, Chris Minnick, Edie Richards, and Shawn Spence, and Mark Wilson/Getty Images

**Class Note/Alumni News Contact:** Send alumni news and address updates to [alumniaffairs@rose-hulman.edu](mailto:alumniaffairs@rose-hulman.edu)

*Echoes* is published by:

**Rose-Hulman Institute of Technology**  
 5500 Wabash Avenue, Terre Haute, IN 47803

It is the policy of Rose-Hulman Institute of Technology to admit students on the basis of their academic ability. Rose-Hulman Institute of Technology does not discriminate based on race, religion, color, national origin, sex, age, citizenship status, disability, veteran status, or sexual orientation.



Words Of Wisdom: President James C. Conwell discussed lessons learned from industry as the first speaker in this summer's James R. Baumgardt Distinguished Speaker Series at Rose-Hulman Ventures. (Photo by Terry Miller)



# Catching the Innovative Wave

## Our Alumni Must Develop the Entrepreneurial Ideas that will Drive American Prosperity

by President James C. Conwell, PhD, PE

Innovation. All companies, large and small, must cultivate it to grow and remain competitive. The need for innovation creates a wide range of excellent opportunities for graduates entering the workforce with degrees in engineering and other scientific disciplines.

Evidence of innovation at work can be found throughout our daily lives. Watch just about any commercial for Ford

Motor Company and you will hear about EcoBoost engines. These turbocharged, direct-injection engines deliver the kind of performance you would expect from bigger conventional engines, but with much better fuel efficiency and a significant reduction in greenhouse gas emissions. This innovation, driven by engineers and scientists, saves money for customers, has the potential to reduce America's dependence on foreign oil, and is good for the planet, too.

**“I have found the best-in-class engineers have the following traits: They’re collaborative, global communicators, managers, and life-long learners who can adapt to an ever-changing and competitive world.”**

Some striking and significant innovations, however, aren’t found in the labs of Fortune 500 companies but in garages or nondescript, small buildings. These are the places where the sparks of inventive ideas are fanned into hot, revolutionary technologies. These are the places where the line between engineer and entrepreneur can become fuzzy. This is where the Innovation Economy thrives, and our brand of education at Rose-Hulman provides a strong foundation to succeed in this realm.

You will find examples of the Innovation Economy—and the Rose-Hulman connection to it—throughout this issue of Echoes. Here are a couple examples:

- Graduates Gerald Rea and Robert Drake launched Stray Light Optical Technologies a few years ago to bring a high-efficiency plasma lighting system to market. Rea had spent time perfecting innovations for others as a self-employed, contract research and development specialist for multinational corporations. He decided it was time to nurture his own ideas, which have provided the light for some high-profile clients (lighting the Academy Awards ceremony and NASA’s last Space Shuttle launch), saved municipalities thousands of dollars on street lighting, and created two dozen new jobs (several for fellow alumni).
- Dustin Sapp interned with an Indiana tech company after his sophomore year and discovered that the Innovation Economy was the place for him. He conceived of his first startup even before he finished his studies. His company became reality with the backing of a Rose-Hulman trustee, and eventually caught the attention of an acquisition-minded player from the Silicon Valley. His second startup also became an attractive acquisition target, and his third startup is already winning notice and awards.

These are just a couple of examples of the kinds of things that engineers and scientists can achieve in the Innovation Economy. This kind of innovation—pushing new ideas to market through passion, perseverance, and meticulous preparation—is going to become more important than ever, and Rose-Hulman is doing its part to give the Innovation Economy a solid foothold in Indiana and the United States. With our strategic plan initiatives, we are grooming an even more innovative engineering graduate ready to handle the complex issues the world is serving up.

A poll on the Innovation Economy topic was recently conducted in the United States, the United Kingdom, Germany,

and China by The Brookings Institute. Of those respondents in the United States, four-fifths said they believe innovation will be more important to the economy in the next 30 years than it has been in the past 30 years. But only a third of the Americans polled expected that the United States would lead the way in that innovation, while nearly two-thirds thought China is more likely to drive the global innovation engine.

At Rose-Hulman, we know that we can be a part of the solution to that discrepancy. The question becomes, how do we provide the education, training, and skill sets that equip the next generation of engineers and scientists to meet these challenges and fuel the Innovation Economy?

To begin with, we weave innovation and entrepreneurship through just about every educational component in our curriculum. Our students learn not just the theory but also the application of that theory—and they get a sense for how that application might become reality in the Innovation Economy.

Equally important are the bridges we build linking our campus to the places where innovations plug into the economy. One of the most obvious connections is Rose-Hulman Ventures, where our students apply their own brainpower to help solve real-world technological problems faced by real-world players in the Innovation Economy—these students emerge even better prepared to carry on the revolution. (I would like to point out that Gerald Rea and Dustin Sapp started their entrepreneurial horizons as interns at Rose-Hulman Ventures during their time on campus.)

Then there’s the Innovation Canvas Infographic of High-Efficiency Plasma, a tool our Dean for Innovation and Engagement has developed to connect the dots between innovation and entrepreneurship. This project helps to ensure that business and market themes become part of the development process—and that those themes also find their way into design and entrepreneurship coursework. The hope is that product designs and business models are written in the same language, on the same page, which is the way innovative concepts grow into successful businesses.

A wide range of research has underscored the link between technological innovation and national economic prosperity. That link is what we now see as the Innovation Economy. At Rose-Hulman, we’re proud to be educating the next generation of innovators, emerging from our campus ready to drive prosperity. ■

*James C. Conwell, PhD, PE, is Rose-Hulman’s 15th president.*







“Innovative startups are about going to the boundary of the world, pushing it, and leaving a dent. That’s where we need our engineering talent more than anywhere else.”

—Felda Hardyman, MA, 1969; HDENG, 2013  
Venture Capitalist, Harvard Professor

THE INNOVATION ECONOMY

# Innovative Companies Offer Grand Promise, Less Risk for Creative Engineers, Scientists

By Carolyn Duffy Marsan

The Innovation Economy needs your engineering skills. That’s the message high-tech business experts are driving home to Rose-Hulman alumni, current students, and future students.

Working at an innovative company offers many opportunities: solving important technical problems, creating new products, building companies that employ others, developing new skills on the job, and—ideally—having fun. Also, as large mainstream corporations continue to shed

employees, startups can offer more job security and larger financial payouts in the long term.

Recent Rose-Hulman graduates should join a startup instead of a multinational corporation, urges Felda Hardyman, a venture capitalist, Harvard Business School professor, and 1969 mathematics alumnus. Hardyman was the 2013 commencement speaker and received an honorary doctorate of engineering.



**“You want a company that prefers its employees get speeding tickets and not parking tickets because they are moving too fast versus waiting for someone to tell them what to do.”**

—Gregg Lowe, EE, 1984  
President, Freescale Semiconductor

“Innovative startups are about going to the boundary of the world, pushing it, and leaving a dent. That’s where we need our engineering talent more than anywhere else,” he says.

Hardymon defines the Innovation Economy as emerging growth companies, particularly high-tech startups that are creating the majority of jobs in the U.S.

“If you think about how the U.S. economy grew from 1970 to 2000, it was an extraordinary spurt of growth tied to a couple of technology cycles: the invention of the semiconductor, the application of it to the microprocessor, the development of smaller computers, the invention of digital communications technologies that were cheap and widespread, and the invention of block programming methods that could handle extraordinarily complex problems by modularizing them,” Hardymon explains. “Those technologies were developed by innovative startups that are now large, mainstream companies: Cisco, Apple, Intel, and Microsoft.”

While most Rose-Hulman graduates join mainstream corporations for their first jobs, Hardymon encourages them to consider small businesses, as well. He says working in the Mainstream Economy can be useful to gain business skills in such areas as accounting, talent management, marketing, and production. Then, he recommends that engineers take this knowledge to startup ventures that need their expertise.

“Some big companies are really wonderful: they have great camaraderie, great traditions, and great benefits,” Hardymon says. “But what you have in the Innovation Economy is true engagement and more control over your life...and the risk is not just there. There’s more risk in legacy companies fighting rear-guard actions.”

Tom Mason, PhD, professor emeritus of economics and engineering management at Rose-Hulman, has been encouraging his students to become entrepreneurs since the mid-1980s. He points out a National Academy of Engineering report stated that by 2020 most engineers will be working for small or medium-sized firms, not Fortune 500 corporations.

“Smaller companies are where an awful lot of the opportunities are going to exist,” he says. “Students go to big companies because they believe that’s the way to learn their craft...but often the smaller company represents a more fulfilling and better learning experience. And, the long-term potential of going to work in a startup will result in payoffs in terms of a bigger salary later.”

Marshall Goldsmith, a 1970 Rose-Hulman mathematical economics graduate and best-selling business author, admits that working in the mainstream economy is riskier than it used to be, which gives engineers more incentive to try a startup.

“In an innovative startup, you will be in a company that by its nature is higher risk, but you will also have more freedom



**“Rose-Hulman graduates are used to hard work, high standards, being around smart people, and being in a competitive environment.”**

—Marshall Goldsmith, MA, 1970  
Business Author, Executive Coach





## LIGHTING THE WAY TO THE INNOVATION ECONOMY

to play more roles and grow more quickly. It's a tradeoff of freedom versus security and risk versus return," Goldsmith explains. "Some people are psychologically geared to do very well at a startup, and some people cannot handle the risk. It takes courage."

Goldsmith believes Rose-Hulman graduates are prepared for one aspect of the Innovation Economy: the need to work hard. "Rose-Hulman graduates are used to hard work, high standards, being around smart people, and being in a competitive environment," he says.

Gregg Lowe, a 1984 electrical engineering graduate, argues that the Innovation Economy also features large innovative companies. He became president of Freescale Semiconductor last year after spending 25 years at Texas Instruments.

"People shouldn't equate innovation with small. Innovation is about the culture of a company and its willingness to take risks," Lowe says, adding that a risk-taking culture should go hand-

**"Remember what Alan Kay said: 'The best way to predict the future is to invent it.'"**

*—Felda Hardymon, MA, 1969; HDENG, 2013  
Venture Capitalist, Harvard Professor*

in-hand with accountability. "When you have a high degree of risk, you want people to feel accountable so they feel personal ownership for the success of the company."

Lowe says that the hallmark of an innovative company—regardless of size—is that it lacks bureaucracy and distributes decision making. "You want a company that prefers its employees get speeding tickets and not parking tickets because they are moving too fast versus waiting for someone to tell them what to do," he adds.

Scott Atkin, former division president for Beckman Coulter Inc. and an engineering management lecturer at Rose-Hulman, says the best way to find an innovative company, regardless of its size, is to see if it has top-line growth, as opposed to a company that is cutting costs to maintain its profit margins.

"If I'm a creative individual, and I want the freedom to do disruptive types of innovation, then a big company is not for me," Atkin says. "But if I'm a solid engineer who thrives on taking existing designs and incrementally improving them—making them a little faster, better, and cheaper—then I might do very well at a big company. It's important for individuals to understand who they are and what they are good at." ■

*Carolyn Duffy Marsan is an award-winning business and technology journalist.*

## INSIDE THE INNOVATION ECONOMY:

Robert Solow, winner of the 1987 Nobel Prize in Economic Sciences, created a framework for what factors lead to economic growth: Innovation, primarily in the form of technological development, is the engine for long-term growth. Using his model, Solow calculated that about four-fifths of the growth in U.S. output per worker was attributable to technical progress.



**ENCOURAGING ENTREPRENEURISM:** On the eve of commencement, Felda Hardymon exchanged ideas with students interested in starting their own companies.

"This means that in our economy, if we don't run out of ideas, then we can always make things better," stated Felda Hardymon (MA, 1969) in this year's Rose-Hulman Commencement Address.

Later, Hardymon noted that productivity in the United States has grown more than 100 percent since he graduated in 1969—because of innovation.

"So it is safe to say that the 384 graduates [in the Class of 2013] could be the most valuable gathering of more than 100 people in the world at this moment—only if you spend your careers on the positive side of change. Come join me in the Innovation Economy...Start now thinking about starting a company. Don't overthink this. Don't hold back because it is hard to predict the future. Remember what Alan Kay said: 'The best way to predict the future is to invent it.'" ■



*Read and hear more about what Hardymon had to say to the Class of 2013 at [www.rose-hulman.edu/hardymon](http://www.rose-hulman.edu/hardymon)*

**Q&A**

## Felda Hardyman, Venture Capitalist/Professor

*Alumnus, venture capitalist, and Harvard Business School professor Felda Hardyman discussed the benefits of working in the innovation economy during an interview earlier this summer with freelance writer Carolyn Duffy Marsan. Here are excerpts from that conversation:*

**Q: What are the key elements of the Innovation Economy?**

**A:** Innovative startup companies tend to outgrow other companies because they have no legacy to worry about. They don't have to worry about 45 years worth of wonderful customers that they would leave on an island by moving the product along. They are so narrowly focused that employees are willing to work 16 hours a day to bring one product to the marketplace.

**Q: What are the benefits of working in the Innovation Economy?**

**A:** Every single person has to be productive to make a startup company survive. That kind of engagement gives employees great job satisfaction. To me, it has been more rewarding to be on the positive side of change than not worrying about a legacy company.

**Q: Why should current Rose-Hulman students consider working in the Innovation Economy?**

**A:** The Rose-Hulman degree provides a safety net—an invaluable skill set that allows alumni to go off and do anything they want (for two years). Think how much more valuable they will be because of those experiences with a startup, learning to work with little resources. The Mainstream Economy will always be there as an option because they need good engineers.

**Q: Is there a good time for a Rose-Hulman graduate to make a switch from the mainstream to Innovation Economy?**

**A:** I recommend a two-year stay in the mainstream economy. Look at how these companies got to where they are and how they are maintaining it. You can learn a lot of really wonderful methods for managing a large-scale organization.

**Q: What advice would you provide a mid-career professional about transitioning from the mainstream to Innovation Economy?**

**A:** It's never too late. If you're in a big company, start networking among innovative companies in your own supply chain and customer base. If they are growing, your knowledge and expertise will be valued. You will be in great demand. ■



## GETTING PERSONAL

G. Felda Hardyman  
Mathematics Alumnus, 1969

### PROFESSIONAL BACKGROUND

- Professor of Management Practice, Harvard Business School, Since 1998
- Visiting Professor, London School of Economics, 2013
- Partner, Bessemer Venture Partners (Global First-Tier Venture Firm), Since 1981
- BDSI (Venture Subsidiary of General Electric), Vice President, 1979-81
- Director of Systems and Research, Duke University

### NOTEWORTHY ACHIEVEMENTS

- Ranks No. 38 on Forbes' Midas 100 List of Top Tech Dealmakers
- Lifetime Achievement Award Recipient, National Venture Capital Association
- Co-Author, "Venture Capital, Private Equity, and the Financing of Entrepreneurship," 2012

### SUCCESSFUL INVESTMENTS

Specializes in Software, Communications, and Storage Sectors

- Staples (retail)
- The Sports Authority (retail)
- Celtel (telecommunications)—\$3.3B sale in 2005
- American Superconductor
- Stratus Computer (computer technology)
- Sirocco (telecommunications)
- Western Digital (computer hardware)
- Celeco (wireless telephone network parts)
- Axis Networks (4G wireless-remote radio head supplier)

### EDUCATION

- Bachelor of Mathematics, Rose-Hulman Institute of Technology
- Masters of Mathematics, Duke University
- Doctorate of Mathematics, Duke University
- Master of Business Administration, Harvard Business School (Baker Scholar) ■





**ROBERT HILLIS**  
SUCCESS STORY

# Hillis Helps Innovate Senior Living

Story by Carolyn Duffy Marsan



Robert Hillis became a serial entrepreneur and innovator by accident, not by design. After graduating from Rose-Hulman in 1969 with a degree in mechanical engineering and earning an MBA, he joined the Mainstream Economy in the form of Oscar Mayer. At age 25, Hillis was put in charge of several money-losing subsidiaries of the food conglomerate.

**“I’m an innovation and technology fanatic. I’m always looking for new ways to do things.”**

*—Robert Hillis, ME, 1969; HDENG, 2013  
Founder, Direct Supply, Inc.*

“I started working from the ground up with these small businesses, and from that day forward I was hooked on building businesses,” Hillis says. “I had to get very innovative and creative to turn them around.”

In 1985, Hillis shifted to the Innovation Economy. He founded a virtual distributorship called Direct Supply Equipment & Furnishings, which is the largest equipment supplier to senior living facilities in the United States. In 1993, Hillis embraced the Internet and formed Direct Supply, the nation’s first e-commerce network in the healthcare industry. Since then, Hillis has launched five other startups under the Direct Supply brand.

“I’m an innovation and technology fanatic. I’m always looking for new ways to do things,” the Terre Haute native says. “We were the nation’s first virtual distributorship in 1985, and when we started out everybody thought we were crazy. We developed a cloud-based e-commerce network for our healthcare suppliers over the Internet when nobody knew what the Internet and cloud computing were. These were breakthrough ideas, and we’ve done four more after that. Amazingly, they’ve all worked.”

Hillis’ ventures were risky and faced many failures along the path to profit-

ability. “Most of our businesses have taken five to seven years to make a penny, but as a private company we’ve been able to take the really long view and invest in big ideas,” he says.

Rose-Hulman helped develop the work ethic and analytical skills necessary for an entrepreneurial career. “It was an enormously competitive but supportive environment,” Hillis states. “The work was really hard. It gave me the confidence to know that no matter how hard the problem was, I could figure it out if I stuck with it.”

Hillis says the biggest reward of his entrepreneurial career is helping improve the senior living industry. “When we started, this was a very dismal business. But it’s really changed dramatically, and we’ve played a big part in that,” he adds. “At the end of the day, it’s about changing the status quo.” ■

*Carolyn Duffy Marsan is an award-winning business and technology journalist.*

**CHRIS MACK**  
GENTLEMAN SCIENTIST

You can make some important observations about the Innovation Economy without even leaving the kitchen. “My dishwasher has more computing power than existed in the world in 1950,” observes Chris Mack. The same goes for his toaster, which is also controlled by semiconductors. “I don’t know why a toaster needs any semiconductor chips, but it has two,” he says.

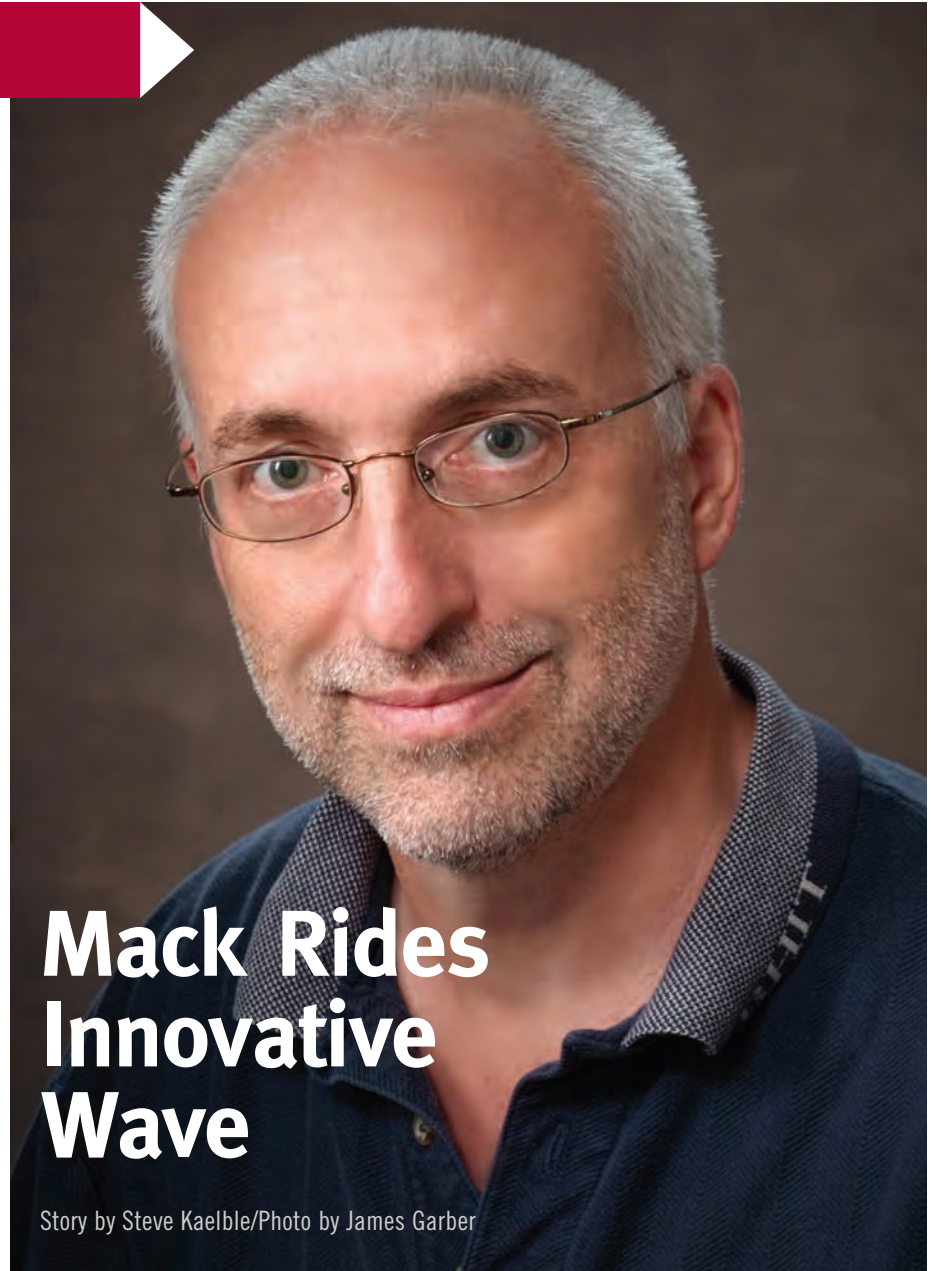
Actually, Mack knows the answer. It’s because the technology is cheaper and more effective, and a great example of Moore’s Law: The number of transistors placed within integrated circuits doubles approximately every two years.

As a leading expert on lithography, Mack has a strong connection with technical innovation. “Moore’s Law is driven by technology advances, the most important being in the area of lithography, which shrinks the circuitry.”

Lithography was far from Mack’s career focus when he arrived at Rose-Hulman from his Texas home. He ended up becoming the first student to earn four academic degrees: physics, chemistry, electrical engineering, and chemical engineering. “I did not have a career path in mind. One reason I got four degrees is that I couldn’t decide. They were all fun, and I didn’t want to choose between them, so I kept going.”

He finally graduated in 1982, and began working at the National Security Agency’s Microelectronics Research Laboratory. His first assignment was opening a box filled with technology related to lithography and semiconductor manufacturing. “I was told to set up what was inside,” he says. Therefore, his career took shape, almost by accident.

Mack earned a master’s degree in electrical engineering from the University of Maryland in 1989, and the next year founded FINLE Technologies to provide lithography modeling software for the semiconductor industry. During the next decade, he earned a doctorate in chemical engineering from the University of



## Mack Rides Innovative Wave

Story by Steve Kaelble/Photo by James Garber

Texas, and KLA-Tencor acquired FINLE in 2000. He became the company’s vice president of lithography technology.

Family became a priority in 2005, and Mack retired from corporate America. Today, he teaches part-time at the University of Texas, does consulting work, is a Visiting Erskine Fellow at the University of Canterbury in New Zealand, contributes to Rose-Hulman’s Board of Trustees, and writes, with a book on lithography being one of his proudest achievements. “I pursue my own interests

without worrying too much about the need to make money, and somehow I end up making money,” he says.

Looking back, Mack observes that “my four degrees were a perfect match for my lithography career. My Rose-Hulman education prepared me to take advantage of opportunities that came my way.” ■

**On The Web:**

Chris Mack discusses more at [www.rose-hulman.edu/Mackspeaks](http://www.rose-hulman.edu/Mackspeaks)





**DUSTIN SAPP**  
YOUNG ENTREPRENEUR

# Entrepreneurial Spirit Drives Sapp to Success

Story by Carolyn Duffy Marsan/Photo by Chris Minnick

Dustin Sapp was bitten by the entrepreneurial bug during a summer internship with an Indiana tech startup after his sophomore year. His life really changed after taking an entrepreneurship course and earning a small grant to investigate how handheld technology would impact the mobile workforce.

"To get an A in his class, [Engineering Management Professor] Tom Mason

put in our blood, sweat, and tears."

That project, NoInk Communications, became the first of three Indiana tech startups launched by the 2000 computer engineering graduate. The mobile sales software was purchased by Silicon Valley-based Everypath in 2004. A year later, he helped launch Vontoo, which developed software for sending audio marketing messages to phones. It was acquired by Ohio-based One Call Now. In 2009, he founded TinderBox, which sells a web-based service that simplifies the creation of sales proposals. It was cited among the Indiana Economic Development Corporation's 35 "Companies to Watch" this year.

While Rose-Hulman prepared Sapp to become an entrepreneur, Indianapolis' vibrant tech community has encouraged the development of innovative ideas.

"Rose-Hulman forces incredibly bright people to attain presentation skills and the ability to work cooperatively," Sapp says. "Indiana is such a great place to start a business because it's not a cut-throat

environment. I can call an executive at any local major tech company and somebody will sit down with me. It must be that Midwestern attitude of a rising tide lifts all boats."

Sapp says opportunities abound in innovative startups, not only for recent Rose-Hulman alumni, but also mid-career professionals.

"There's a big gap in mid-level talent," he says. "It's much easier to get a 22-year-old to take a risk for a year or two rather than a 45-year-old who is about to send a kid off to college. Yet young and high growth companies are starving for that level of talent."

Sapp says the biggest benefit of working in a startup is the opportunity to learn more quickly and have a greater impact on the business. "Every day, every person in our company has the ability to drive our company," he says. "That sense of making a difference is a big gift." ■

*Carolyn Duffy Marsan is an Indiana-based freelance writer.*

**"It's much easier to get a 22-year-old to take a risk for a year or two rather than a 45-year-old."**

*—Dustin Sapp, CPE, 2000  
Founder, TinderBox*

challenged us to write a business plan that could get funded. We knew he was half-joking, but saw it as an opportunity," Sapp says. "As a junior in college, a [Rose-Hulman] trustee loved my student group's idea and offered to fund us if we



**GERALD REA**  
SUCCESSFUL STARTUP

# Rea's Lighting Creations in High Demand

Story by Carolyn Duffy Marsan/Photo by Shawn Spence

As an undergraduate, Gerald Rea spent three years providing engineering services and building prototypes at Rose-Hulman Ventures for four startups and one mainstream corporation. This led him to conclude that a small company would offer more challenges and excitement.

"I went into business for myself immediately out of college doing contract

2004. "They would outsource some of their more wild ideas to people like me."

After doing interesting research projects for others, Rea longed for ownership of his own ideas. In 2009, he joined another Rose-Hulman graduate, Robert Drake (ME, 2004), in founding Stray Light Optical Technologies, an energy-efficient lighting company. Today that Scottsburg, Indiana-based startup employs 25 people and has earned federal and state innovation awards.

Energy-efficient lighting "was a high-growth area," Rea explains. "We could make money by saving our customers money and by saving the environment. So, we could always feel good about a sale and about the products we were developing."

The company's high-efficient plasma lighting system has illuminated the red carpet runway for the 84th Academy Awards Ceremony and the grounds for NASA's last manned shuttle launch. A new municipality street light program is cutting energy use and saving cities thousands of dollars each year.

Rea never thought being an entrepreneur was all that risky because his optical engineering skills have always been in demand. Rose-Hulman Ventures provided experiences that gave him the confidence to meet high-level technical professionals right out of college and feel like a peer. He also was accustomed to working hard.

"I love my job," Rea says. "Every day is a challenge. It's about how fast you can adapt, how fast you can change, and how fast you can stay ahead of the competition."

Rea remarks that the Mainstream Economy may be an environment for engineers who need a more structured environment. Meanwhile, those who are creative should consider joining an innovative startup.

"It's definitely not for everybody, but for the people who have the spark of creativity and want to be masters of their own destiny, I really recommend it," Rea says. ■

*Carolyn Duffy Marsan is an award-winning business and technology journalist.*

**"Every day is a challenge. It's about how fast you can adapt, how fast you can change, and how fast you can stay ahead of the competition."**

—Gerald Rea, ME/OE, 2004  
Co-Founder/CEO, Stray Light Optical Technologies

research, development, and design for large multinational corporations," says Rea, who earned bachelor degrees in mechanical engineering and optical engineering in





## ELAINE HOUSTON TECHNOLOGY RESEARCHER

Many people get far into college before they start to figure out what career they would like to pursue. Not Elaine Houston. “I wanted to be a robotic engineer since second grade,” says the 2010 biomedical engineering graduate. And, her wish has come true.

Houston is a member of the research team developing the Personal Mobility and Manipulation Appliance (PerMMA), a robotic wheelchair named one of the 10 most promising robots by *Popular Science* magazine.

“PerMMA is a power wheelchair with two robotic arms. It allows people to be able to do tasks independently and spontaneously,” says Houston, a doctorate candidate in the University of Pittsburgh’s

“I’ve experienced a lot of the same challenges. Giving opportunities to others is one of the biggest things that I love about what I do.”

—Elaine Houston, BE, 2010  
Robotic wheelchair researcher

Rehabilitation Science and Technology Program. She is an active member of the Human Engineering Research Laboratories, led by Rory Cooper, PhD, a leader in the field.

“I knew I wanted to get into robotics, but my dad asked me, ‘where do you want to go with it?’” she says. Houston was intrigued by the potential for robotics in areas such as assistive technology and prosthetics. “I decided there’s a real need to help people.”

Houston had a personal interest in the area, using a wheelchair herself, though she has greater capabilities than many for whom PerMMA is being designed. “I’m able to put myself in their shoes,” she says.

Her role on the PerMMA project has focused on the user interface, helping a person control the chair, and measuring the assistive value of this exiting technol-



## Houston Helping Robotics Reach Forward

By Steve Kaelble

ogy. She is working on such things as voice command and tablet-based controls, including the various options that allow those with significant disabilities to control computers.

Houston looks forward to that day when PerMMA begins to make a difference in people’s lives—allowing them to get a meal on their own, go shopping on their own, or hang out with a friend at a coffee shop. “In most cases, it’s the small stuff that’s frustrating. I’ve experienced a lot of the same challenges. Giving opportunities

to others is one of the biggest things that I love about what I do,” she says.

Outside the lab, Houston is a strong supporter of science, engineering, technology, and math education. Those efforts earned her the Carnegie Science Center’s University/Post-Secondary Student Award this spring. ■

*Steve Kaelble is an Indiana-based freelance writer.*



# Being INNOVATIVE



Innovation Needs Engineers with Entrepreneurial  
Skills to Turn Ideas into Marketable Products

By Margaret Loftus

You should look no further than your smart phone to realize that innovation would be all but impossible without engineers. But nurturing engineering students to think like entrepreneurs is another story—one that’s becoming increasingly important in today’s competitive marketplace.

“It’s not enough to graduate with excellent technical skills,” says Leticia Britos Cavagnaro, deputy director of

the National Center for Engineering Pathways Innovation (Epicenter). The center’s mission is to infuse innovation and entrepreneurship into undergraduate engineering education across the country. “You need a series of skills that allow you to think big,” he says.

Rose-Hulman and other top engineering schools are introducing a roster of initiatives, from case studies to faculty workshops, in an effort to instill

the entrepreneurial mindset in engineering students. “Engineers have a history of being entrepreneurial, but here’s a chance to increase awareness,” states Richard Stamper (ME, 1985), PhD, interim dean of faculty.

Encouraging innovation in any student can be an uphill battle. “In general, colleges don’t do a good job of fostering creativity,” Britos Cavagnaro says. “At the college level, it’s about empowering





## LIGHTING THE WAY TO THE INNOVATION ECONOMY

students to be creative. But you have to do that experientially. If you never practice generating ideas, you're not going to get better."

Making room for such a practice in the engineering curriculum, not known for its flexibility, presents an even greater challenge. Moreover, engineers are trained to think linearly, explains Scott Atkin, a

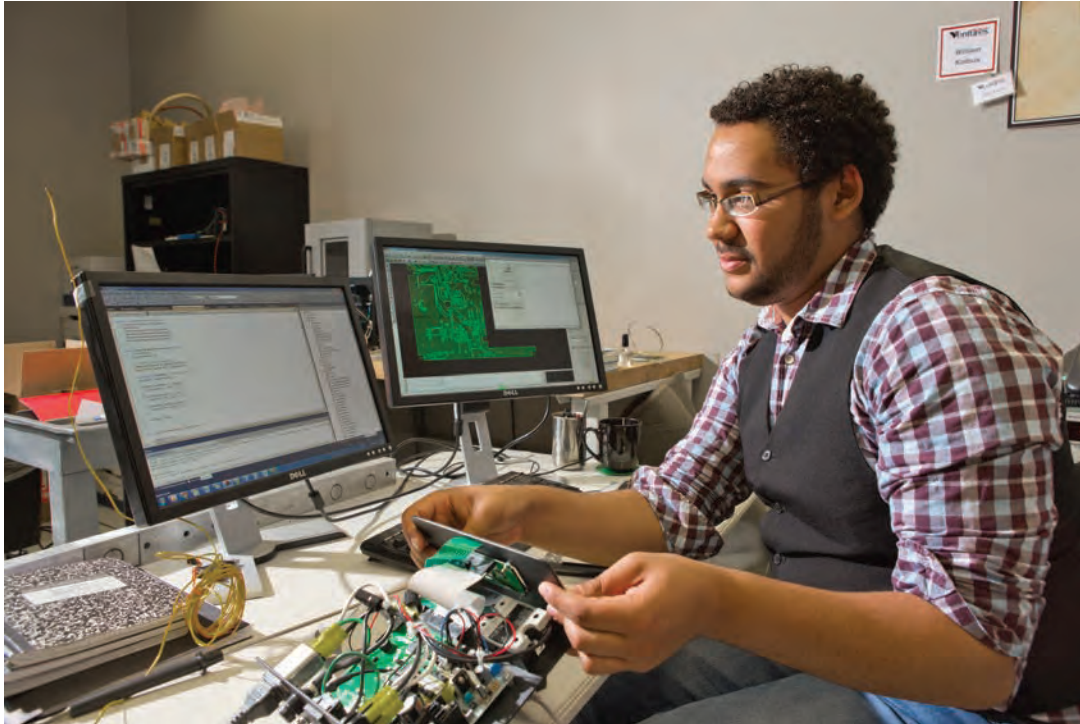
better solution. Young engineers willing to reflect on that have a much better opportunity to be innovative."

Fostering this way of thinking, educators at Rose-Hulman are developing multi-faceted approaches within the existing curricula, in addition to efforts outside of the classroom.

At Rose-Hulman, Tom Mason,

commercialized because of the great idea itself. While that may happen sometimes, it's generally the exception," Mason says.

Faculty members are also working to incorporate the entrepreneurial mindset across the curriculum through Rose-Hulman's strategic plan initiatives. A grant from the Kern Entrepreneurship Education Network is creating a pilot



**INNOVATION AT WORK:** Internships at Rose-Hulman Ventures have allowed graduate student Will Kolbus (EE, 2012) to get hands-on experience in innovation and entrepreneurship. (Photo by Shawn Spence)

retired engineer and entrepreneur who collaborates with Rose-Hulman faculty on innovation initiatives. "Almost by definition, focusing on problem solving and getting to the optimum solutions inhibits innovation. Students will do everything they can to not fail. But when things don't go well, you have to take a step back and come up with a

PhD, professor emeritus of economics and engineering management, exposes students in his entrepreneurship classes to successful innovators—typically alumni who share their stories with the class. A key tenet is getting students to understand that innovation must fill a need, he says. "An awful lot of technical people think that great ideas become successfully

case study for use within the senior design class. "We wanted a way to add content without adding classes," Stamper says. In addition, the studies would have to be easily deployable in classes with instructors who may have limited entrepreneurial experience.

For inspiration, Stamper turned to Rose-Hulman's own industrial

**"The combination of engineering and entrepreneurship is invaluable. Engineering students can create things that can really have an impact at a scale that's unbelievable, like a search engine or cure for cancer. The combination is beyond powerful."**

*—Leticia Britos Cavagnaro, PhD, Deputy Director  
National Center for Engineering Pathways Innovation*

collaboration and engineering consultancy center, Rose-Hulman Ventures. A case study may focus on a decision to design around, license a patent, or a product launch design review. Ultimately, a repository of cases will be used on campus and at other engineering programs throughout the country. *(Find out more on page 19.)*

summer course and the Home for Environmentally Responsible Engineering program on campus.

Fostering innovation in today's engineering students can have an enormous impact on the future for all of us, argues Britos Cavagnaro. "The combination of engineering and entrepreneurship is invaluable.



**INNOVATIVE IDEAS:** Annual summer innovation workshops have brought together faculty to develop creative ideas for the curriculum, like this summer's Grand Challenges course and the Home for Environmentally Responsible Engineering program. (Photo by Dale Long)

Getting faculty excited about innovation and entrepreneurship is crucial to the effort. "The most transformative experiences come by doing and reflecting. Teachers become the inspiration and architects of those experiences," says Britos Cavagnaro.

For the past four summers, Dean of Innovation and Engagement Bill Kline, PhD, has brought together faculty to work on creative ideas for the Rose-Hulman curriculum. "We try to encourage faculty to come up with new ways of teaching and new ways of thinking," he says. These Innovation Workshops have led to the development of a new Grand Challenge

Engineering students can create things that can really have an impact at a scale that's unbelievable, like a search engine or cure for cancer. The combination is beyond powerful." ■

*Margaret Loftus is a national freelance writer whose stories have appeared in the American Society of Engineering Education's PRISM magazine, U.S. News & World Report, and National Geographic Traveler.*

## NEW INNOVATION CANVAS CONNECTING INNOVATION AND ENTREPRENEURSHIP

Borrowing a page from the business school playbook, Bill Kline, PhD, dean for innovation and engagement, developed the Innovation Canvas, an interactive poster that connects the dots between design, innovation, and entrepreneurship.

As teams work with the canvas, it populates with Post-It notes on key reminders. "It's a visual design tool," Kline explains. "Engineers often come up with a design, but it doesn't have value in the marketplace. The canvas has a number of themes on it related to developing a marketable product. Teams work in a collaborative environment to develop the design content, while looking at market content at the same time."

Successful entrepreneur Scott Atkin, who collaborated with Kline on the canvas, especially appreciates how it forces students to keep the value proposition in mind. "The key is to look at value proposition through the eyes of the customer. More often than not, I've seen people lose sight of that," he says.

Tom Mason, PhD, professor emeritus of economics and engineering management, uses the canvas in class. "It puts you in a mindset of constantly thinking about the whole system and context," he states. "For students, it's a great way to think through how all the themes of innovations will be fleshed out." Several more Rose-Hulman professors plan to use the canvas in their classes, starting this fall, and Kline made a presentation on the concept at this year's American Society of Engineering Education's national conference. ■

*Learn more about the Innovation Canvas at [www.rose-hulman.edu/InnovationCanvas](http://www.rose-hulman.edu/InnovationCanvas).*





# Measuring Success

**Rose-Hulman Ventures Creates Innovative Tool to Verify Corn Planting Accuracy** By Dale Long

Rose-Hulman Ventures is assisting the Precision Planting company to live up to its name. Project managers and student interns have developed an innovative agricultural data collection tool to produce the best possible yields for American farmers.

Agronomists and research staff members are using the device to evaluate the accuracy of the seed-planting process by measuring the distance between freshly sprouted cornstalks in fields.

Spacing is crucial to determine if plants receive the water, nutrient content, and sunlight necessary to grow to full maturity each growing season. Corn reacts to high density planting, changing plant size, ear size, and ear placement in order to prepare for competition. So, accurate planting contributes to higher bushel yields and better profits.

For the past two summers, this important data has been collected by the handmade stick-like device that features a 100-foot measuring instrument (measuring the distance between cornstalks in each row), a capture button (documenting the number of stalks in each row), and an iPad platform (entering data). It is adjustable to meet each user's physical stature, is lightweight, portable, and can be used easily by one person.

Previously, collecting such planting data was a painstaking process during the long, hot summer days in cornfields across North America. Teams of two or more took measurements by hand with rulers, recorded the distances on notepads, and then others typed the data into a computer for analysis.

"This device provides instantaneous data while in the field," notes Derek Sauder, Precision Planting's lead researcher. "It saves us from doing clerical work, and gives us instant feedback so we can investigate further while in the field."

Precision Planting came to Rose-Hulman Ventures with the product idea in early 2012, and three devices were developed from modified parts by that spring to measure approximately 300,000 cornstalks for research and development. The devices became so popular that 22 units were deployed this summer to collect more than 1 million data points from fields across Texas, Louisiana, Kentucky, Illinois, and Iowa. Staff members affectionately call the device "pogo stick" because of its design and appearance.





**PREPARING DEVICES FOR CORN FIELDS:** John Lobdell, a 2013 mechanical engineering graduate, puts the finishing touches on one of three cornstalk measuring tool devices created by Rose-Hulman Ventures for Precision Planting to use during the 2013 growing season. (Photo by Shawn Spence)

“The ‘pogo stick’ has accomplished the goal of being an innovative data collection tool,” says Sauder. “We have been able to develop better products, more quickly, with better data since the ‘pogo stick’ has made data easy to obtain.”

Coming up with the original design concepts were Rose-Hulman Ventures Project Managers Zhan Chen (MSAO, 2003), Barry Davignon (ME, 1990; MSME, 1993) and Sandor Pethes (CS, 2002). Nine student interns have worked on the project during the past 18 months.

“This is a great example of a project that brought in expertise across a variety



**IN THE TEST FIELD:** Mechanical engineering student Allison Crump tests the cornstalk measuring tool this summer in a test corn field plot on Rose-Hulman's South Campus. She has been an intern during most of the project's life cycle. (Photo by Dale Long)

of engineering disciplines within Rose-Hulman Ventures—hardware, firmware, and software development,” says Pethes. “It has been a great learning process since most of the people involved had very little farming knowledge.”

Allison Crump, a junior mechanical engineering major, used her interest in robotics and computer science to develop several of the device's iPad data collection features. She also has coordinated efforts between different engineering groups during assembly, testing, and shipping, and was a liaison with Precision Planting staff.

“It has been interesting to see how my career interests contribute with mechanical and electrical systems to create a product that meets a customer's needs,” states Crump.

Helping develop the device's firmware data collection system was John Lobdell (CPE, 2013), who assembled and tested many of the devices. “It has been interesting following this product from start to finish, knowing that I contributed to something that is helping others,” he says. “Everything fits together in one nice package.”

Meanwhile, sophomore mechanical engineering student Gary Newell used his knowledge as the son of an Illinois

farmer to plant a test farm plot on Rose-Hulman's South Campus.

“Since we use Precision Planting devices on our family farm, I knew how important it was for the company and the farmers that we got the devices in the fields this spring,” remarks Newell.

Cory Muhlbauer, Precision Planting's research agronomist, adds, “Barry and Sandor, along with the students working on the project, made a handful of visits to test the ‘pogo stick’ with us in the field. As a team, they were quick to respond to issues, even the urgent cases when an issue was discovered in the field.”

The cornstalk measuring device has been another successful collaborative project for Rose-Hulman Ventures, satisfying a client while providing real-world educational experiences for students.

“We turned to Rose-Hulman Ventures for the ‘pogo stick’ project because we didn't have the manpower in house to accomplish it,” says Sauder. “In its current state, the ‘pogo stick’ has accomplished our original goals, and with a little more work, I'm confident it will exceed our expectations.” ■

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





**KNOWING INNOVATION  
PROCESS:** Scott Atkin has  
insight on the role of  
engineering in innovation  
after supervising as many  
as 700 engineers as an  
executive at Beckman  
Coulter Inc.

## EXECUTIVE PROFILE:

# Risk-Taker

## Ex-Life Sciences Executive Passes along Innovation Lessons

Story by Steve Kaelble/Photo by Chris Minnick

"I've spent a lot of time working with engineers all over the world to foster innovation," says Scott Atkin. And innovation, he says, isn't what a lot of people think it is.

Atkin, who retired last December as life sciences division president for Beckman Coulter Inc., had as many as 700 engineers on three continents reporting through him. That gave him tremendous insight into the role of engineering in innovation.

"When people hear the word 'innovation,' they generally think of de novo innovation," he says, referring to brand

new, breakthrough technologies. "Those types of innovation are very rare, and there are more failures than successes."

Engineers playing on the de novo field have to be risk-takers, Atkin says. "You have to be very comfortable with failure. There aren't that many people, particularly engineers, who are wired to do that."

On the other hand, "we spent a lot of time talking about faster-better-cheaper. If I can make a product faster, improve its quality or reduce the manufacturing cost, those are very valuable innovations," he

says. "We found that 10 percent of our engineering population was in the category willing to take risks. The rest were comfortable with taking others' ideas and making them better. That innovation is just as important, if not more so."

Atkin's expertise in innovation was developed throughout a 27-year career in which he helped develop a technology-based startup, and became a key executive for Beckman Coulter, a longtime worldwide innovator in the life sciences.

His educational career started at Rose-Hulman, where he spent about a year and a half before earning chemistry and computer science degrees at Butler University. Atkin worked a series of chemistry jobs for Dow Chemical before returning to Indiana in 1991 to start SAGIAN Inc., a laboratory automation company that was involved in data acquisition and laboratory robotics. "From 1992 on, we started hiring Rose-Hulman graduates, and have hired many over the years," he says.

Within five years, his company had acquired the CAMILE System project he had been working on at Dow, and the ORCA Robot business from Hewlett-Packard, grew to about a hundred employees and \$12 million in sales. It was then acquired by Beckman Instruments, which steered Atkin to Beckman Coulter, where he first oversaw the SAGIAN business and eventually became life sciences president in 2011.

Atkin's experiences have become invaluable to others. He shared insights on stimulating innovation across global engineering organizations at Rose-Hulman's Engineering Management Spring Seminar, and was the keynote speaker at this summer's Innovation Symposium for the institute's faculty. He is also helping the Office of Innovation and Engagement in the development of the Innovation Canvas educational concept, which will motivate future innovations among engineers and scientists.

"I love being around innovators. They are a rare breed that every successful company needs," he says. ■

*Steve Kaelble is an Indiana-based freelance writer.*



**SENIOR TAKES WISE STEPS ON CAPITOL HILL:** Marie Stettler enjoyed a thrilling summer expanding her educational and personal horizons participating in Washington Internships for Students of Engineering program. She learned about setting government policy about important technology issues.

## CASE BEING MADE FOR ENTREPRENEURSHIP

A grant from the Kern Entrepreneurship Education Network will help Rose-Hulman create and use case studies to instill the entrepreneurial mindset in engineering students.

The institute has started examining current best practices associated with the creation and use of case studies, through American Society of Engineering Education literature and the Harvard Business School. Then, administrators, faculty, and staff members will create a pilot case study, deploy the pilot case study in various engineering classes, and evaluate the effectiveness of the pilot case study.

Potential case studies would cover these topics: Decisions to design around or license a patent, medical device business case development, product launch design review, and company formation.

Faculty and staff associated with this project are Rick Stamper (ME, 1985), PhD, interim dean of faculty; Bill Kline, PhD, dean of innovation and engagement; Kay C Dee, PhD, associate dean of learning and technology; Brian Dougherty (EE, 1993), Rose-Hulman Ventures' manager of engineering; Julia Williams, PhD, executive director of institutional research, planning, and assessment; Patsy Brackin, PhD, professor of mechanical engineering; Dan Moore, PhD, professor of electrical and computer engineering; and Renee Rogge, PhD, associate professor of applied biology and biomedical engineering. ■

## Solar Energy Summer Project Hopes to Meet Engineering's Grand Challenge

Rose-Hulman students are hoping to harvest Kenya's most abundant natural resource—sunlight—to bring clean and pure drinking water to rural families in the African country. The simple device uses everyday products and solar energy.

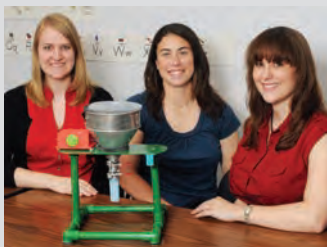
The process works like this: One bucket filters large-scale particles from water collected from a lake, river or creek; another bucket has a sand filter; a garden hose then takes the water to a 10-foot galvanized steel pipe, which is in the center of a solar energy collector (8.5-foot-long, 47-inch-wide); and the journey ends with a faucet.

The water is warmed to 158 degrees while in the pipe to kill bacteria.

The device was designed for a family of five and can purify 15 liters of water each day.

"Purified water is a big problem, as two-thirds of Kenya lies in an arid or semi-arid area," says Francis Kimani Mbugua, a student from Kenya's Egerton University. He helped advise the Rose-Hulman student group.

The project was part of a new summer school course that is integrating the National Academy of Engineering's Grand Challenges into the institute's curriculum. The course was taught this year by professors Ashley Bernal, PhD, (ME, 2006), Scott Kirkpatrick, PhD, and Anneliese Watt, PhD. ■



An assistive cornstarch dispensing system device designed by 2013 biomedical engineering graduates (from left) Carley Shumate, Brienne Widmoyer, and Emily Lakes earned second-place honors in this year's AbilityOne Design Challenge. The device increased productivity, expanded work opportunities, and improved workplace safety.

Rose-Hulman ranks seventh among U.S. private colleges providing the best return on investment, according to AffordableCollegesOnline.org (ACO). Tuition, fees, and alumni salaries were evaluated to determine the top 1 percent of U.S. colleges whose graduates out-earn non-degree holders by at least \$1 million during their careers.



# 100

That's the number of Academic All-Americans in institute history. This marked the 28th straight year that we have had an Academic All-American, the sixth longest streak among all NCAA divisions, and the longest streak in Division III.

Senior Benjamin Paul placed second in IBM's 2013 Master the Mainframe Contest, testing the information technology skills of more than 4,600 North American college and high school students. He was recognized at IBM's mainframe laboratory and his name appears on IBM's prestigious Wall of Fame.



TAKE NOTE





**STEADY IN SADDLE:** Hope Haven Horse Farms Inc. client Will Crane is safe and secure on his horse thanks to a therapeutic saddle developed by three biomedical engineering students.

# Doing Something for Drew

Equine Therapeutic Devices Bring Technology to  
Help Former Student Take Big Strides in Recovery Story by Dale Long/Photos by Chris Minnick

Rose-Hulman students have completed hundreds of senior-year capstone design projects to exhibit problem-solving skills required for the innovative workplace. But few, if any, have had the personal touch of the equine therapeutic devices produced by three biomedical engineering teams this spring.

After all, Drew Christy was once one of them.

Christy experienced a traumatic brain injury in a February 2008 automobile accident while returning home after completing the winter term final exams for his sophomore year as a biomedical engineering student at Rose-Hulman. He was in a coma for five months, hospitalized for another four months, and given a 1 percent survival rate by physicians.

"He's a 1-percenter," says Drew's devoted mother, Debbi. "I told the doctors 'You don't know Drew. He's a survivor'."

Remarkably, by May 2012, Drew began physical therapy at the Hope Haven Horse Farm Inc. in Coatesville, a small town in Hendricks County, Indiana. And, Debbi reached out to Rose-Hulman Biomedical Engineering Professor Renee Rogge, PhD, to see if students would like

to assist with brain injury research by creating assistive devices for Hope Haven's nearly 40 clients.

"Dr. Rogge said, 'I'd been wondering when you were going to call,'" recalls Debbi.

A year later, Drew was giving a thumb's up signal to show his delight while riding the iHorse Simulator, a high-tech version of a horse's torso developed by 2013 graduates Melissa Montgomery, Nicole Richardson, and Jacki Simon. The device features a series of eight wooden ribs, bicycle chains, wheels, and shafts that work in tandem to replicate the four-beated movement of horse riding. It provides a new, innovative approach to help patients recover from devastating injuries or other physical challenges.

"This is the closest thing to mimicking the horse's gait available," says Christina Menke, founder and executive director of Hope Haven, a non-profit equine therapy organization. "Therapeutic riding has been around since the 1990s, but these may be the first devices that incorporate technology that assists us in getting measurable outcomes for the clients we serve."

The iHorse Simulator's movements help simulate the hip motion and core muscle activity experienced when a person rides a horse. Without the device, Horse Haven clients needed a 15-minute horse riding warm-up to relax their leg muscles

recovered from brain injuries similar to those Drew experienced.

"Every day is a blessing by having Drew in our life," says Mark. "We continue to take things a day at a time. He has come so far (in his recovery) and we can see the

**"Drew's focus was research. That's where his heart was... This is a way Drew can help other people in spite of being injured. We're not going to waste this energy, and we're not going to waste this injury."**

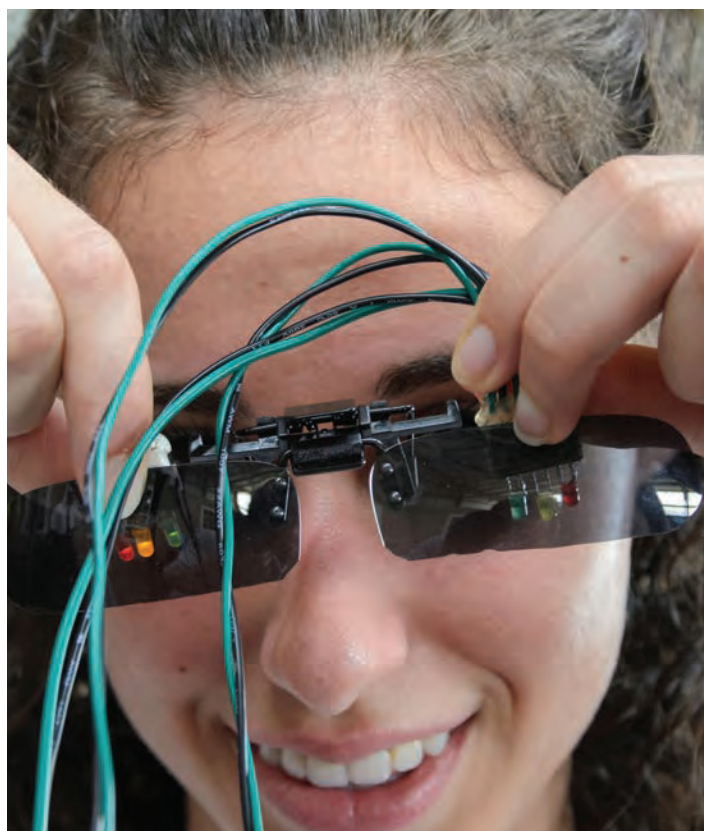
*—Debbi Christy, Drew's Mother*

and relieve hip spasms, leaving less time for each therapeutic session.

For Drew, the iHorse has encouraged his recovery to the point that he has started intensive physical therapy in Indianapolis, with the hope of someday walking again. The former Rose-Hulman football player has started performing many tasks without assistance. During a family vacation, Debbi and her husband, Mark, met a man who had successfully

steps he has made. They might seem small to some, but they're big for us."

A second device developed by Rose-Hulman students—a therapeutic saddle—provides back, hand, and leg support for clients while riding a horse, extending the length of riding sessions and providing the rider more independence. Previously, several "side walkers" were required to help hold the rider in place throughout each session. It was designed by Michael



**SATISFYING PROJECT:** Melissa Montgomery smiles (above) while watching former Rose-Hulman student Drew Christy ride the iHorse Simulator, while Tanya Colonna (left) showcases features on The Stable-izer. These were two of the three projects completed by senior biomedical engineering students during the 2012-13 school year.



## INNOVATIVE STUDENT PROJECTS



**MAKING ADJUSTMENTS:** Biomedical engineering students (from left) Tanya Colonna, Creasy Clauser, and Alex Schwier get feedback from Hope Haven Farms Inc. client Will Crane about their capstone project.

“Therapeutic riding has been around since the 1990s, but these may be the first devices that incorporate technology that assists us in getting measurable outcomes for the clients we serve.”

—Christina Menke, Founder/Executive Director  
Hope Haven Horse Farm Inc.



**SHOWING OFF FEATURES:** Candice Sandberg reveals how her team's Therapeutic Saddle project can be adjusted to fit the needs of different riders.

Boyer, Peter Moorman, and Candice Sandberg.

Another device, the Stable-izer resembles sunglasses with an electronic system that detects when the client begins to lean from a straight vertical riding position in the saddle. It sounds an alert when assistance is required. Developing the device were Creasy Clauser, Tanya Colonna, and Alex Schwier.

Helping Drew and other Hope Haven clients was a gratifying experience for the students and faculty mentors.

“Initially, just the ‘wow’ factor of ‘let’s make a horse’ attracted me to the project. But then when we met [Drew] and some of the other people who might be using it, it became a lot more about really helping people,” states Montgomery, who estimated her team worked more than 1,500 hours on the project during the school year. “At the end of the project, it was an extremely powerful moment to watch him enjoy something that had been constructed by our team.”

Sandberg adds, “It’s exciting to see the application put to use. We’re going to be able to help so many people.”

These new technologies offer opportunities to assist people throughout the world, according to Menke.

“We’ll be helping 30 to 40 of our clients with the devices, but long-term, we’re hoping this changes the entire therapeutic riding industry by bringing in technology that provides statistical data to measure outcomes,” she says. “We don’t want to stop here, we want to take this to an international level.”

This fact brings a sense of satisfaction to Debbi, who has been delighted to have Drew reacquainted with Rose-Hulman and its students.

“Drew’s focus was research. That’s where his heart was. He loves being around the students,” states the proud mother. “This is a way Drew can help other people. We’re not going to waste this energy, and we’re not going to waste this injury.” ■

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





**HAPPY GRADUATE:** A member of the Class of 2013 was the center of attention as she receives her diploma at this year's commencement (Photo by Shawn Spence)

## Class of '13 Primed to Invent their Futures

Members of Rose-Hulman's 2013 graduating class were urged to follow the wisdom of technology innovator Alan Kay, who stated: "The best way to predict the future is to invent it."

Senior Class President Durushka Ahmed (CHE) stated her classmates have received a quality education that gives them "the wherewithal to solve the monumental problems of the world by breaking them down...each individual's success will help in making this world better and allow its occupants to thrive to their maximum potential."

Scientists, engineers, and mathematicians with those unique problem-solving skills are in dire need, according to Robert A. Coons, the institute's interim president during the 2012-13 academic year.

"The world may be changing around you—but you leave here today well

equipped to positively impact that change," he told the graduates.

Two Class of 1969 alumni—Felda Hardymon (MA) and Robert Hillis (ME)—were awarded honorary doctorates of engineering. Hardymon is a partner with Bessemer Venture Partners and a Harvard Business School professor (*see profile on page 7*), while Hillis founded Direct Supply, Inc. (*see profile on page 8*)

This year's commencement award winners were:

**Outstanding Teacher:** Yosi Shibberu, PhD, mathematics

**Outstanding Scholar:** Lori Olson, PhD, mechanical engineering

**President's Service Award:** Lisa Norton, dean of admissions

**Heminway Gold Medalists:** Sean Gorsky (OE/PH), Ross Hansen (EE), Ethan Post (CHE/CHEM), Alex Schwier (BE), and Kurtis Zimmerman (CS/SE/MA).



**COMMENCEMENT HONOREE:** Robert Hillis (ME, 1969) was recognized for his career achievements by receiving an honorary degree. (Photo by Chris Minnick)

**Herman A. Moench Commendation:** Alex Schwier

**John T. Royce Award:** Alex Cochrane (AB)

**Outstanding Graduate Thesis:** Cody Austin (MSBE) ■





**SUNSET IN KENYA:** Students sit far above the Menengai Crater (the world's second largest caldera) in the Rift Valley near Nakuru. The group includes (from left) Nick Wanstrath, Zhao Li, Emily Lakes, Emily Asman, Alex Schwier, Alex Cochrane and Bryan Correll. (Photo by Chris Taylor)

# Adventures in Kenya

## Summer Field Studies Trip Opens New Global Horizons

Kenyan-born mechanical engineering professor Richard Onyancha, PhD, and geography professor Michael Kukral, PhD, couldn't imagine the educational, cultural, and personal rewards students and recent alumni would harvest from this summer's field studies adventure throughout the African country.

Most of the group of 12 had taken Africa geography courses, taught by Kukral as part of the Rose Hulman's humanities and social studies curriculum. Others sought a meaningful international experience from the 16-day journey before beginning their careers.

"Every day was filled with new challenges and opportunities for students in learning about the people,

the way of life, engineering education, and the tremendous diversity of East African physical geography and wildlife," says Kukral.

Onyancha hoped the trip would encourage young Kenyans to pursue education in a STEM field, increase global awareness about Rose-Hulman, and introduce Class of 2013 graduates as international role models to Kenyan school children.

Alex Schwier (BE, 2012) helped inspire several girls attending the Morop Girls Secondary School after showcasing how women can strive for a career in science and engineering—which, historically, has not been encouraged in Kenya. She has continued email contact with many of



**CUDDLING CUB:** Alex Schwier (BE, 2013) enjoys time with a lion cub during a visit to a wildlife reserve in Kenya during this summer's trip. (Photo by Bryan Correll)





**LEARNING EXPERIENCES:** This summer's field studies trip provided opportunities for senior mechanical engineering student Chris Taylor (left photos) to learn how to start a fire in a primitive area of Kenya and join other Rose-Hulman students in listening to agricultural engineering project presentations at Kenya's Egerton University. Meanwhile, other students were the center of attention (top, right) at every school they visited, while admiring beautiful scenes throughout the country. (Photos by Bryan Correll)

the girls, one of whom wants to become a neurosurgeon.

"Managing to have that effect on multiple people is truly an amazing feeling," says Schwier.

After the trip, the deputy principal of the Kipsyenan Secondary School, Laurette Mueni, wrote to professors Kukral and Onyancha that the students "touched our hearts in a special way, which we cannot easily put into words. It is also important to let you know that our students are taking the science subjects more seriously since your visit."

The trip was a life-changer as well for the Rose-Hulman students. Alex Cochrane (AB, 2013) plans to return

to Kenya through the Doctors Without Borders program after earning his medical degree.

"Kenya is a magical place, and a wild, developing, historical, and beautiful land," he states. "The world is no longer separated by country or continent thanks to the advents of mass information sharing, cellular technology, and travel. It is our responsibility as budding engineers, scientists, and humanitarians to gain as much knowledge as possible—a feat only achievable through direct contact with these places."

Other lasting memories came from a visit to Egerton University, where they observed students' fifth-year "capstone"

project presentations. These projects created an efficient system for pumping water to higher elevations, controlled chicken egg incubation, and increased the drying time of harvested crops. Each provided a cost-effective solution with materials that were relatively easy to obtain.

In addition, within 17 days the group visited three universities, two high schools, many wildlife reserves and conservancies, museums, major geographical features (including Lake Victoria and the Menengai Crater), and camped at the well-known Maasai Mara—a typical, over-stuffed Rose-Hulman schedule.

"Our students can only benefit from more programs like this one," says Kukral. ■





**DECORATED ATHLETE:** Liz Evans captured her fifth NCAA Division III high jump national championship this spring. (Photo by Mark Dannenhauer)

# Over The Top

## Evans Soars to New Track Heights, Sets Sights on Olympics

By Dale Long

Liz Evans graduated this spring with more than academic degrees in mathematics and electrical engineering—she left as the most decorated student-athlete in Rose-Hulman history.

Her career achievements featured:

- Five NCAA Division III high jump national championships (along with two runner-up and one third-place finishes)
- Eight All-American awards
- Three Academic All-American honors
- 2013 NCAA Woman of the Year nominee
- Five-time Great Lakes Region Athlete of the Year
- Six-time Heartland Collegiate Athletic Conference Field Athlete of the Year

- First female Division III athlete to jump 6-foot or better.
- Ruel Fox Burns Blanket Award as the institute's top graduating female athlete.

"Liz's remarkable accomplishments—in and away from athletics—have been a credit to her outstanding fortitude, work ethic, and athletic skills," says track and field coach Larry Cole. "She's a one-of-a-kind."

Ironically, Evans' last NCAA title came after one that got away: a disappointing third-place finish (5 feet 6½ inches) at this year's indoor championships.

"That was a huge wake-up call. It showed that I needed to work harder and take a critical look at all aspects of my technique to be at the top of my game on every jump," states the 5-foot-8, 125-pound athlete.

Then, Evans sprained an ankle during final campus preparations for this year's outdoors championships. "It hurt so bad...I could barely walk," she says. She blocked out the pain to clear 5 feet 10½ inches for her fifth national title. The next day she walked with her classmates at commencement.

"This season was by far my best, because I had to overcome so much along the way. I was pushed to the limit—physically and mentally," says Evans.

And, Evans won't be leaving after all. A NCAA postgraduate scholarship (a first for a Rose-Hulman student-athlete) will keep her on campus for graduate school. She also plans to continue training in hopes of someday competing on the U.S. Olympic Team. A seventh-place finish against athletes from all collegiate levels at the USA Outdoor Track and Field Championships solidified her standing as one of the nation's top high jumpers.

"I'm going to give it my best shot. With further training and physical maturity, I believe there's no limit on where I can go," she says. ■

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

# Bailey Challenge

By Professor Emeritus Herb Bailey, PhD

**I APOLOGIZE** for providing such a difficult Spring Challenge Bonus problem, and I will try to atone for this with an even harder Super Bonus in this issue. I strive to lure many solvers without making the problems too easy. So, I have set a goal of 50 solvers for some of these problems.

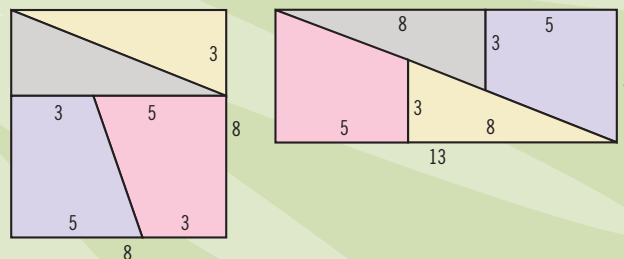
This winter's challenge featured problems related to geography in hopes of attracting solvers from the humanities. It was met with some success. I'm trying once again, with this issue's Problem 1 featuring some verses.

## SUMMER PROBLEM NUMBER 1

Find  $x$  to fit the following rhyme, solution requires but little time.  
A dozen, a gross, and a score,  
plus  $x$  times the square root of four,  
all divided by seven,  
then plus five times eleven,  
equals nine squared and not a bit more.

## SUMMER PROBLEM NUMBER 2

The square shown in the figure has an area of 64 square inches. When the four parts are reassembled as a rectangle, the area is 65 square inches. Where did the extra square inch come from?



## SUMMER SUPER BONUS

Note that prior to the arrival of the foreigner, each inhabitant can see that some of them have grey eyes. Thus the foreigner's statement that he sees some grey eyes gives them no new information. So why are there different outcomes in I and II?

**SIMPLIFIED SPRING SUPER BONUS PROBLEM:** We consider a simple case of the Spring Super Bonus. An island has four initial inhabitants. Two have gray eyes and two have brown eyes, but this fact is not known to them. They do not know the color of their own eyes, but can see the color of the others. A foreigner visits and tells them that he sees some gray eyes. He also tells them to state (one at a time) either "I know that I have gray eyes" or "I do not know that my eyes are gray." What statements will each of them make?

**SOLUTION TO SIMPLIFIED SPRING SUPER BONUS PROBLEM:** Both brown eye inhabitants will state "I do not know that my eyes are gray." The first gray eye to state will say "I do not know that my eyes are gray." The second gray eye to make a statement will state "I know that I have gray eyes." If they were not gray, then the first gray eye to state would have known that his eyes were gray.

**A SIMILAR PROBLEM AND SOLUTION:** The same problem that we just considered (and solved), except the visitor makes no statement about seeing gray eyes. For this case, each of the inhabitants will state "I do not know that my eyes are gray."

Send your solutions to [Herb.Bailey@rose-hulman.edu](mailto:Herb.Bailey@rose-hulman.edu) or to Herb Bailey, Department of Mathematics, Rose-Hulman, 5500 Wabash Ave., Terre Haute, IN 47803. Please include your class year, if you are an alumnus or an alumna.

**Congratulations to the following solvers of the spring problems:**

**ALUMNI:** D. Camp, 1955; B. Hall, 1955; A Sutton, 1956; H. Brown, 1957; D. Bailey, 1959; J. Tindall, 1961; R. Ireland, 1961; J. Ray, 1961; S. James, 1965; R. Dutton, 1969; S. Jordan, 1970; J. Schroeder, 1976; M. Avery, 1976; P. VandeMotte, 1977; T. Greer, 1978; R. Priem, 1979; R. Joyner, 1980; R. Roll, 1981; M. Bailey, 1986; M. Lancaster, 1987; D. Johnson, 1987; G. Heimann, 1990; B. Burger, 1991; R. Hochstetler, 1991; R. Antonini, 1993; D. Rettig, 1994; K. Bartow, 1998; M. Pilcher, 1998; P. Swickard, 1998; C. Hayden, 2001; D. Schluneker, 2008; and D. Straub, 2010

**CURRENT STUDENT:** A. Puetz, 2015

**FRIENDS:** A. Andrews, B. Burchett, T. Chorba, S. Lam, J. Ley, L. Puetz, M. Rosene, and D. Voltmer



# ALUMNI PHOTO ALBUM



**FAMILIAR FACE:** Ryan Vande Water (EE, 1996), right, greeted Professor Zac Chambers (ME, 1994) at the Beijing airport during a trip to help present a short course to Chinese students. Both were on the resident life staff on campus.



**HISTORIC 300 GAME:** At 82, Leo Little (EE, 1952) became the oldest Nevada resident to bowl a perfect 300 game on March 6, 2013, in Las Vegas, where he retired as an engineer and consultant.



**YOUNG ENGINEER OF YEAR:** Spring McEwen (CE, 2004) was named South Carolina Society of Professional Engineers' 2013 Young Engineer of the Year. She is lead design engineer with Metromont Corp.



**MEMORABLE WEEKEND:** Members of the Class of 1963 returned this spring to receive 50-Year Commemorative Degrees during commencement.



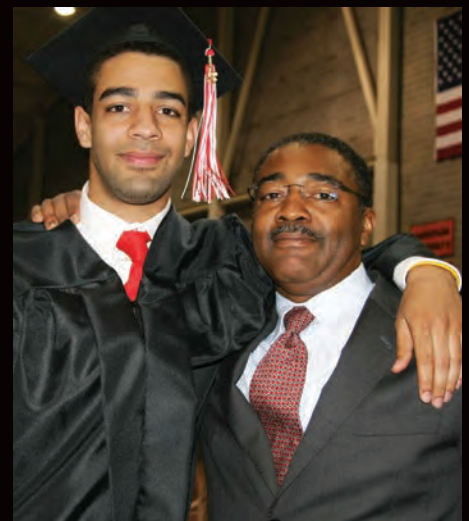
**BACK ON CAMPUS:** Molly Gillam (AB, 2011) participated in Rose-Hulman's Making Academic Change Happen workshop this summer. She attends the University of Texas Southwestern Medical Center.



**BASEBALL RIVALRY:** James Gidcumb (CHE, 1976) and Rodney Norder (CE, 1979) were on opposite sides at an alumni outing as the St. Louis Cardinals hosted the Chicago Cubs.



**COMMENCEMENT SPEAKER:** Elizabeth Hagerman (CHE, 2000), PhD, left, was honored by St. Mary-of-the-Woods College President Dottie King after encouraging members of the college's Class of 2013 to follow their dreams.



**PROUD FATHER:** Anthony Broadnax (CE, 1989) congratulates his son, Garrett (ME, 2013), for becoming the institute's first African American alumni legacy.



**PRESIDENTIAL PRAISE:** President Barack Obama gestures while nominating Robert L. Wilkins (CHE, 1986), left, to become a federal judge, during a Rose Garden event with fellow nominee Cornelia Pollard. (Photo by Mark Wilson/Getty Images)

# Obama Nominates Wilkins for Seat on Influential Federal Court Bench

By Dale Long

Alumnus Robert L. Wilkins was a guest of honor in a special White House Rose Garden ceremony early this summer as President Barack Obama's nominee to become a judge of the influential United States District Court of Appeals for the District of Columbia.

Obama praised the 1986 chemical engineering graduate as a "principled attorney of the utmost integrity."

Wilkins' nomination will attract increased scrutiny during Senate confirmation hearings since the D.C. Circuit Court is regarded as one of the most important federal appellate courts in the nation and a possible stepping stone to the Supreme Court.

This is the second time that Obama has tapped Wilkins for a judicial position. He was confirmed without opposition for the D.C. District Court in 2010.

The National Bar Association (NBA) applauded Wilkins' nomination, pointing out his distinguished career and impeccable judicial record.

"Judge Wilkins is a respected appellate jurist, celebrated litigator, effective community mobilizer, and groundbreaking civil rights leader," states NBA President John Page. "The D.C. Circuit Court will benefit from Judge Wilkins' diverse life experiences and commitment to excellence."

After graduating from Rose-Hulman and Harvard Law School, Wilkins was a clerk for the U.S. District Court's Southern District of California. He later served as a staff attorney and head of special litigation for D.C.'s Public Defender Service, and practiced as a partner with Venable LLP, specializing in white collar defense, intellectual

property, and complex civil litigation.

Wilkins has been named one of the "40 under 40 most successful young litigators in America" by the *National Law Journal* and one of the "90 Greatest Washington Lawyers of the Last 30 years" by the *Legal Times*.

Wilkins was nominated for the federal bench along with Patricia Ann Millett, a Washington, D.C., appellate lawyer, and Cornelia Pillard, a Georgetown University law professor.

"These are no hacks. They are incredibly accomplished lawyers by all accounts," Obama remarked in the Rose Garden ceremony. ■

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



## CLASS NOTES

**1973**

**Dennis O. McCleary** (ME) is the vice president of project management and optimization for CVR Energy Inc., of Sugarland, Texas. He has more than 35 years of experience in chemical plant operations, engineering, and major projects management.

**1974**

**Bruce Faucett** (ME) retired on June 1, 2013, after 32 years at Allison Transmission in several assignments, including senior test and development engineer and senior applications engineer.

**1975**

**Paul German** (CHE) was among a team receiving ExxonMobil Chemical Company's Outstanding Patent Award for developing primarily end-use applications for a new polyolefins product area. He is technology senior staff engineer for ExxonMobil Chemical's Global Polyolefins Technology Center in Baytown, Texas. He has worked for the company for 33 years, specializing in the development of new polyolefin products and end-use applications.

**1992**

**Thomas D. Baker** (CHEM) has been promoted to director of marketing and analytics capabilities for Elanco Animal Health, a subsidiary of Eli Lilly and Company.

**1996**

**L. Eric Strickland** (CE) is the executive director of the Riley Area Development Corporation (RADC), helping revitalize neighborhoods in the near eastside of Indianapolis. He spent 12 years as a senior project manager for Kite Realty Group and was a RADC board member from 1999 to 2004.

**1997**

**Eric L. Wathen** (CE) is a new project manager for Banning Engineering, focusing on engineering services for municipal clients. He is a former commissioner for Hendricks County, Indiana.

**1999**

**Deborah M. Kroll** (ME) is senior design project engineer within the hydraulic and cartridge group at Baldwin Filters in Kearney, Nebraska. She has primary responsibility for the fuel manager and microlite filters, as well as working on new product releases.

**2000**

**David Sing** (CS/MA) is senior software engineer at Interlink Transport Technologies, where he has worked since May 2011. He currently resides in Franklin Park, New Jersey.

**2001**

**Chris Bauer** (CE) has been promoted to construction manager for Hunt Construction Group, assigned to the program management team for the Florida Citrus Bowl Stadium renovation project in Orlando, Florida. He still resides in Tampa.

**Leslie Kutsenkow**

(MA/ECON) has joined Cisco Systems as program manager of the engineering acquisition integration team in San Jose, California. She also enjoys training and rehabbing thoroughbred horses as a NeighSavers volunteer.

**2003**

**Thomas Lautenschlager** (EE) is helping industrial companies improve their websites through web solutions and marketing plans after earning a MBA in marketing from Golden Gate University in San Francisco.

## ALUMNI NEWSMAKERS



### CONFIRMED: LINCOLN PART OF HIGGS BOSON DISCOVERY

Scientists and other experts have confirmed that **Don Lincoln** (PH, 1986) helped discover a long-sought Higgs boson particle, through years of research at Europe's CERN super collider.

Lincoln is a senior experimental particle physicist at the Fermi National Accelerator Laboratory, and has co-authored more than 500 scientific papers on subjects from microscopic black holes and extra dimensions to the Higgs boson. He received the 2013 European Physical Society HEPP Outreach award for communicating in multiple media the excitement of high-energy physics to students, educators, and the general public.



### LOWE NAMED ONE OF TOP 100 STEM LEADERS

Freescale Semiconductor President and CEO **Gregg A. Lowe** (EE, 1984) was listed among the 100 top leaders in science, technology, engineering, and math (STEM) fields by STEMconnector. He also joined other CEOs in a panel discussion at the 2013 STEM Solutions Summit on the future of America's national competitiveness and the need for a STEM workforce.

In late May, Lowe announced Freescale Semiconductor's initial \$5 million contribution to create the Freescale Foundation, a non-profit organization which will focus on STEM education. Freescale Semiconductor is a global leader in embedded processing solutions.

Lowe, a Rose-Hulman trustee, joined Freescale Semiconductor in 2012 after serving as a senior vice president at Texas Instruments.



### ISBELL IS NATIONAL RURAL COUNTY ENGINEER OF YEAR

**Chris Isbell** (CE, 1980) was named the Rural County Engineer of the Year by the National Association of County Engineers in recognition of high standards for the economic design, construction, maintenance, and operation of public works facilities.

Isbell has been county engineer for Stephenson County, Illinois, since 1991. He developed the county's first roundabout, upgraded the heaviest traveled county highways, and formed a statewide mutual aid system, the Illinois Public Works Mutual Aid Network. He also has helped coordinate efforts for more than 10 federally declared disasters.



### CLANCY BECOMES VIRGINIA TECH CYBER FELLOW

**Charles Clancy** (CPE, 2001) is the first L-3 Communications Cyber Faculty Fellow of Electrical and Computer Engineering at Virginia Tech. He is director of the university's Ted and Karyn Hume Center for National Security.

Clancy joined Virginia Tech in 2011 after working for the U.S. Department of Defense from 2004 to 2010. He has developed and managed major federal research projects, launched startup companies, led protocol standardization efforts, and been involved in telecommunications policy and engineering in the developing world. ■

**2006**

**Bryce Beckstrom** (CE) has joined Prairie Engineers of Illinois' office in Peoria, Illinois. He specializes in projects for government agencies, utilities, and private organizations.

**2007**

**Amelia Huehls** (CHEM) is a research associate at the Dartmouth College School of Medicine (New Hampshire). She earned a PhD in molecular pharmacology and experimental therapeutics at the Mayo

Clinic College of Medicine (Minnesota) in 2013.

**Charles E. Key** (CPE) is CEO of Modulus, a new Cincinnati-based entrepreneurial enterprise helping startups and small companies with limited resources to create new products. It already has nearly 2,000 global clients.

**2008**

**Kristina Lawyer** (ME) is ready to begin teaching as an assistant professor at Indiana

State University after conducting research at the U.S. Department of Energy's Argonne National Laboratory. She earned a PhD from Michigan Technological University.

**2009**

**Samuel Y. Ostling** (MA) has received a \$30,000 Woodrow Wilson Ohio Teaching Fellowship to complete a special intensive master's program at the University of Toledo. He will become a math teacher at a high-need Ohio school.

**2010**

**Marcella R. Hawk** (CHE) has returned to become the seventh generation to help manage the family-owned Huber's Orchard and Winery, a 600-acre farm in Starlight, Indiana, that has produced wines winning more than 15 governor's medals and Indiana's 2013 Wine of the Year. ■

## Rosebuds

**2003**



**Andrew V. Crisman** (ME/MSBE 2007) and wife, Renee, welcomed their first

child, Anna, on April 5, 2013. The couple lives in Shoreview, Minnesota, where he is a senior research and development engineer for Smiths Medical. Andy is a part-time PhD student at the University of Minnesota.

**David Odle** (CPE) and **Adrian (Meadows) Odle** (ME) had their second child, Caitlyn, on December 9, 2012.

**2004**

**Anthony D. Bergstrom** (CS/MA) and Lin Tan became the parents of a daughter, Eva, this spring. The family lives in Waterloo, Ontario.



**Michael D. Martin** (CPE) and wife, Jennifer, welcomed their second son, Jameson, to the family on June 23, 2013.

**2005**



**Adam P. Jarboe** (ME; MS EM 2007) and wife, Taylor, had their first child,

Pennington, on March 2, 2013.

**2006**

**Brian Caruso** (CS) and **Katy (Messmann) Caruso** (CHE) had a son, Lee, on May 11, 2013. The couple was married on July 22, 2006, and lives in Seattle, Washington.

**2009**



**Eric Halvorson** (ME) and **Rachael (Nestor) Halvorson** (BE) welcomed their first child, Eric, on March 25, 2012. Eric is a research and development engineer at Bastian Solutions. The family lives in Fishers, Indiana.



**Logan Reese** (ME/EE) and **Rachael (Spellum) Reese** (ME) had a son, Gideon, on May 1, 2013.

**2010**



**Preston Render** (ME) and wife, Renee, had a daughter, Aubrey, on March

13, 2013. The family lives in Delaware, Ohio, and Preston is the commercial quality manager at General Electric's Bucyrus Lamp Plant. ■

## Marriages

**2007**

**Aaron C. Hall** (CHE) married Anna Cote on April 27, 2013, in Spartanburg, South Carolina. He earned a law degree from the University of Memphis and practices law in his hometown, Murfreesboro, Tennessee.

**2013**

**Jeremy Bultema** (ME) married Jeannie Horner on July 13, 2013, in Crete, Illinois. He is working for AIM Machinery in Merrillville, Indiana.

**Adam T. Garrett** (BE) and Amanda Walker were married on March 20, 2013, in the White Chapel on the Rose-Hulman campus. Both are enlisted in the U.S. Army Reserves at Camp Atterbury, with Adam being a staff sergeant and a Chrysler employee in Kokomo, Indiana. ■

## WE WANT YOUR NEWS

Share news and photographs to [alumniaffairs@rose-hulman.edu](mailto:alumniaffairs@rose-hulman.edu).



## Obituaries

1938

**Robert W. Dispennett** (CHE), 96, died on April 13, 2013, in Chillicothe, Ohio. He retired from Alcoa/WearEver Aluminum.

1946

**Harold E. Campbell** (ME), 89, died on April 28, 2013, in Paris, Texas. He worked for Campbell Soup Company for 46 years.

**Frank Jones** (ME), 91, died on December 29, 2012, in Sullivan, Indiana. He retired from Farm Fans in Indianapolis.

1947

**J. Prewitt Wehle** (EE), 86, died on April 21, 2013, in Tiverton, Rhode Island. He was an

engineer and administrator for telecommunication companies.

1950

**George W. Eddy** (ME), 82, died on June 19, 2013, in Lynnfield, Massachusetts. He was a manager for General Electric.

**Ray C. Haller** (CE), 85, died on June 12, 2013, in Venice, Florida.

**Jack L. McLaren** (ME), 86, died on March 28, 2013, in Noblesville, Indiana.

1955

**Thomas D. Hall** (EE), 82, died on April 15, 2013, in Terre Haute, Indiana. He was a super-

intendent with Weston Paper, an engineer with Columbia Records, and a private contractor.

1956

**William H. Guard** (ME), 83, died on July 28, 2011, in Long Beach, California. He worked for B.F. Goodrich for 30 years.

**Ralph D. Lockhart** (EE), 79, died on May 2, 2013, in Maui, Hawaii. He spent 26 years as president of Biamp Systems.

1962

**Dale F. Oexmann** (MA), 73, died on June 17, 2013, in Avon, Indiana. He was a math and computer science professor at Rose-Hulman.

**Richard H. Thompson** (PH), 72, died on March 16, 2013, in San Diego. He worked for the Central Intelligence Agency.

1966

**Larry O. Halstead** (CHE), 68, died on January 20, 2013, in Leesburg, Virginia. He retired from Proctor & Gamble.

1973

**Thomas J. Stoltzner** (CHEM), 60, died on October 6, 2011, in Sarasota, Florida.

1978

**Kenneth E. Shaw** (ME/PH), 58, died on January 31, 2013, in Stuart, Florida. ■

## HOMECOMING ALUMNI HONOREES

## HONOR ALUMNI AWARDS



**William R. Fenoglio**  
ME, 1961; HDENG, 1987  
Retired Corporate  
Executive

Fenoglio's career featured management positions with General Electric, the Barnes Group Inc., and Augat Inc. He has been a Rose-Hulman trustee for 21 years and currently serves as chairman.



**Michael D. Thomas**  
ME, 1964; HDENG, 1997  
CEO, Automotive Insight

Thomas has extensive automotive industry leadership and idea-generation experience with Ford, USCAR, Science Application International Corporation, and Automotive Insight. He has been a Rose-Hulman trustee and institute ambassador.



**Tim J. Cindric**  
ME, 1990  
President, Penske Racing  
Cindric has management responsibility for Penske operations

that are a competitive force in IndyCar, NASCAR, and American LeMans racing series. He was inducted into Rose-Hulman's Athletic Hall of Fame in 2001.



**Erik N. Jansen**  
EE, 1978; HDENG, 2000  
Founder, Ramp Equity  
Partners

Jansen is a seasoned operational and financial executive in building technology-based business, and assisted in the development of several venture investing organizations. He is a former Rose-Hulman trustee.



**David A. Burgner**  
EE, 1972  
Vice President, Delphi  
Burgner has been a global leader for Delphi's partnerships with General Motors and Packard Electric, including senior-level support and guidance. His team pioneered the European operations transition to world-class manufacturing techniques.

## DISTINGUISHED YOUNG ALUMNI AWARDS



**Sarah A. Sanborn**  
CHE, 2004; MSBE, 2006  
Procter & Gamble  
Sanborn has had

several research and development responsibilities for the Pampers brand, recently accepting a multiyear Germany assignment. She is the Young Alumni Representative to the Board of Trustees and past-president of the Young Alumni Council.



**Emily J. (Mitchell) Sontag**  
CHEM, 2005  
Stanford University

Sontag is a postgraduate scholar whose research has been featured in the *Journal of Neuroscience* and the *Proceedings of the National Academy of Sciences*, and earned awards for presentations at international conferences.



**Michelle A. Witt**  
ME, 2005; MSEM, 2008  
Expert TA  
Witt's engineering,

marketing, and business experience has helped companies ranging from small businesses to Fortune 500 firms. She has spent the past five years helping entrepreneurs raise \$11 million for startup projects.



**Bradley A. Woodcox**  
ME, 2004; MSBE, 2009  
Novak Druce Connolly  
Bove & Quigg LLP

Woodcox passes along his experience to help Silicon Valley tech startups capture and monetize their innovations. He formerly developed novel medical devices for Boston Scientific and Guidant. ■

ROSE-HULMAN AND THE ALUMNI ASSOCIATION recognized three alumni this spring with the Career Achievement Award. These alumni, all members of the Class of 1993, were selected based on their achievements within their communities and professions.

Profiles by freelance writer Steve Kaelble  
Photos by Terry Miller and Chris Minnick

# Bakota Helping Lead TI's Next High-Tech Era

It's nearly impossible to innovate in one area without having an impact on another—enabling even more innovation. That's where Steve Bakota finds himself as product line manager for Texas Instruments.

The electrical engineering alumnus is responsible for a line of semiconductors that regulate power in one way or another. Rapid changes in the auto industry have created new challenges and opportunities in power electronics. One emerging trend in vehicles is referred to as “start-stop,” which shuts down the

engine, rather than idling, while the vehicle is stopped at a traffic light. It's a great idea that improves fuel economy, saves money, and helps the environment.

However, this innovation has the potential to interfere with the car's electrical system—all the restarting causes serious fluctuations in the voltage supplied from the car battery.

Leading a successful team is “all about having a solid strategy, working hard, and finding ways to enable really smart people to do what they do best.”

—Steve Bakota, EE, 1993

Semiconductors created by Bakota's group solve the problem, enabling a constant voltage that keeps the car's electrical and electronic components functioning properly. Without TI's chips, the innovation of the “start-stop” technology wouldn't work.

That's just one example of the need for the products Bakota is responsible for developing, manufacturing, and marketing. “There's lots of demand, growth, and challenges in power electronics, and we're in the middle of it,” he says. All the things that plug in or power on-demand power semiconductors represent opportunities for innovations in Bakota's product development team.



A new product idea may come from within Bakota's group or through collaboration with customers. He is accountable for the profit/loss decision on the product. “It starts with a great product definition,” he says. “At some point, we make a gut call. Do we think that this is something we can achieve, and is it a good investment?”

Bakota's team takes the product from definition to development, onto production and the customer, and then focuses on driving market penetration. “It requires eight to nine different engineering specializations just to develop a single integrated circuit,” he points out. What does it take to lead that kind of team? “It's all about having a solid strategy, working hard, and finding ways to enable really smart people to do what they do best.”

The northwest Indiana native developed an appreciation for the value of innovation, collaboration, and teamwork on campus. He became interested in electrical components during a year off from college to work for General Electric. That provided the career clarity he needed. He has spent the rest of his profession at Texas Instruments, and is now married and has three young children. ■



# Innovation Assists Haggerty as Change Agent

Innovation takes many forms, and looks quite different depending on the industry and location you're in. Those are the lessons learned by Jeff Haggerty, whose engineering career has gone from manufacturing production to leadership of a service organization.

Since 2009, Haggerty has been president and CEO of Digitrace Inc., a Michigan-based onsite testing, calibration, and repair company serving the cable television industry. The Federal Communications Commission enforces high technical standards in the cable business, requiring operators to undergo periodic calibrations and proof-of-performance testing. That's where Digitrace comes in.

Haggerty implemented changes in the testing equipment and the way the work and workforce were organized—with

impressive results. A round of testing 110 systems that once took about eight weeks was transformed into a five-week testing period covering 147 systems. That made it easier to keep up with the workload, and reduced travel expenses. In three years, company revenues grew from \$1.7 million to



**HIGH TECH LEADER:** Jeff Haggerty (ME, 1993) has been president and CEO of Digitrace Inc. since 2009.

\$3.3 million, while adding just two people to the original nine-member workforce.

Earlier success stories came in management for Associated Spring, bringing innovation to leading the startup of a production facility in Monterrey, Mexico.

"I took all of the company's best practices and put them into practice in one facility," Haggerty recalls. "We figured as close to a perfect process as we could."

The result was a much shorter production time, using significantly less manufacturing space, and generating only one-third the amount of scrap. Lean manufacturing principles led



**CAREER ACHIEVEMENT AWARD RECIPIENT:**  
**JEFF HAGGERTY**

the way, along with the applied logical processes that Haggerty developed at Rose-Hulman.

Haggerty returned from Mexico in 2007 and became a business unit manager for the spring maker, overseeing a \$30 million facility. He implemented the same types of innovations and improvements there, as well.

Change was also a part of Haggerty's life at Rose-Hulman. As Student Government Association President, he helped lead student efforts that brought coeducation to the campus landscape. "We did a lot of research that analyzed the benefits and consequences," he recalls. "Our primary focus was how coeducation would enhance academics and recruiting. I'm proud that Rose-Hulman took the necessary step to move forward, and am happy with how my college has prospered from that decision." He was also active in the residence life staff and Triangle fraternity chapter.

Haggerty graduated two years before the first female students arrived on campus. He married a 1993 St. Mary-of-the-Woods College alumna and the couple has three children. ■

# Papa Uses Skills to Help Others Across Globe

Jeff Papa has a tendency to chart his own distinct path. Though his college choice was an institution renowned for engineering and science, he earned a degree in economics. “I was the only pure economics major when I graduated,” the 1993 graduate recalls.

It wasn’t long before Papa was headed overseas, when he signed up for a study-abroad program in the Soviet Union. “The first time I was ever on a plane was to go to Moscow,” he says. He liked it enough to return two more years, and earned a certificate of proficiency in Russian technical translation, with a

European Studies minor. A master’s degree in business economics followed from Ball State University, along with a 10-week internship in Korea and multiple trips to Russia.

Then, Papa’s interests took another turn.

“My roommate was going to law school and said, ‘you should take the LSAT,’” Papa recalls. Scoring near the top and having an interest in law, he enrolled at the Indiana University School of Law in Indianapolis, where he eventually earned two separate degrees. And, his international interests continued, studying European law in France, Chinese law in China, Latin American law in Brazil, and immigration issues in Mexico.

A volunteer-abroad program in Nepal in 2000 sent him down yet another path. He taught English to



**FOUNDED ORPHANAGE:** Jeff Papa’s Youth Enhancement and Training Initiative serves 26 children annually in Nepal.

schoolchildren there, but wanted to do more. So, he founded the Youth Enhancement and Training Initiative (YETI), a non-profit corporation that raises funds for an orphanage Papa



**CAREER ACHIEVEMENT AWARD RECIPIENT:**  
**JEFF PAPA**

established in Nepal to serve 26 children. Ten to 15 percent of YETI fundraising also benefits underprivileged kids in Indiana.

Papa’s career path has also followed several paths. He interned with the Indiana Senate in 1993, and worked as a legislative assistant and public information officer while in graduate and law school. Then, after focusing on immigration and government services with the prominent Barnes & Thornburg law firm, he returned to the Indiana Statehouse in 2007 as the Indiana Senate’s chief of staff and chief legal counsel. He oversees legal staff members advising lawmakers to draft laws, and is in charge of all other Senate employees and operations—68 full-time staffers that increases to about 140 during legislative sessions. Away from his job and YETI responsibilities, Papa is also president of the Zionsville Town Council and is pursuing a doctorate in education leadership from Marian University. ■



## Alumni Office Helps Unite Lost Class Ring

It took more than 30 years and hundreds of miles to reunite 1969 alumnus Charles M. Kruse with his college class ring this summer.

The cherished memento had been discovered in an abandoned vehicle and was among items being discarded from the junk yard, 10 miles south of Ithaca, New York.

"I knew it belonged to someone and might have been important to the original owner," says Eric Sperger of Saranac Lake, New York, whose father-in-law owned the junk yard. He reached out to Jim Bertoli, executive director of alumni affairs, to help solve the mystery.

There were three distinct clues that linked the ring back to Kruse: The Rose Polytechnic Institute name around the red stone, the graduation year (1969), and the initials "CMK" imprinted inside the ring band.

Bertoli made the arrangements that reunited Kruse with the ring this summer.

"Reconnecting alumni with Rose-Hulman is what my job is all about," he says. "I was happy to play a small role in this special event."

Kruse, who now lives in Dayton, Ohio, was surprised to learn that the ring had been found. He suspects it was left at a YMCA in upstate New York during the mid-1970s. ■

## ALUMNI CALENDAR

Check latest events at [rose-hulman.edu/rosetem](http://rose-hulman.edu/rosetem)

### MEET PRESIDENT CONWELL RECEPTIONS

**September 4** | Software Engineering Professionals, Four Center Green-Suite 400, Carmel, Indiana, 5:30-7 p.m.

**September 17** | Bankers Life Fieldhouse, Pacers Square, Downtown Indianapolis, 5:30-7 p.m.

**September 25** | Stone Creek Dining Company, Greenwood, Indiana, 5:30-7 p.m.

**September 26** | Hilton Garden Inn-Indianapolis Airport, Plainfield, Indiana, 5:30-7 p.m.

**October 1** | BSA Life Structures, 9365 Counselors Row, Indianapolis, 5:30-7:30 p.m.

### SPECIAL ALUMNI EVENTS

Football Tailgate, Kalamazoo College | **September 7**  
Chauncey Day | **September 12**

Rose On The Road, Fort Wayne | **October 3**

Rose On The Road, Chicago | **October 10**

Rose On The Road, San Francisco | **November 9**

## 'ROSEWOOD' BRUNCH, INNOVATION SEMINAR AMONG NEW FEATURES

Several new activities have been added to this year's Homecoming festivities, including:

- **COUPLES BRUNCH**—Rose-Hulman/St. Mary-of-the-Woods College (SMWC) alumni couples are invited to enjoy a delightful brunch on Sunday at O'Shaughnessy Dining Hall on the SMWC campus, from 10:45 a.m. to 1:15 p.m.
- **INNOVATION SESSION**—Dean of Innovation and Engagement Bill Kline, PhD, will present an educational session on "Inspiring Innovation: Exploring Best Practices and Collaborative Canvas Tools" on Friday at 3 p.m. in the Faculty/Staff Dining Room of the Hulman Memorial Union.
- **LIBRARY OPEN HOUSE**—Alumni can explore old yearbooks and other archival items during the John A. Logan Library open house on Saturday, starting at 1 p.m.
- **HIGH SCHOOL STUDENT TOURS**—Alumni with high school-aged children can schedule campus tours on Friday afternoon through the Office of Admissions by calling 812-877-8214.

For more information, contact the Office of Alumni Affairs at [alumniaffairs@rose-hulman.edu](mailto:alumniaffairs@rose-hulman.edu) or 812-877-8976. ■

## HOMECOMING EVENTS

Deadline to register: Friday, September 13

### SEPTEMBER 20 MAJOR EVENTS

**Alumni Golf Outing** | 8:15 a.m.  
Hulman Links/Country Club of Terre Haute

**1874 Heritage Society Luncheon** | Noon  
Kahn Rooms, Hulman Memorial Union

**Rose-Hulman Ventures Tours** | 2 p.m.  
South Campus

**Continuing Education Session** | 3 p.m.  
"Inspiring Innovation: Exploring Best Practices and Collaborative Canvas Tools"  
Faculty/Staff Dining Room, Hulman Memorial Union

**Oakley Observatory Stargazing** | 8 p.m.  
Off Hunt Road, East of Campus

**Pep Rally/Bonfire** | 8:30 p.m.  
Cook Stadium/Hulbert Arena

**Young Alumni Party/Class of 2008 Reunion** | 9 p.m.  
7th and Elm Bar and Grille, Downtown

### SEPTEMBER 21 MAJOR EVENTS

**Rosie's 5K Fun Run/Walk** | 8 a.m.  
Sports and Recreation Center

**Alumni Awards Breakfast** | 8 a.m.  
Vonderschmitt Dining Room, Hulman Memorial Union

**Alumni Association Annual Meeting** | 10:30 a.m.  
Kahn Rooms, Hulman Memorial Union

**John A. Logan Library Open House** | 1 p.m.  
Logan Library

**Academic Open Houses** | 11 a.m. to 1 p.m.  
Academic Buildings

**Rosie's KidZone** | Noon to 4 p.m.  
Near Cook Stadium

**Football Game, vs. Defiance College** | 2 p.m.  
Phil Brown Field, Cook Stadium

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

### SEPTEMBER 22 MAJOR EVENTS

**RoseWood Couples Brunch** | 10:45 a.m. to 1:15 p.m.  
O'Shaughnessy Dining Hall, St. Mary-of-the-Woods College

**Time For Reflection** | 9 a.m. to Noon  
White Chapel

### THIS YEAR'S CLASS REUNIONS

#### Friday, September 20

**1953** | Country Club of Terre Haute, 6 p.m.

**1958** | Performing Arts Room, Hulman Memorial Union, 6 p.m.

**1963** | Kahn Rooms, Hulman Memorial Union, 5:30 p.m.

**2008** | 7th and Elm Bar and Grille, Downtown, 9 p.m.

#### Saturday, September 21

**1968** | The Ohio Building, Downtown, 6 p.m.

**1973** | Stables Steakhouse, Downtown, 6 p.m.

**1978** | The Ohio Building, Downtown, 6 p.m.

**1983** | The Ohio Building, Downtown, 6 p.m.

**1988** | Kahn Rooms, Hulman Memorial Union, 6 p.m.

**1993** | The Ohio Building, Downtown, 6 p.m.

**1998** | The Ohio Building, Downtown, 6 p.m.

**2003** | The Ohio Building, Downtown, 6 p.m.

Register for Homecoming events at <http://rosetem.rose-hulman.edu/Homecoming>



# 100%

## SUPPORT FOR ROSE-HULMAN

Members of the Alumni Advisory Board and the Young Alumni Council showed their 100 percent commitment for Rose-Hulman by making donations this year. These board members, like many other alumni, understand that their continued support empowers students to solve the problems of a complex, global society, and that every gift counts.



**“** I continue to support Rose-Hulman through financial contributions because I understand the impact it has on current students, and I know that I received that same kind of support when I was a student. The close connection with alumni always reminds me of what a special place Rose-Hulman is.”

—Jeff Myers, *Electrical Engineering, 1987*  
President, Alumni Advisory Board

**“** I give to Rose-Hulman because I believe it is one way I can continue to support the school that gave so much to me. I hope to help Rose-Hulman in retaining its top-level faculty and staff, and to provide cutting edge education for its students. All of this helps maintain the value of my degree. It is my responsibility to continue to invest in developing the future of my profession through my giving to Rose-Hulman.”

—Mike Reeves, *Civil Engineering, 2006*  
President, Young Alumni Council



**Each gift to Rose-Hulman is an investment in students who are inspired and prepared for lives of purpose and success.**

**YOU TOO CAN SHOW YOUR SUPPORT FOR ROSE-HULMAN**  
at 812-877-8455 or [www.rose-hulman/give](http://www.rose-hulman/give)



Address Service Requested



## Stay connected

Stay connected with Rose-Hulman through the digital world through our website ([www.rose-hulman.edu](http://www.rose-hulman.edu)). You can also keep informed by becoming a fan of Rose-Hulman's Facebook page or following us on Twitter (@rosehulman or #rhitpride).



## PARTING SHOT

### Spanning the Globe for Summer Learning

Alex Schwier (BE, 2013) is surrounded by students at Kenya's AIC Morop Girls' High School during a 17-day field studies program throughout the African country. The trip for 12 students and 2013 graduates was organized by professors Mike Kukral and Richard Onyancha, a Kenya native. Schwier received the Herman A. Moench Distinguished Senior Commendation at this year's commencement. Learn more about the trip on pages 24-25. *Photo by Bryan Correll (CPE, 2013)*

5500 Wabash Avenue  
Terre Haute, IN 47803

Address Service Requested



## Stay connected

Stay connected with Rose-Hulman through the digital world through our website ([www.rose-hulman.edu](http://www.rose-hulman.edu)). You can also keep informed by becoming a fan of Rose-Hulman's Facebook page or following us on Twitter (@rosehulman or #rhitpride).



## PARTING SHOT

### Spanning the Globe for Summer Learning

Alex Schwier (BE, 2013) is surrounded by students at Kenya's AIC Morop Girls' High School during a 17-day field studies program throughout the African country. The trip for 12 students and 2013 graduates was organized by professors Mike Kukral and Richard Onyancha, a Kenya native. Schwier received the Herman A. Moench Distinguished Senior Commendation at this year's commencement. Learn more about the trip on pages 24-25. *Photo by Bryan Correll (CPE, 2013)*