

Winter 2014

# Volume 2014 - Issue 1 - Winter, 2014

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 2014 - Issue 1 - Winter, 2014" (2014). *Rose Echoes*. 96.  
[https://scholar.rose-hulman.edu/rose\\_echoes/96](https://scholar.rose-hulman.edu/rose_echoes/96)

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).

**SPECIAL SECTION:** Your Degree—"A Worthy Investment"

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

# Echoes

WINTER 2014

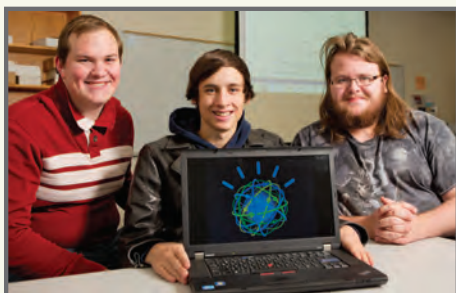
Vol. 2014, No. 1

## RISING STARS

Emily (Mitchell) Sontag Among  
Young Alumni Making Early  
Impressions in Career Fields



# INTELLECT INDIVIDUAL ATTENTION INNOVATION



Teddy Sterne, Gabe Glenn, and Kenneth Faulkner

## TEAM SHARES TOP HONORS IN IBM WATSON CHALLENGE

A team of computer science and software engineering students tied for first place in IBM's The Great Mind Challenge Watson Edition. The test was writing machine learning algorithms to identify correct answers in a dataset of question-answer pairs—core technology used by Watson in its data-driven recommendations. “This was extreme problem solving,” says Teddy Sterne, who joined Kenneth Faulkner, Gabe Glenn, and Daniel Nam on the winning team. Professor Michael Wollowski, PhD, incorporated the contest into his artificial intelligence course. Learn more at [www.rose-hulman.edu/IBMWatson](http://www.rose-hulman.edu/IBMWatson).

## SECOND-YEAR iGEM PROJECT EARNS BRONZE MEDAL

The International Genetically Engineered Machine (iGEM) team has improved to medal contention in its second year, earning bronze-level honors among 55 competitors in the North American Regional at Toronto. This is the premier student competition in synthetic biology. The team included students with backgrounds in applied biology, biochemistry, biomedical engineering, and computer science. Professor Richard Anthony, PhD, was the team's faculty mentor. Trustee Michael Evans supports this project. Find out more about the project at [www.rose-hulman.edu/iGEM](http://www.rose-hulman.edu/iGEM).



iGEM team members with Professor Anthony



Food waste study group with Professor Evans

## MATH, SUSTAINABILITY MIXED IN FOOD WASTE STUDY

Students put sustainability and mathematics into practice by estimating an \$11,781 quarterly cost savings to Rose-Hulman by reducing, reusing, and recycling food waste from campus dining centers. Professor Diane Evans, PhD, adapted the Lean Six Sigma project into her statistical methods course. The students' study has been featured at a North American mathematics conference, by Asian EngineerLive.com, and on the Minitab blog. Learn more about the project at [www.rose-hulman.edu/SixSigmastudy](http://www.rose-hulman.edu/SixSigmastudy).

## columns

Page

Message from the President .....	2-3
Bailey Challenge .....	26

## feature section: Successful Alumni Under 40

Young Alumni Finding Success in Career Fields.....	4-14
Distinguished Young Alumni Profile: Emily (Mitchell) Sontag.....	4-5
Alumni Profile: Jim Meyer.....	5
Alumni Profile: Erik Hayes.....	6
Alumni Profiles: David Orr and Keenan Long.....	7
Distinguished Young Alumni Profile: Michelle Witt .....	8
Alumni Profiles: Kris Verdeyen and Chris King.....	9
Alumni Profiles: Derek Trobaugh and Kevin Risden .....	10
Distinguished Young Alumni Profile: Brad Woodcox .....	11
Alumni Profiles: Will Ackerly and Yaw Aning .....	12
Distinguished Young Alumni Profile: Sarah Sanborn .....	13
Alumni Profile: Ben Waite.....	14

## alumni news

Alumni Pass Along Entrepreneurial Advice.....	22-23
Alumni News Feature: Jay Moorman.....	27
Alumni Photo Album .....	28
Class Notes.....	29-31
Alumni Office News & Schedule of Events.....	32

## feature section: A Worthy Investment

Many Happy Returns for Alumni and Parents .....	15-19
Student Perspective: Investing in the Future .....	19
How Our Endowment Doesn't Stack Up .....	20

## campus news

Rob Coons, Kay C Dee Named Honorary Alumni .....	21
Startup Conference Gives Students Ideas for Future .....	22-23
Bright Student Profiles.....	24-25
Taking Note of What's Happening on Campus .....	24-25
Development News: Many Ways to Give Back.....	Inside Back Page
Parting Shot: Campus Beauty.....	Back Page



Page 2



Page 15



Page 22



Page 24

### PUBLICATION CREDITS

**Vice President of Communications and Marketing:** Mary G. Barr  
**Vice President of Institutional Advancement:** Rickey N. McCurry  
**Alumni Association President:** Dan Wolodkiewicz, Class of 1982  
**Office of Alumni Affairs:** James A. Bertoli, Executive Director; Lauren L. Jackson, Associate Director; Kristen Latta (AB, 2011), Graduate Assistant; and Bretta Schriener, Administrative Assistant  
**Office of Communications and Marketing:** Hyung-Jung Chang, Graphic Designer; Terri Hughes-Lazzell, Senior Marketing Manager; Michael Kratage-Dixon, Marketing Manager; Dale Long, Director of Media Relations and Executive Editor; Greg McMullen, Web Manager; Traci Nelson-Albertson, Brand Manager; Alia Shuck, Office Coordinator; Julie Tuttle Davis, Senior Director of Interactive Marketing; and Steve Voltmer, Web Manager  
**Office of Institutional Advancement:** Chris Aimone, Director of Planned Giving; Dawn Allee, Database Specialist; Hugh Baker, Regional Advancement Director; Dick Boyce, Senior Director of Development; Juliana Bradford, Executive Assistant to the Vice President; Tammy Coons, Director of Donor Relations and Executive Assistant to the Board of Trustees; 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; Amber Parkey, Manager of Gift Accounting; Camille Wallace, Special Events Manager and Planned Giving Assistant; and Brandon Zollner, Director of Corporate Relations

**Executive Editor:** Dale Long  
**Contact e-mail:** Dale.Long@rose-hulman.edu  
**Contributing Writers/Designers/Editors:** Herb Bailey, Brian Boyce, Jim Conwell, Carolyn Duffy Marsan, Terri Hughes-Lazzell, Michael Kratage-Dixon, Dale Long, Traci Nelson-Albertson, and Alia Shuck  
**Photographers:** James Bertoli, Lauren Jackson, Larry Ladig, Mike Lanke, Dan Lee/Road Cycling and Cyclocross, Dale Long, Nick McGee/Office of U.S. Rep. Larry Bushon, Terry Miller, Chris Minnick, Nathan Montgomery, Nate Richter, Rod Searcey, Shawn Spence, Tony Valainis and Chris Zamora/NASA

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



### ON THE COVER

Emily (Mitchell) Sontag, a 2005 chemistry alumna, is a post-doctoral biology scholar at Stanford University who has started a three-year research project which could lead to a greater understanding of cellular protein clearance mechanisms. She was among four alumni receiving the Alumni Association's Distinguished Young Alumni Award in 2013. Her profile is featured in the Successful Young Alumni section inside this issue. (Photo by Rod Searcey)



# A Valuable Return

Increasing Endowment, Funding Long-Term Goals will Maintain our Mission to Provide Alumni with 'X' Factor toward Success

by Jim Conwell

Alumni, parents, and our campus community have good reason to be proud of our ranking for 15 consecutive years as the best undergraduate-focused engineering higher education institution in the nation.

We have also been a leader in placing our graduates in high-paying jobs, with starting salaries of our alumni landing No. 7 in PayScale's 2013 ranking of 1,000-plus colleges.

But, are we providing a fair-market value and solid return-on-investment made by our students and their parents? Are we worthy of the debt that follows our young alumni in the early stages of their careers? I am confident that the answer to both of those questions is a resounding "Yes!"

In my long career with Jacobs Engineering, I hired dozens of engineers, many right out of college. I feel I can spot a solid

**“We don’t doubt for a second the value of a Rose-Hulman education. We are a living testament to our mission to provide the world’s best undergraduate science, engineering, and mathematics education in an environment of individual support and attention.”**



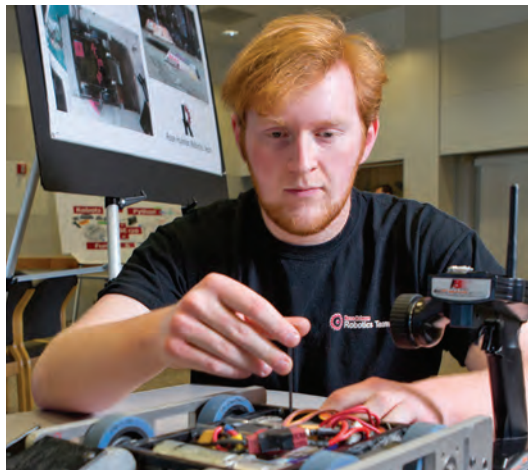
practical engineer from an engineer with that “X Factor.” The “X” equals to their great curiosity, collaborative spirit, and problem solving skills—in addition to having a practical math, physics, and engineering foundation. Rose-Hulman is *the* place for the student with that “X Factor.” Our individualized attention sharpens it and brings it out. Our faculty members know how to nurture it. And, our hands-on, innovative experiences, like Rose-Hulman Ventures, challenge creative students like no other place.

In this *Echoes* issue, you will learn about how a team of students earned first-place honors in IBM’s The Great Mind Challenge–Watson Technical Edition (a learning experience nurtured by Computer

That means our students should have access to state-of-the-art laboratories and world-class faculty. Our professors teach students in a hands-on manner and in small classes, and staff members are also a key ingredient of our caring campus community.

But, as with anything else of quality in today’s society, this personalized education in a caring, high-tech environment comes with a hefty price tag—as many families of our current students can attest. My wife, Angela, and I are parents of a student attending college. We appreciate the serious choices made by families when deciding on quality colleges and universities.

Follow President Conwell  
@RoseHulmanPrez



**VALUE-ADDED EDUCATION:** Professor accessibility, hands-on projects, and outstanding faculty make Rose-Hulman a leader in undergraduate science, engineering, and math education.

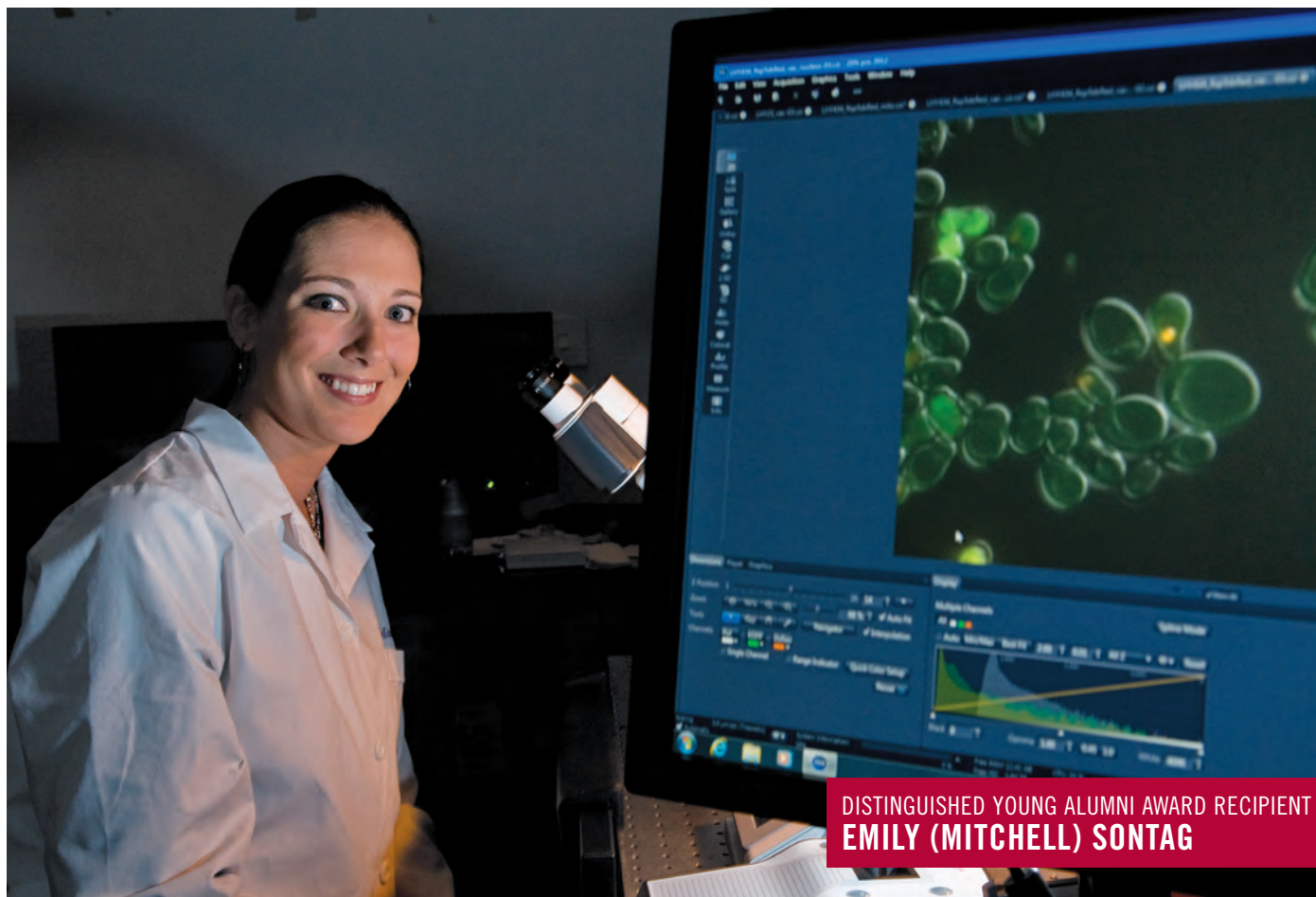
Science and Software Engineering Associate Professor Michael Wollowski); junior biomedical engineering student Erin Campbell is preparing to spend this spring in Zimbabwe through a Whitaker International Scholarship (the second consecutive year one of our students has been bestowed with this high honor); and members of our Rose Innovative Student Entrepreneurs (RISE) group organized a startup conference that had students learning valuable lessons from successful alumni entrepreneurs Michael Hatfield (EE/MA ECON, 1984) and Jason Zielke (ME, 2000/MSEM, 2002), among others.

So as the news media and government officials question—even complain—about the value of higher education these days, we don’t doubt for a second the value of a Rose-Hulman education. We are a living testament to our mission to provide the world’s best undergraduate science, engineering, and mathematics education in an environment of individual support and attention. (Learn more on pages 15-20.)

So, while we believe whole-heartedly in Rose-Hulman’s value, the administration and Board of Trustees are constantly looking for ways to reduce our costs. Also, we have a strategic goal of tripling our endowment by 2019. This will allow us to award additional scholarships and more competitive financial aid packages to provide access to all prospective students desiring our education.

We’re not alone in focusing on this issue. The Obama administration is planning a new federal college ranking system that measures tuition costs, graduation rates, student debt, and earnings of graduates, as well as the percentage of lower-income students being enrolled. This is causing concern among other institutions of higher learning. With the generous support of our alumni and friends to increase our endowment, I know Rose-Hulman will earn a top score in this ranking, too. ■

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



# Alumna Ready to Help Uncover Biochemistry Mysteries

Story by Dale Long/Photo by Rod Searcey

Emily (Mitchell) Sontag likes solving puzzles. So, it seems only natural that the alumna would combine her biochemistry and problem-solving skills in hopes of unlocking mysteries associated with the neurodegenerative disorders tied to Alzheimer's, Parkinson's, Huntington's, and ALS/Lou Gehrig's diseases.

Sontag's post-graduate career has specialized in examining the aggregation of misfolded disease-related proteins, a critical element in understanding the etiology and development of

potential therapies for devastating neurodegenerative disorders. The 2005 Rose-Hulman chemistry graduate recently received the National Institutes of Health's Ruth L. Kirschstein National Research Service Award Fellowship to fund a three-year research project which could lead to a greater understanding of cellular protein clearance mechanisms.

This discovery could also better inform molecular biologists on unknowns in differential protein sorting within the cell, showcase how misfolded disease-

related proteins are processed, and lead to novel therapeutic targets by identifying convergence points in protein quality control pathways.

Her specialization in studying neurodegenerative disorders focused on Huntington's Disease during her doctoral work at the University of California Irvine (2011), and has expanded to include Alzheimer's and other age-related dementia since becoming a postdoctoral research fellow in biology at the Stanford University School of Medicine (February, 2013).

"I'm excited to get started because research in this area needs a kick-start after becoming stalled in recent years," Sontag says. "Contributing to the understanding of diseases and furthering the progression toward therapeutics is my focus."

Remarkably, within a decade after leaving Rose-Hulman, Sontag's research has been featured in articles published in the *Journal of Huntington's Disease*, the *Proceedings of the National Academy of Sciences*, the *Journal of Neuroscience*, and the *Journal of Biological Chemistry*. She has also presented her work at several international research conferences, including the Society for Neuroscience Annual Meeting (2008), World Congress

**"Contributing to the understanding of diseases and furthering the progression toward therapeutics is my focus."**

—Emily (Mitchell) Sontag, CHEM, 2005  
Post-Doctorate Scientist, Stanford

on Huntington's Disease (2009), and Hereditary Disease Therapeutics Conference (2012) as well as presenting for the NIH Nanomedicine Center. She will chair the 2015 International Gordon Research Seminar on Triplet Repeat Disorders in Lucca, Italy.

"A good academic foundation certainly helped, but it has taken a lot of hard work and persistence," she says about her early career success. "Having the opportunity to perform research as an undergraduate at Rose-Hulman was definitely a huge boost. I had invaluable one-on-one experiences with my research mentor, Chemistry Professor Luanne Tilstra, PhD. Those experiences and being educated to think critically about the data gathered in the lab have been crucial throughout my postgraduate work." ■

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



Jim Meyer

## Meyer Gives World-Class Cyclists A High-Tech Edge

As an elite age-group triathlete, Jim Meyer seeks the ultimate performances from his body and the cycling equipment used in competitions throughout the world.

So, he utilized his math and engineering skills to design innovative devices, under his company, Quarq, that are being featured by some of the world's best short- and long-distance cyclists.

Meyer's CinQo power meter pioneered a tool-free, replaceable battery and was one of the first power meters with ANT+ wireless communication. A next-stage model, the CinQo Saturn, is now being marketed worldwide after Quarq became part of SRAM LLC in 2011.

The lighter weight SRAM RED Quarq Power Meter and a close relative, the Quarq for Specialized Power Meter, powered multiple 2012

world championships, including Pete Jacobs' runaway victory at Ironman Hawaii. In 2013, Quarq technology helped sprinter Mark Cavendish win stages of the famed Tour de France.

"Really, we're just touching the fringes on the cutting-edge of technology in cycling, which is a highly technical, highly competitive marketplace," says Meyer, whose company is based in his hometown of Spearfish, South Dakota.

The 1999 mathematics alumnus immersed himself in math competitions and solar car racing, being a driver for Rose-Hulman's Solar Phantom team that placed third in the 1999 Sunrayce cross country race (Washington, D.C. to Orlando). He is a three-time Ironman finisher and won the Solo 30 Men's category at Breck Epic 2012. ■

**HELPING HAND:** Erik Hayes passes along advice to students as associate dean of student affairs.



## Erik Hayes is at Home in Campus Residence Life Role

Story by Dale Long/Photo by Shawn Spence

Erik Hayes took a precarious route to attending Rose-Hulman in the fall of 1993. But once he did, the Montana native never left, literally, serving as a confidante, counselor, and ally to thousands of students during the past 14 years as a member of the institute's residence life staff.

Originally set to attend Duke University, Hayes heeded his father's advice and visited Rose-Hulman during a summer flight layover through Indianapolis. He fell in

love with the serenity of the campus and its community atmosphere.

"It just felt like home," he says.

After earning bachelor (1997) and master degrees (2000) in mechanical engineering from the institute, Rose-Hulman is truly Hayes' home as associate dean of student affairs. He lives in campus housing with his wife, Mel, and two children.

"I adore the campus culture. We have something precious here, and I'm glad to be a part of it," Hayes says. "I love living in a freshman residence hall (Speed Hall) and helping students make the transition from high school to college. It's an important time in a young person's life, and

the residence life staff is always here to help."

As an engineering student, Hayes designed equipment to assist firefighters in their attempts to save forests in his beloved western United States region. He spent many summers throughout college as a firefighter for the U.S. Forestry Service. However, each fall he was eager to be back at Rose-Hulman.

"I wasn't as into engineering as I was into helping people become engineers," he states about the career change. "I feel great that I can help a student at any time and in any situation. They can identify with me, because I was once in their shoes. If a student confides in me that he/she is struggling in thermodynamics class, I can assure them that it's going to be OK. I once struggled with the same class and same professor. I made it and they can, too."

Hayes continues, "We always say 'nobody does it alone.' I enjoy being one of those people that plays a role in a student's quest to walk across the stage at commencement."

Those efforts haven't gone unnoticed. Hayes has received the President's Outstanding Service Award (2007) and Alumni Association's Distinguished Young Alumni Award (2004).

Other alumni playing key roles on Rose-Hulman's staff include:

- Kevin Lanke (ECON, 1997), assistant athletic director for sports information and communications
- Lester (Pete) Mobley (ME 2000; MSME, 2002), plant engineer
- Kyle Rhodes (SE/PH, 2010), assistant director of residence life
- Jake Waggle (CE, 2007), director of facilities operation ■

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

**"We always say 'nobody does it alone.' I enjoy being one of those people that plays a role in a student's journey to earn a diploma in their career field."**

—Erik Hayes, ME, 1997; MSME, 2000  
Associate Dean of Student Affairs

## Orr's 3D Cell Technology Expanding Biosciences

David Orr's diverse background in mechanical and biomedical engineering has resulted in novel 3D cell-based modeling technology that's shedding new light on how cells are tested and studied as part of cancer research.

His South Carolina-based life sciences startup, KIYATEC Inc., is a world leader in segregated 3D co-culture. It serves the pharmaceutical and biotech industry with preclinical evaluation of toxicity and efficacy of new small molecules and biologics. The company's motto is "Discover. Develop. Diagnose."

KIYATEC's 3DKUBE™ technology provides the means for creating advanced in vitro models using human cells in a dynamic and cost-effective platform. Company leadership has also identified patient-specific clinical cancer diagnostics

as a tangible development goal, having undertaken early pilot studies with living tumor biopsies.

Orr, a 1996 mechanical engineering graduate, was named one of "12 People Whose Technology Will Change the World" (*Greenville Business Magazine*) and received the InnoVision Technology Development Award for outstanding leadership, innovation, and technological excellence.

"The future will bring biology and engineering together in a more dramatic fashion. And, we're ready to capitalize on that conversion," he says.



David Orr

KIYATEC resulted from Orr's doctoral research at Clemson University. The company started in 2005, took on its first seed funding in 2008, and gained momentum in 2011. ■

## Keenan Long Still Hitting Home Runs in Sports

Keenan Long admits that he didn't always appreciate the intricate scientific and technical elements behind the bats that helped him with his record-breaking amateur and professional baseball career.

But he does now as a research and development engineer specializing in bats for Easton Sports, a leading innovator in sports equipment.

Since 2012, Long has worked with engineering, test laboratory, industrial design, manufacturing, sales, and marketing staff members to conceptualize new bats based on technological breakthroughs and market needs. Some of those ground-breaking products will be in the hands of hitters throughout the world later this year.

Long, a three-time all-conference catcher with a school record 24 career

home runs, takes ideas from concept and iterates them through initial development, prototyping, and into final commercialization. He directs the efforts of engineering technicians to assist the advanced concept development process.

"This is my dream job," says the 2010 mechanical engineering alumnus. It takes advantage of his rare blend of experience as an athlete and a mechanical engineer. "I knocked on every door I could find and didn't take 'no' for an answer. I knew I had the skills and experience to have a positive impact in the sporting goods business."



Keenan Long

The Sports and Fitness Industry Association presented Long with its Future Industry Leader in 2013. The program identifies and develops the future leaders of the industry. ■

# Witt Assisting Others to Realize Entrepreneurial Dreams

Story by Terri Hughes-Lazzell/Photo by Terry Miller

Michelle Witt jokingly refers to herself as a living billboard for Rose-Hulman, crediting the institute with preparing her for a career far removed from the engineer she originally envisioned.

As director of business development for Expert TA (Mandeville, Louisiana), Witt has helped the young, educational software company prosper in a competitive marketplace. She also provides valuable assistance to startup enterprises—evaluating business plans, seeks potential investors, and advises about marketing and sales. Her efforts have helped entrepreneurs raise more than \$11 million to realize their dreams.

This is the career that Witt came to realize halfway through earning her mechanical engineering degree on campus in 2005. She didn't just want to work in research or product development; she wanted to contribute on a much larger scale and scope.

**"I'm delighted to see the many successful enterprises started by my fellow young alumni. I know how difficult those challenges can be."**

—Michelle Witt, ME, 2005; MSEM, 2008  
Director of Business Development, Expert TA

"I knew I could make a bigger difference and wanted to understand the 'whys' in what I was being asked to do," Witt says.

So, she added a master's degree in engineering management (from Rose-Hulman in 2008) and a MBA from the University of Tulsa (also 2008).

Witt has gained valuable experiences away from the classroom as vice president of business development for Impact Earth and Impact Technologies (2009-2011), chief executive officer of



CrypTec Solutions (2008-2009), and marketing manager of CERTI-Restore Powered by Resonance (2008-2009).

"Every step has been exciting," she says.

Rose-Hulman paved the way for those fun times through intense undergraduate and graduate instruction, working alongside keen student colleagues, and being mentored by quality professors. She also served as an engineering intern for Cook Medical (2006) and worked with a variety of clients as a business intern for Rose-Hulman Ventures (2006).

"The engineering management program allowed me to work at a higher level, and taught me how to communicate to technical groups," Witt says. "At Rose-Hulman, we not only learn to solve problems, but how those solutions are important and affect society."

Witt is enthused to see the growing entrepreneurial spirit in Rose-Hulman's curriculum, encouraging young alumni to impact aspects of the innovation economy. These successes will help increase the institute's global stature.

"I'm delighted to see the many successful enterprises started by my fellow young alumni," she says. "I know how difficult those challenges can be." ■

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

## Verdeyen Advances NASA's Robots to Meet Challenges

A unique, hands-on educational ride as a student on NASA's reduced-gravity aircraft launched Kris Verdeyen's ambitions to develop robotic projects bringing new technology to America's space program.

"It was a right-place, right-time moment. You do the best you can and then you get lucky," says the 2000 electrical engineering alumnus about his opportunity to meet NASA officials after riding on the famed "vomit comet." The reduced-gravity aircraft gives brief near-weightless environments for training astronauts, conducting research, and making gravity-free movie shots.

Verdeyen is a robotics engineer specializing in electronics, batteries, and power systems for NASA's robotics development team. His projects have

included the first human-like robot, Robonaut 2 (R2), which has become a permanent resident of the International Space Station, and Valkyrie, a humanoid robot which may go to Mars to prepare for and work beside the first human explorers. Earlier assignments included the Centaur and Chariot mobile base units, which will help with the future exploration of distant planetary surfaces.

"The enabling technology is becoming cheap enough that anything is possible," says Verdeyen, a NASA employee since 2000. "Working with NASA has given



Kris Verdeyen

me the opportunity to put hardware in space. What can be better than that?"

He joins NASA in encouraging future engineers as a volunteer for the FIRST Robotics program—returning to Rose-Hulman as the Master of Ceremonies for this year's Crossroads Regional. ■

## King Gives Back to Help Hometown Area Prosper

Chris King is committed to having an impact in his hometown area, which afforded him a Lilly Endowment Scholarship to earn a civil engineering degree in 2002.

That's why he had a leadership role in developing a partnership between Rose-Hulman, the City of Shelbyville, and Shelby County, Indiana—the Innovative Model: Positioning Communities for Transformation (IMPACT). Now in its second year, the relationship is providing technical expertise to local businesses, nurturing entrepreneurial startup activities, and encouraging local school students to become future community STEM leaders.

"I believe you need to make the community in which you live a better place," King says. "If you give back, it

ultimately is better for your community, employees, and companies."

King is executive vice president and a co-owner of Runnebohm Construction Company Inc. in Shelbyville. He also serves as president of Mainstreet Shelbyville, is president-elect of the Shelby County Chamber of Commerce, and is a member of the Shelby County Development Board.

"I always intended to return and make a difference in my hometown," King says. He had valuable internship opportunities each summer



Chris King

near Shelbyville, and worked on community design projects in classroom assignments at Rose-Hulman. ■

## Trobaugh Helping Scientists Make Key Viral Discoveries

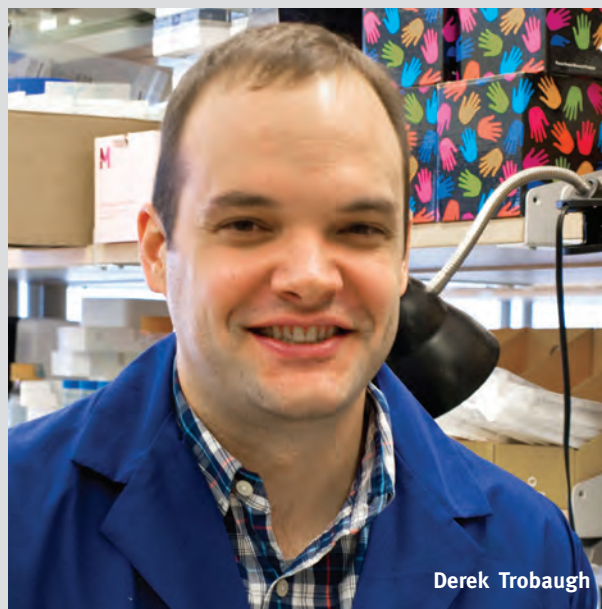
Ground-breaking research that could aid in the development of vaccines and treatments for deadly viral diseases is bringing attention to alumnus Derek Trobaugh and other scientists at University of Pittsburgh Center for Vaccine Research (CVR).

Trobaugh, a postdoctoral scholar at Pittsburgh, was lead author on an article published in the premiere scientific journal *Nature* (February, 2014).

CVR scientists discovered that a mosquito-borne virus that kills about half of the people it infects uses a mechanism to “hijack” one of the cellular regulatory systems of its hosts to suppress immunity. This discovery could aid in the development of vaccines and treatments for eastern equine encephalitis virus, a rare but deadly disease found in the United

States. It also may be useful in efforts to inhibit other diseases, such as West Nile virus, dengue virus, rhinovirus, and SARS.

“For the first time, we have shown how a virus evades its host’s immune system using this particular strategy ultimately exacerbating disease progression,” says Trobaugh, a 2006 applied biology alumnus who went on to earn a PhD at the University of Massachusetts Medical School. “This new discovery could help scientists in the development of antivirals and vaccines against important mosquito-borne diseases,” he adds.



Derek Trobaugh

Trobaugh is among scientists conducting infectious disease research at CVR, recognized nationally for the study of SARS, AIDS, influenza, immunology, and drug discovery. ■

## Computing Duo Impacts Texas Company Projects

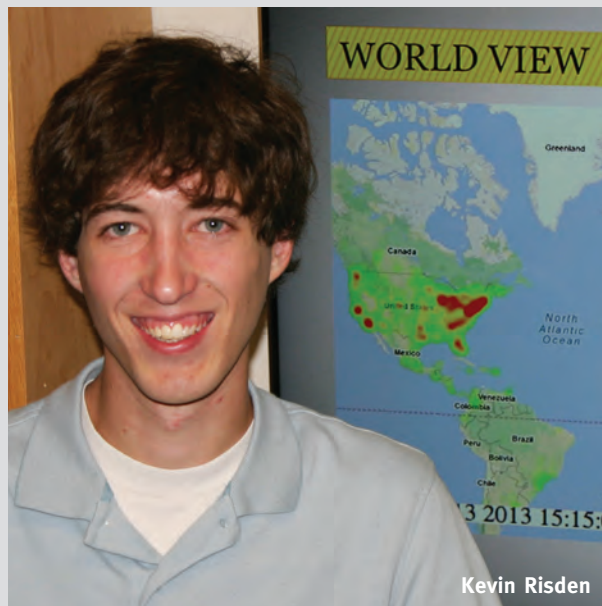
When Avalon Consulting wanted to visualize Big Data concepts in an interesting way, they called upon the expertise of two of its youngest staff consultants: computer science and software engineering alumni Andy Kruth and Kevin Ridsen.

A few days before Pope Francis’ selection in March, 2013, the two came up with the idea to track the traffic patterns at Patheos.com, the world’s leading website for religion and spirituality news, to assess the impact the announcement of the new pope would have on a global basis for Internet traffic.

A heatmap visualization was created from four gigabytes of data compiled in two separate files from the day of and day after the pope’s election, through Hadoop software.

The results showcase how Rose-Hulman alumni can make immediate contributions to their companies. After all, Ridsen accomplished this project within six months of graduating in November, 2012. Kruth earned his degree in 2011.

Ridsen has also served as a technical lead in several Hadoop implementations, developed an impressive demo (that processed 1.2 million e-mails in about 10 minutes), and given presentations to partners and prospective clients for Avalon, based in Plano, Texas.



Kevin Ridsen

Meanwhile, Kruth manages and develops large-scale content management and enterprise web systems for clients, such as Patheos.com and St. Jude Children’s Research Hospital. ■

# Risk-Taking Fuels Woodcox to Silicon Valley Success

Story by Michael Kratage-Dixon/Photo by Terry Miller

Innovation has been the driving force in Brad Woodcox's hopes and dreams as a medical device developer, entrepreneur, and now a consultant to Silicon Valley startups. Each step has been filled with plenty of risk-taking.

Woodcox stepped away from developing medical devices for global industry giants Guidant and Boston Scientific. His novel leads used with implantable cardiac devices have improved and extended the lives of patients suffering from cardiac arrhythmia.

He returned to his first love—entrepreneurship—to serve as director of business development and special projects for Novak Druce Connolly Bove + Quigg LLP and director of investment and operations for HalberdCross, both based in the San Francisco area.

**“[Silicon Valley innovators] have an appreciation for risk, an understanding of what they're good at, and the ability to get out of the way so they don't hold back their startup.”**

—Brad Woodcox, ME, 2004; MSBE, 2009  
Director of Business Development/Special Projects  
Novak Druce Connolly Bove + Quigg LLP

Woodcox focuses on business development, strategic analysis, and technical analysis. His specific duties consist of corporate and industry analysis, valuation, technical analysis of innovations and intellectual property, and management of the startup client sector.

He praises the Bay Area for having “an underlying culture that is difficult to replicate.” The region has a history of innovation and risk-taking that has led to an extensive network of resources.

However, Woodcox cautioned that “the pursuit of new companies is often heavily influenced by the recent successes of local companies. This may result in a narrow focus and



DISTINGUISHED YOUNG ALUMNI AWARD RECIPIENT  
**BRAD WOODCOX**

subsequently missing the next big opportunity. Many of the unique startup ideas that I have seen in recent years have come from companies based outside of the Silicon Valley.”

Rose-Hulman played a key role in Woodcox's personal and professional development. His undergraduate degree came in mechanical engineering (2004), with minors in economics and biomedical engineering, followed by a master's degree in biomedical engineering (2009). Along the way he helped design innovative technologies for Stamper Medical Technologies, a startup by professor Rick Stamper (ME, 1985), at Rose-Hulman Ventures. He earned a master of business administration, with distinction, at the University of Oxford, focusing on business development and finance.

Woodcox completed his undergraduate and both graduate degrees with perfect 4.0 grade point averages. His Graduate Management Admission test score was among the top 1 percent worldwide.

He gave an assessment of the unique skills apparent in Silicon Valley innovators: “They have an appreciation for risk, an understanding of what they're good at, and the ability to get out of the way so they don't hold back their startup.” ■

*Michael Kratage-Dixon is Rose-Hulman's marketing manager.*

## Ackerly Spins Security Startup from Intelligence

Technology that Will Ackerly developed as a National Security Agency (NSA) electronic security expert could better protect Internet users' trusted data and other important information transmitted by e-mail.

The 2004 electrical engineering alumnus founded Virtru with his brother, John, in 2012 and raised \$4 million in seed funding. A growing number of cybersecurity hacks and security breaches have created a ripe market for the Washington, D.C.-based company's software solutions.

Virtru allows people to encrypt e-mails sent to others, revoke messages from recipients after they have been sent, and prevent unauthorized viewers from intercepting messages. It is based on a "trusted data format" technology

framework that Ackerly patented in 2011 while still an employee at NSA, where he worked after graduating from Rose-Hulman.

"I pivoted a little in my own time to come up with a way...to make the [technology] super easy and transparent for people to use," Ackerly recently told *The Washington Post*.

A free version of Virtru's product line was offered late this winter and premium features will be made available later at [www.virtru.com](http://www.virtru.com).

"The fundamental motivator here is... the need to give individuals practical tools



**Will (left) and John Ackerly founded the e-mail security startup Virtru. (Washington Post Photo)**

to exercise their fundamental right to privacy," says John Ackerly. ■

## Entrepreneurship Ignites Aning's Passion to Make a Difference For Others

Like all successful entrepreneurs, Yaw Aning yearns to change lives by bringing new products and services to the marketplace.

That's why Aning co-founded Sticksnleaves, a ruby-on-rails web and mobile application development firm that has helped more than 20 new technology ventures—from small startups, like CoatChex, to large enterprises, like Rolls Royce.

It's a long way from civil engineering, the field in which he earned his bachelor's degree in 2007.

Aning's passion for entrepreneurship grew from spending two years as a Robert Orr Entrepreneurial Fellow, working as a financial analyst for the Indianapolis-based investment bank City Securities. The fellowship program is dedicated to

preparing Indiana college graduates to start and run their own businesses.

With \$180,000 in east coast financing, Aning co-founded his first venture, Pocket Tales, a web-based reading game for kids. Support from the prominent publishing company Houghton Mifflin Harcourt helped make the business a success.

He has never looked back.

"Entrepreneurs that stick with it, make it," Aning says. "Entrepreneurship affords you great freedom, the ability to change the world, and, with the right idea,



**Yaw Aning**

opportunities to create wealth. Engineers make good entrepreneurs because they're really good at solving problems and learning from any failures encountered along the way." ■



# Sanborn's Career Extends into Global Horizons

Story by Michael Kratage-Dixon/Photo by Larry Ladig

Interests in mathematics and science drew Sarah Sanborn to Rose-Hulman, and eventually an engineering career with the Procter & Gamble Company (P&G) that's put her on the global scale.

She has relocated to Frankfurt, Germany, to lead the next major development of Pampers, which was P&G's first \$10 billion brand. The product has been a significant part of her 10-year career with the company, where the 2004 chemical engineering graduate is now a senior engineer.

"Being in Germany has given me a different level of understanding of the people with whom I worked remotely for the last six or eight years," says Sanborn. "A couple of years here will help me to understand differences and nuances in our cultures as we work together."

As a young alumni representative to Rose-Hulman's Board of Trustees, she helped craft the institute's strategic plan, including providing additional global student experiences, increasing global

**"Being in Germany has given me a different level of understanding of the people with whom I worked remotely for the last six or eight years."**

—Sarah Sanborn, CHE, 2004; MSBE, 2006  
Senior Engineer, Procter & Gamble

name recognition and better understanding of cultural diversity. Sanborn has gained a greater appreciation for these efforts in her new international experience.

"I was always interested in studying abroad, but it was a difficult thing to do," she says. "It has been great to see Rose-Hulman grow into a globally-connected institution."

Sanborn's own story is like that of many of her classmates. The Cincinnati, Ohio native planned to attend college in the STEM field and return to work close to home. A campus visit as a volleyball recruit convinced her that Rose-Hulman was the best place to start that journey.

She started with P&G after graduation, and credits Rose-Hulman with giving her a solid foundation for her career success—from her undergraduate courses to earning a master's degree in biomedical engineering in 2006.

"I was interviewing with accomplished engineers four or five months into my

freshman year," she says. "I really benefited from the integrated curriculum program, working collaboratively with my classmates, and having completed design projects throughout my undergraduate career. Those experiences help set me apart."

Sanborn continues to support Rose-Hulman as past-president of the Young Alumni Council, serving on the Department of Chemical Engineering's Board of Advisors, and has hosted Cincinnati-area alumni events. She proudly presented her brother, David (ME, 2011; MSEM, 2013), with his Rose-Hulman engineering management master's diploma last spring. ■

Michael Kratage-Dixon is Rose-Hulman's marketing manager.

# Waite Brings Tech Solutions to Cycling

Works with Rose-Hulman Ventures to Develop App and Web Solutions to Help Riders

By Dale Long

A triathlete with a burgeoning interest in time trialing, Ben Waite now uses his competitive fire and technical knowledge to design the world's most advanced aero-cockpits and other technologies for high-performance bicycles.

Waite, a 2004 mechanical engineering alumnus, is a design engineer for Zipp Speed Weaponry, an industry leader in providing quality cycling components. He designed the Indianapolis-based company's ground-breaking Vuka Stealth, an integrated aerobar system that set new standards for the amount of custom-fit adjustments available on all three axles to achieve a rider's maximum performance.

"It's fun to work with all levels of athletes and see that 'light bulb moment' when they just slot themselves onto a fit on the bike and they're like, 'Wow, I can really feel the difference. This feels great,'" says Waite.

**"Even without being cycling or triathlon enthusiasts, I knew students and Rose-Hulman Ventures' staff would enjoy working on this project."**

—Ben Waite, ME, 2004  
Design Engineer, Zipp Speed Weaponry

However, the new products added up to nearly 2,000 unique fit coordinates. All that adjustability created far too many options for many riders.

"Consumers were overwhelmed and didn't know how to fit the aerobar to their specific needs," says Waite. "We had spreadsheets that we would navigate to help them out, but I realized this was a problem that was tailor-made for a software solution."

That brought about the development of Zipp's Vuka Fit, an iPhone/iPad app and web software tool that determines the recommended setup to achieve a rider's precision-calculated

Ben Waite



position. It had 5,000 unique users within six months of its launch, earned critical acclaim in trade publications, and has driven higher than forecasted sales of the cockpits.

Without software developers on staff, Waite harkened back to his three years as a student intern at Rose-Hulman Ventures for assistance. The program, located at the institute's South Campus, specializes in bringing together outstanding students with technology-based companies. Senior Project Manager Sandor Pethes (CS, 2002) gathered interns to tackle the challenge.

"Even without being cycling or triathlon enthusiasts, I knew students and Rose-Hulman Ventures' staff would enjoy working on this project," says Waite. "Sandor and his team took the initial proposal and mock-up we created and made it a reality. Without fully understanding the end consumer, they would critique the current build with a keen eye and suggest appropriate changes."

The project has been such a success that Zipp officials are discussing other co-development initiatives, appreciating Rose-Hulman Ventures' niche for providing fast, high-quality solutions at a fair-market cost. ■

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

# A WORTHY RETURN



**Alumni, Parents, and Students Reap Benefits from Rose-Hulman Education**

By Carolyn Duffy Marsan

Mike Martin, technical team lead for Appirio, credits his successful career in information technology consulting to the rigorous education he received at Rose-Hulman. He graduated with a bachelor's degree in computer engineering in 2004 and added a master's degree in engineering management in 2006.

"I wouldn't trade my Rose-Hulman education for anything," Martin says. "Yes, the technical education I received was important. But more importantly, Rose-Hulman taught me how to learn and how to be self-sufficient in my career. I didn't just learn how to code in Java. I learned how to teach myself a new programming language."

Martin, a Franklin, Indiana native, cobbled together support from his parents, a financial aid package from Rose-Hulman, and a resident assistant job to pay for his education. He graduated with \$10,000 in loans to repay, but he also had a job as a process engineer with ProTrans International in Indianapolis to help pay expenses while in college.

"The loans weren't too overwhelming because I knew I had a plan to pay them back," Martin says. "Reflecting upon everything I received in return, my six years at Rose-Hulman were 110 percent worth my time and dollars."



**“The value of a Rose-Hulman degree is the four years that our students get to spend learning from and engaging with a world-class faculty that is devoted to undergraduate teaching.”**

—Jim Conwell, Rose-Hulman President



Martin is not alone in considering the return on the investment made in his education. As the cost of attending a private college has increased, more prospective students and their parents are trying to quantify how gaining a Rose-Hulman degree is worth the financial investment.

## Rose-Hulman's Value-Added Proposition

Like many of its private-college peers, Rose-Hulman costs more than \$50,000 a year. Nonetheless, it is considered a good value because it offers a top-notch engineering education that includes close relationships with faculty, opportunities for hands-on learning, and stellar job placement.

For President Jim Conwell, the bottom line of a Rose-Hulman education is the quality of the faculty.

“The value of a Rose-Hulman degree is the four years that our students get to spend learning from and engaging with a world-class faculty that is devoted to undergraduate teaching,”

Conwell says. “Most parents want their children to be challenged in an atmosphere where it’s OK to test a problem and fail, are surrounded by people who understand why they failed, and can show them how to succeed in the future. That level of support starts on the first day at Rose-Hulman.”

“What students are paying for is personalized attention,” agrees Rob Coons, senior vice president and chief administrative officer. “Rose-Hulman offers a hands-on educational experience at the undergraduate level in science, engineering, and math, that’s very hard to find at other institutions.”

At some other engineering schools, students have to wait until they are upperclassmen or graduate students before they have access to cutting-edge lab equipment that Rose-Hulman students use all four years. Students also have the opportunity to solve real-world technical problems through competition teams, senior design projects, and prototyping life-saving medical devices and other engineering consulting projects at Rose-Hulman Ventures.

Another benefit of a Rose-Hulman education is its focus on teaching engineers to work collaboratively. That includes group projects that require students to work in teams as well as more rigorous humanities requirements which teach students to read critically, write clearly, and give oral presentations.

“We teach engineering, but we educate human beings,” explains Jim Goecker, vice president for enrollment management. “The education you receive at Rose-Hulman is beyond engineering. We focus on the human part of humanities, where inside and outside the classroom you will learn to work with other people and to have leadership opportunities. This translates to engineers who are able to move into management positions.”



**“The loans weren’t too overwhelming because I knew I had a plan to pay them back... My six years at Rose-Hulman were 110 percent worth my time and dollars.”**

—Mike Martin, CPE, 2004/MSEM, 2006  
Appirio Technical Team Leader

**“[Our sons’] education is going to place them into a financially stable situation...Making their dreams come true is my responsibility as a parent.”**

—Stephen Morris, father of Dustin (senior) and Austin (sophomore)



## Rigorous Coursework Sets Up Success

The rigor of a Rose-Hulman education is what sets its graduates up for success, according to Fred Carlson, a Monroeville, Pennsylvania, illustrator whose son, Rick, graduated in 2011 with a mechanical engineering degree. Rick is now a lieutenant and engineering officer for the U.S. naval nuclear propulsion program.

“All of the students who survive a Rose-Hulman education are on a trajectory to excel in the workforce,” Carlson says. “They’re prepared. They’re responsible. Companies don’t have any regrets about hiring Rose-Hulman graduates because of how well rounded they are.”

Carlson believes Rick was well prepared for the Navy, where he is serving with officers educated at the nation’s top engineering schools. From that group, Rick was chosen as a sword bearer for his graduation from officer candidate school, a sign of respect.

The scholarship and financial aid package Rick received from Rose-Hulman was a few thousand dollars less than offers from other engineering schools. However, for Fred Carlson, one key Rose-Hulman benefit was that Rick could complete his engineering degree in four years. Also, Rose-Hulman’s quarter academic system allowed Rick to squeeze in more courses during the school year than students attending a semester-based college.

“I felt like Rick got six years of education in four years at Rose-Hulman,” Fred Carlson said. “I felt as a parent that Rick was getting more than his money’s worth in terms of the content and the personal rapport he had with the professors.”

—Fred Carlson, Parent of 2011 Alumnus



**FAMILY INVESTMENT:** Stephen and Dee Ann Morris supported sons Austin (left) and Dustin to attend Rose-Hulman.

## Close-Knit Community Opens Opportunities

Carrie McDonald, a 2012 chemical engineering alumna, speaks fondly of the close-knit community she found on Rose-Hulman’s campus. A Mason, Ohio native, McDonald wanted to attend the institute from the minute she set foot on campus.

“It was so unique,” she says. “There wasn’t just one clique-y type of person who went to Rose-Hulman. You would see all different types of people talking to each other on campus, and everybody seemed to know each other. That really appealed to me. I felt as if I were at home.”

McDonald took full advantage of Rose-Hulman’s extra-curricular activities. She served as president of the Alpha Chi Sigma chemistry honors fraternity, gave campus tours for the admissions office, led the Student Alumni Association, and educated new members of the Chi Omega sorority.

“The small size of the college and all the academic support you receive allows you to get more involved,” she says.

Though she graduated with \$30,000 in loans, McDonald says her experience at Rose-Hulman was worth the investment. By October of her senior year, she had six job offers and accepted a position with Archer Daniels Midland.

“Within five months of being on the job, I was supervising a project and other employees,” McDonald states. “Rose-Hulman’s education—requiring determination, a hard work ethic, and critical thinking—helped me get there.”



**“Rose-Hulman is expensive, but it’s worth it because our students graduate, have jobs, and high-earning potential.”**

—Stefani Vande Lune, AB, 2006; MSBE, 2008



## Graduates Are in High Demand

Stefani Vande Lune adds that Rose-Hulman's educational focus on tackling complex problems was a solid foundation, even as she changed her career path from medicine to law.

A Kokomo, Indiana, native, Vande Lune chose Rose-Hulman because she thought that an applied biology major would be an advantage when applying to medical school. She earned that bachelor's degree in 2006. Yet after completing a master's degree in biomedical engineering at Rose-Hulman in 2008, Vande Lune decided to become an attorney instead.

"At Rose-Hulman, you get a solid technical education and apply it to real-world problems," she says. "The mentality at Rose-Hulman was a better fit for me. I appreciated being in an environment where everybody had a rigorous curriculum, and I met very interesting people. It was amazing to be surrounded by that kind of talent."

Vande Lune graduated from George Washington University Law School in 2011 and works as a clerk for the U.S. Court of Appeals for the federal circuit. She plans a career as a patent attorney, where her technical background will be valuable.

"Rose-Hulman is expensive, but it's worth it because our students graduate, have jobs, and high-earning potential," Vande Lune states. "My younger brother went to Rose-Hulman. He got a four-year degree, and is making almost \$100,000 a year as a 21-year-old. That's the kind of return you should be looking for if you're going to invest that kind of money for your education."

**"Rose-Hulman offers a hands-on educational experience at the undergraduate level in engineering, math, and science that's very hard to find at other institutions."**

—Rob Coons, Senior Vice President/  
Chief Administrative Officer



## Families Make an Investment

Cost may be the biggest concern of potential students and their families. But once they visit campus and see the engaged faculty, advanced lab equipment, and close-knit community in person, they feel more comfortable investing in a Rose-Hulman education.

"Once potential students sit in on our classes, they find a way to make it work," Coons says. "For any student worried about taking out loans to pay for a Rose-Hulman education, I would say that it's less than most first car loans," Coons said. The average student debt for Rose-Hulman graduates is \$28,000. "That car will last only a few years, but an education lasts a lifetime."

Delbert Wray of Salem, Indiana, says that education was worth the loans that he and his wife, Kim, are still paying so that their son, Justin Perry, could earn a civil engineering degree in 2010. He now works as a project engineer at Infrastructure Engineering Inc. in Indianapolis.



**STATE-OF-THE-ART EQUIPMENT:** Students get to use advanced equipment in hands-on projects throughout their college careers. (Photo by Shawn Spence)

"Were the sacrifices big? Sure. But when I look at what Rose-Hulman did for our son, it was well worth the cost," Delbert says. "I see a young man with more confidence than I ever thought I would see. Rose-Hulman taught Justin what he could accomplish for himself."

Stephen Morris, a manager with the U.S. Postal Service in Indianapolis, has sacrificed to send his two sons to Rose-Hulman. Dustin, a senior chemical engineering student, benefitted from a full-tuition community scholarship. Sophomore Austin is pursuing a mechanical engineering degree. He will graduate with \$30,000 in loans and will live at home for the next two years to save money.

"Their education is going to place them into financially stable situations," Stephen Morris says. "They are going to

graduate with excellent jobs, which will give them the ability to enjoy their lives. Making their dreams come true is my responsibility as a parent. I didn't have the same opportunities."

### Students Have Plentiful Job Offers

For many students and parents, the return on the investment in a Rose-Hulman education is in the multiple high-paying job offers that students receive during the senior year of college. Last year, salaries offered to Rose-Hulman seniors reached as high as \$115,000 a year.

"Our average starting salary for the class of 2013 was \$63,075, and our placement rate was 98 percent by November 1 following graduation," Coons says. "Our students are in an excellent position to repay their debt. We have one of the lowest default rates in the country."

Ed Becker, a substitute teacher in Indianapolis, has no regrets about sending his son, Joel, to Rose-Hulman to study electrical engineering, even though it was more expensive than other options. Joel has already accepted a job with a semiconductor design firm. He will graduate with \$20,000 in debt, but will be well prepared to pay back his loans.

"We felt like Rose-Hulman was worth it," Ed Becker says. "Joel has grown as a person. He's more outgoing now than when we sent him there. He has some good friendships, and already has a job. So, as parents, we've been really happy with Rose-Hulman."

To keep Rose-Hulman affordable for future generations, the institute has embarked on a strategy to triple its endowment over the next decade. (*See story on page 20.*) This money will provide scholarships and more generous financial aid packages.

"We are committed to having Rose-Hulman remain just as good of a value—just as good a return on investment—as it was 10, 20, or 30 years ago for our alumni, who used the knowledge and skills they gained here to pursue successful careers," Conwell said. ■

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

## FROM A STUDENT'S PERSPECTIVE: Inviting Environment Attracted Johnson-Bann to Campus



Grace Johnson-Bann

Nashville native Grace Johnson-Bann turned down a scholarship from the University of Tennessee to attend Rose-Hulman, where she is a senior majoring in biomedical engineering.

As valedictorian of Hunters Lane High School, Johnson-Bann initially wanted to attend a university with a large, diverse student body. But then she visited Rose-Hulman and was impressed by its collegiality.

"The environment seemed more collaborative and inviting than other engineering schools that I visited," Johnson-Bann says.

She was sold on Rose-Hulman after spending a weekend on campus through a program organized by members of the student chapter of the National Society of Black Engineers (NSBE).

"It was good for me to come here and realize that even though there are not as many African Americans, they are still visible and friendly," she says. "I realized I was not going to be isolated, even though it's a smaller population."

Johnson-Bann played on Rose-Hulman's varsity tennis team, joined the Bowling Club team, and played flute in the pit orchestra for the drama club's fall production. She also has been a leader in the NSBE chapter and helped organize a campus diversity program.

Having interned at Cook Medical and the Indian Health Service, she is exploring career and graduate school options in the area of global health.

Johnson-Bann says Rose-Hulman was worth the investment because it taught her to learn at a fast pace.

"The professors are here to teach you. You are their focus. They are going to know your name, and they are going to remember you," she says. "That helps because they know where you are at in class and the concepts that you are struggling with. They are readily available for help." ■

—Carolyn Duffy Marsan



# How Our Endowment DOESN'T Stack Up

Rose-Hulman's undergraduate engineering program may be ranked No. 1 among undergraduate engineering colleges in *U.S. News & World Report's* College Guide, but the institution's endowment is ranked No. 301 by the *Chronicle of Higher Education*.

This is far below its rival institutions. (See chart.)

Valued at \$163 million in 2012, Rose-Hulman's endowment limits the school's ability to recruit the highest quality students by awarding competitive scholarship and financial aid packages, according to administrators.

"We're competing for students against institutions with anywhere from three to more than 100 times larger endowments," says Rob Coons, senior vice president and chief administrative officer. "We allocate \$33 million in financial aid each year, with 87 percent of those funds coming from our operating budget."

Rose-Hulman's goal is to increase the endowment three-fold over the next decade—covering a student's need-based financial aid and making more scholarships available to attract the best and brightest throughout the world.

Coons points out that an endowment topping \$500 million, as targeted, would help Rose-Hulman meet its enrollment management goals, including attracting a more diverse student body—reflecting society and industry demand.

With Rose-Hulman meeting only 65 percent of a family's total demonstrated need, "we lose excellent students all the time to our rival institutions (meeting 80 percent or more)," says Jim Goecker, vice president for enrollment management.

"Our competition—Purdue University, Massachusetts Institute of Technology, Carnegie-Mellon University, and Case Western Reserve University—have significantly larger endowments than we do. This impacts our ability to recruit students who also apply to those schools," Goecker adds. "The harsh reality is that there are students who would thrive on our campus, and want to come here, but don't because they simply can't afford it."

Increasing the annual financial aid fund from \$33 million to \$40 million per year, Goecker asserts, would allow Rose-Hulman to keep 50 students each year from choosing rival institutions. The endowment needs to grow by \$150 million in order for

## 2012 TECHNOLOGICAL INSTITUTION ENDOWMENTS

INSTITUTION	RANKING	ENDOWMENT (in millions)
Stanford University	No. 4	\$17,035
MIT	No. 6	\$10,149
Purdue University	No. 33	\$1,916
Georgia Tech	No. 44	\$1,608
Case Western Reserve	No. 45	\$1,600
Carnegie Mellon	No. 72	\$987
Cooper Union	No. 117	\$641
Rochester Inst. of Tech.	No. 121	\$627
Bucknell University	No. 126	\$599
Rensselaer Poly Inst.	No. 132	\$583
Drexel University	No. 138	\$555
Worcester Poly Inst.	No. 187	\$358
Olin College of Eng.	No. 194	\$338
Harvey Mudd	No. 245	\$225
Illinois Inst. of Tech.	No. 284	\$180
<b>ROSE-HULMAN</b>	<b>No. 301</b>	<b>\$163</b>

*Source: The Chronicle of Higher Education, 2012 rankings*

its investment earnings to provide that additional \$7 million in scholarship aid.

"With 200 more amazing kids on this campus (after four years), we would be an even better institution than we are now—academically, culturally, and in terms of diversity," he says. "We need more scholarship money so we can get our share of the very best students from all corners of the world."

Goecker points out that last year Rose-Hulman accepted applications from 47 African American students. Only 12 eventually enrolled. "I guarantee that every one of the 35 applicants we lost had a full-tuition opportunity at a fine institution somewhere else," he says.

If Rose-Hulman succeeds in tripling its endowment and boosts scholarships and financial aid as planned, administrators say the college will be even more attractive to corporate recruiters.

"Our diversity is average when compared to other engineering schools. We aspire to be more than that," Goecker states. "We want to lead. We want to show companies that if they want diversity, they should come to Rose-Hulman to recruit the next generation of scientists, engineers, and mathematicians." ■

—Carolyn Duffy Marsan



**STEADY LEADERSHIP:** Rob Coons served as interim president for 2012-13 and is leading the implementation of the institute's strategy plan. (Photo by Chris Minnick)

## Coons, Dee Recognized as Honorary Alumni

The significant contributions of award-winning administrator Rob Coons and Professor Kay C Dee, PhD, have been recognized with honorary alumni status by the alumni association.

Coons, senior vice president and chief administrative officer, has held various finance and management-level positions since joining Rose-Hulman in 1989. He served as interim president from April 2012 to May 2013, and chief administrative officer, a position to which he was promoted in 2005.

In this administrative role, Coons has played a key leadership role in organizing the framework for the formulation of the goals and strategies in the institute's Strategic Plan 2014-2018. Many of these strategies are now being implemented through Coons' guidance.

Coons received the President's

Outstanding Service Award in 2010. He is currently serving as vice president of the Indiana Risk Management Association's board of trustees, a member of the UAP Clinic's board of managers, and a member of Indiana TechPoint's board of directors.

He is a past president of the Indiana Association of College and University Business Officers and has held various committee appointments on the Central Association of College and University Business Officers during his tenure. He is a past treasurer and finance committee chair of the United Way of the Wabash Valley, a past president of Vigo County Lifeline, and is a graduate of Leadership Terre Haute.

Coons holds a master of business administration degree from Indiana State University, a bachelor's degree in business from Indiana University-East, and is a graduate of the Harvard Graduate School of Education Institute for Education Management. He was awarded the Distinguished Alumni Award from IU-East in 2013.

Dee is the associate dean for learning and technology and a professor of applied biology and biomedical engineering. She joined the faculty in 2004 because of Rose-Hulman's focus on undergraduate teaching. In 2007, she served as the founding director of the Rose-Hulman Center for the Practice and Scholarship of Education.

Dee routinely leads workshops on teaching and learning, and is part of the team that provides Rose-Hulman's annual Making Academic Change Happen (MACH) workshop. She has received numerous awards for teaching, research, and mentoring. Her teaching excellence was featured in the last *Echoes* issue. ■



**CARING EDUCATOR:** Kay C Dee, associate dean of learning and technology, is an award-winning biomedical engineering professor. (Photo by Shawn Spence)

Alumni Entrepreneurs  
Encourage Students to

# DREAM BIG

at Startup Conference

Story by Dale Long/Photos by Larry Ladig



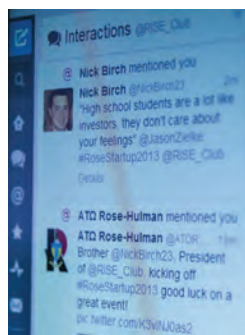
**LESSONS LEARNED:** Cyan Inc. President Michael Hatfield was a keynote speaker at this year's conference.

Rock-star alumni urged innovative students to chase their entrepreneurial aspirations while passing along valuable advice during the 2013 Rose Startup Conference. The event, organized by members of the Rose Innovative Student Entrepreneurs (RISE) organization, brought together present and future leaders to explore business opportunities.

One of the remarkable success stories is Michael Hatfield (EE/MA ECON, 1984), whose high-speed fiber-optics systems startup was acquired by Cisco for \$7 billion. His fourth successful startup enterprise, California-based Cyan Inc., is a publicly-traded technology company that helps service providers and other network operators around the world scale their networks, reduce costs, and accelerate service delivery.

"Entrepreneurs find ways to create new things," Hatfield advises. "Anyone can make it. You just need to claim your domain in the marketplace."

That's what Hatfield did in capturing the technology market for communications service providers. His enterprises were Calix



and Cerent, and he was a team leader for Advanced Fibre Communications, a startup which became a publicly-traded company. He has also had management roles at DSC Communications and Ameritech.

"None of my enterprises may have been household names, but they were in demand in their markets," says Hatfield. Later, he adds, "Rose-Hulman was my secret bullet. My education

gave me the ability to look at problems critically and work in teams—two valuable areas if you're going to make it as a startup."

Jason Zielke (ME, 2000/MSEM, 2002) has also found a niche market. He leads Precise Path Robotics, an Indiana-based technology company whose robotic greens mower is among products focused on the lucrative golf course market.

Prior to joining Precise Path, Zielke was an Innovation Fellow assisting in the development of projects for Rose-Hulman Ventures; founded Enjoin, a software development company; and consulted for numerous startup technology companies in the areas of product management, market positioning, and finance. He also was an application engineer at Allison Electric Drive, where he helped successfully launch General Motors' first hybrid technology platform.

"Entrepreneurship takes passion, the ability to listen, and executing creative ideas," says Zielke, Precise Path Robotics' President and Chief Executive Officer. "Seeing the paths alumni have taken to success should help students know where they're headed. It also shows that it can be done. We did it and they can too."

Hatfield and Zielke were the conference's keynote speakers.

## \$1M Lilly Endowment Grant Encourages Entrepreneurship

A \$1 million grant from Lilly Endowment Inc. will provide students with the knowledge, skills, and experiences to help make Indiana a hotbed of innovation and entrepreneurship activities.

An advanced technical entrepreneurship program will create an innovative entrepreneurial living and learning community for up to 50 freshmen each year. Other students will be encouraged to take upper-level technical entrepreneurship courses and become involved in co-curricular activities, such as the RISE student entrepreneurial club.

Also, the Entrepreneurial Intern Program will be enhanced by increasing collaborations with entrepreneurs across Indiana and partnerships with alumni, local communities, Indiana businesses, and other educational institutions.

"We wanted to hear from the best," says conference organizer Nick Birch, a senior mechanical engineering student. "Students got great advice from people with valuable lessons learned. The fact that they're alumni adds even more inspiration."

Other conference alumni contributors were:

- **Yaw Aning** (CE, 2007), co-founder of Sticksnleaves, who has helped clients launch more than 20 new technology ventures for small startups and large enterprises.
- **Jim A. Coles** (EE, 1969), co-chair of Taft's Intellectual Property Practice and an influential leader in technology and business issues.
- **Dustin DuBois** (CHE, 1992), an Ice Miller LLP partner who assists clients with complex legal issues involving privacy laws and regulatory frameworks.
- **Jonathon Fruchte** (ME, 2005/MSEM, 2006), portfolio manager for Elevate Ventures, an active angel and seed fund investment firm.
- **Charlie Key** (CPE 2007), co-founder of Modulus, a startup that's focusing on building the best Node.js hosting solution. ■

*Dale Long is director of media relations and executive editor.*



**ENCOURAGING STARTUPS:** Visiting Professor Cory Hixson is developing "The Startup Class," a freshman-level course on innovation and entrepreneurship. He is co-author with Rose-Hulman educators on the Innovation Canvas educational concept.



**ENCOURAGING ENTREPRENEURISM:** Precise Path Robotics President/CEO Jason Zielke (ME, 2000; MSEM, 2002) exchanges ideas with students attending this year's event.



**HELPFUL ADVICE:** Former Beckman Coulter Life Sciences President Scott Atkin (left) and Sticksnleaves Co-Founder Yaw Aning (CE, 2007) pass along tips during a panel session.

# Bright Futures

## Enterprising Students Earn National, Global Recognition for Good Deeds

Erin Campbell's career is ready to take flight after earning a Whitaker Global Scholarship, one of the nation's top global biomedical engineering encouragement programs. She will spend 10 weeks this spring as an intern at the Mashoko Christian Hospital in Zimbabwe.

"It is an opportunity of a lifetime," says Campbell, a junior who has a passion to help people, especially children. She has completed more than 300 hours of community service during her three years on campus.

Campbell's global interests became apparent early in her freshman year when she proposed a Chinese language and culture course to prepare Rose-Hulman students for career opportunities in China. A weekly seminar was popular with students and non-credit language classes followed the next year.

"Erin is a person who sees a need, and acts on that need," says Ella Ingram, PhD, associate professor of applied biology.



Erin Campbell

"She is a doer, a careful planner, and so delightful to work with that others join her initiatives."

Campbell hopes to attend medical school and eventually help those in third-world countries. ■

### TAKE NOTE

#### DR. CORNWELL GOES TO WASHINGTON

Vice President for Academic Affairs Phillip Cornwell, PhD, joined innovator/FIRST Robotics founder Dean Kamen in an effort to educate Capitol Hill about how private-sector organizations can engage and retain youths' STEM interests. These ideas were presented in testimony before the House of Representatives' Science, Space, and Technology Committee's Subcommittee on Research and Technology.



#### HIGH-TECH LEADER TO ADDRESS SENIOR CLASS

Freescale Semiconductor President/CEO Gregg Lowe (EE, 1984) will address the Class of 2014 at commencement on May 31. Lowe was listed among the top 100 STEM leaders in 2013 and has spent 30 years in high-tech ventures in America and Europe. He formerly was a vice president for Texas Instruments. Robert L. Wilkins (CHE, 1986), newly appointed U.S. Court of Appeals judge, will join Lowe in receiving honorary degrees. (See story on page 29.)



## STENGER BRINGING ENTREPRENEURSHIP IDEAS TO CAMPUS AS INNOVATION FELLOW

Katelyn Stenger's interests in social entrepreneurship and sustainability have earned the mechanical engineering student a prestigious role as a University Innovation Fellow. This national program empowers select engineering student leaders to catalyze more innovative and entrepreneurial activities on their campuses.

One of 22 new University Innovation Fellows, Stenger played an essential role in launching a new public online platform, [universityinnovation.org](http://universityinnovation.org), featured by the White House.

"Entrepreneurship is beginning to create an impactful presence on campus," says the junior.

**"(Stenger) has the skills to lead others to bring change on her campus, community, and world."**

—Humera Fasihuddin, Director University Innovation Fellows Program



Katelyn Stenger

Stenger hopes to accentuate the entrepreneurial movement by promoting and establishing courses, programs, and resources that integrate entrepreneurship into the campus' educational culture. Specifically, she would like to work with administrators and faculty members to establish a Maker Space, a workspace where students could explore, experiment, and collaborate

on creative and innovative startup enterprises.

"Katelyn is someone who embodies a strong innovative spirit to make a difference through engineering," says Humera Fasihuddin, who leads the University Innovation Fellows program. "She has the skills to lead others to bring change on her campus, community, and world." ■

## BALZ USES SKILLS, CREATIVE SPIRIT TO GIVE WHEELCHAIRS SECOND LIFE

Ingenuity comes from inspiration. When Tim Balz found high school classmate Steven Scholl struggling to use a wheelchair to get down school hallways, he knew his technical skills could make a difference in someone's life.

So, with the help of some friends, Balz modified a discarded motorized wheelchair for Scholl. It was the springboard for his non-profit Freedom Chairs organization, which, after three years, has provided more than 80 refurbished customized electric wheelchairs to youths and elderly persons who can't afford them.

"Freedom Chairs shows how people with technical skills can assist others in need. It gave my interests in robotics a purpose," says Balz, a freshman mechanical engineering student.

Balz's efforts haven't gone unappreciated. He received the 2012 Hall of Fame Award from American Red Cross of Greater Indianapolis. Five Hour Energy and other national companies support Freedom Chairs through grants, and have featured Balz in promotional videos.

His experience with wheelchair construction has helped Balz as a student intern at Rose-Hulman Ventures. ■



Tim Balz

## STUDENTS RANK NO. 2 FOR BEST MEMORY

Rose-Hulman students ranked second in memory among American colleges and universities, based on an analysis of human cognitive performance from game play data conducted by Lumosity. MIT ranked first and behind us on the list were the University of Chicago, Washington University-St. Louis, Harvard University, and Carnegie Mellon University.

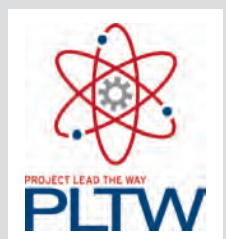
## ATHLETIC TEAMS HAVE STRONG FALL SEASONS

A conference football championship, upset of the nation's No. 1 team in men's soccer, and a NCAA qualifying women's cross country runner marked another successful fall sports season. The soccer team advanced to the Sweet 16 round of the NCAA tournament for the first time. Senior Ryann-Rebecca Montgomery was the Heartland Collegiate Athletic Conference cross country champion and became the second woman runner to qualify for the nationals.



## INSTITUTE IS PLTW AFFILIATE PARTNER

Rose-Hulman is the newest affiliate partner for Project Lead The Way (PLTW), supporting growth in K-12 STEM programs throughout Indiana. "STEM education has never been more crucial for our country, and we are thrilled to have Rose-Hulman to further our important work," says PLTW President/CEO Vince Bertram. Associate Professor Christine Buckley, PhD, will be our PLTW affiliate director.



# Bailey Challenge

By Professor Emeritus Herb Bailey, PhD

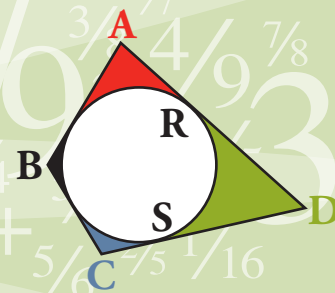
**I WAS PLEASED** that the fall challenge had more than 90 solvers—a record. Rewarding your efforts, the winter challenge is a bit more challenging.

## WINTER PROBLEM NUMBER 1

The average of the ages for Amy, Ben, and Chris is nine when considering all ages are integers. Four years ago, Chris was the same age as Amy is now. Ben's age three years from now will be two-thirds of Amy's age three years from now. Find their present ages.

## WINTER PROBLEM NUMBER 2

A circle is inscribed in the quadrilateral ABCD as shown (not to scale). The sides AB, BC, and CD have lengths measuring eight, five, and 10, respectively. Find the length of side DA. Hint: The two tangents to a circle from an exterior point have equal length. For example  $DR=DS$ , where R and S are tangent points.



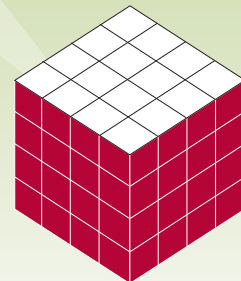
## WINTER BONUS

**A:** You have one very sturdy coconut and you know that it will break if dropped from the 100<sup>th</sup> floor of a tall building. You want to discover the lowest floor that it will break. Let M be the minimum number of drops that could be required to be sure that you can find this lowest floor. Explain why  $M=99$ .

**B:** How many drops are required to determine this lowest floor if you have two coconuts? Hint: It is less than 20. Also you may try the problem with a shorter initially given break height. For two coconuts and seven stories, the answer is three drops.

**SOLUTION TO FALL BONUS PROBLEM:** A cube has edges of length  $n$ , where  $n$  is an integer. The figure shows the cube with  $n = 4$ . Two faces with an edge in common are painted red. The cube is then cut into  $n^3$  smaller cubes with edge length 1. Let  $n_0$ ,  $n_1$  and  $n_2$  be the number of cubes with exactly zero, one and two red faces, respectively. If  $n_0/n_2 = 1,600$  then find  $n_1$ .

Those with two red faces are along one edge, thus  $n_2 = n$ . Those with one red face are on the two red faces, less those on their edges. Therefore  $n_1 = 2n^2 - 2n$ . Those with no red faces are the remainder. Therefore  $n_0 = n^3 - n_1 - n_2 = n^3 - 2n^2 + n$  and  $n_0/n_2 = n^2 - 2n + 1$ . Hence  $(n-1)^2 = 1,600$  and  $n = 41$ . Therefore  $n_1 = 2n^2 - 2n = 3,280$ .



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

## Congratulations to the following solvers of the fall problems:

**ALUMNI:** P. Gottfried, 1949; C. Hirschfield, 1954; D. Camp, 1955; B. Hall, 1955; A. Sutton, 1956; H. Brown, 1957; D. Bailey, 1959; R. Archer, 1961; J. Ray, 1961; J. Tindall, 1961; J. Snyder, 1962; R. Lovell, 1963; S. James, 1965; R. Dutton, 1969; M. Jackson, 1969; K. Metz, 1969; J. Born, 1970; S. Jordan, 1970; D. Jordan, 1971; T. Nelson, 1972; B. McNiece, 1973; S. Sims, 1974; M. Bailey, 1976; J. Jordan, 1976; J. Schroeder, 1976; J. Matthews, 1977; S. Van Dyke, 1977; P. Van de Motter, 1977; D. Davis, 1978; T. Greer, 1978; R. Priem, 1979; R. Joyner, 1980; B. Pease, 1980; J. Farrell, 1981; S. Nolan, 1981; R. Roll, 1981; K. Borgman, 1982; G. Fondaw, 1983; S. Hall, 1983; J. Marum, 1983; K. Shafer, 1983; L. Cramer, 1986; K. Pietrzak, 1986; D. Price, 1986; D. Johnson, 1987; M. Lancaster, 1987; M. Ley, 1987; T. Phelps, 1988; S. Sarma, 1988; E. Cegielski, 1990; D. Gossert, 1990; B. Burger, 1991; P. Kimmerle, 1991; J. Zamora, 1991; E. Feustel, 1992; R. Antonini, 1993; G. Simons, 1993; C. Rettig, 1994; N. Wiley, 1994; B. June, 1996; M. Pilcher, 1998; P. Swickard, 1998; E. Lara, 1999; J. Mathison, 1999; K. Casey, 2001; A. Engle, 2001; C. Hayden, 2001; W. Hubbell, 2002; S. Tourville, 2005; K. Hassler, 2006; J. Przybylinski, 2006; D. Schluneker, 2008; A. Vogt, 2010; K. Pence, 2012; and E. Elkstein, 2013

**FRIENDS:** A. Andrews, B. Burchett, T. Cutaia, T. Davidson, R. Golliver, L. Gossert, H. Griffin, J. Hasselbring, J. Ley, J. Marks, L. Puetz, M. Rosene, J. Vaughn, D. Voltmer, and E. Wern



ALUMNI AWARD WINNER:  
Jay Moorman (CPE, 1994)  
received the 2013 Jess Lucas  
Alumni Leadership Award.

## Moorman Stays on High-Tech Edge

Leads Innovative Team to Solve Industry Problems By Dale Long

Jay R. Moorman may not be the most recognizable person in the high-tech world, but his team's innovative and low-cost solutions to complex problems are highly sought after by governmental agencies and Fortune 500 companies throughout the world.

The 1994 computer engineering alumnus is the technical and strategic leader of the Wireless Protocol Analysis Laboratory for LGS Innovations, the

independent research and development subsidiary of Alcatel-Lucent and formerly part of Bell Laboratories. He has been a key member of the system engineering, architect design, and product development team for a suite of processing and protocol analysis tools based on a core network-analysis architecture.

Moorman's dynamic team of 70 engineers (all with master or doctorate degrees) is customer-focused, technical-

savvy, and results-driven. It has the ability to innovate and deliver unique solutions from research through operational products.

"People call upon our expertise when project budget dollars are tight and the best cost-conscious solution is required," he says.

Those functional areas may include software and algorithm development, hardware design and implementation, and system integration and deployment.

Key software development areas include industry-leading software protocol development and advanced signal processing; hardware development features novel antenna and RF chip designs, and custom aperture solutions; and system developments that have custom prototypes for survey, collection, processing, and communications.

Many of these technical innovations have led to patents, publications, and international conference presentations for Moorman and his team members.

"It's very challenging work and we're always working on the cutting edge," says Moorman, who is based in Florham Park, New Jersey. "Most of our projects don't become public for five to 10 years, if ever. We're a unique set of highly-technical people who earn our customer's trust with each project. That great reputation has helped us overcome challenging economic hard times in our industry."

Moorman has more than 15 years of experience in 2G, 3G, and 4G wireless protocols. He has been part of LGS Innovations since 2004, and previously worked for Lucent Technologies/Bell Labs (2001-2004) after earning his doctorate in electrical engineering from the University of Illinois (2001).

At Rose-Hulman, Moorman received the Herman A. Moench Distinguished Senior Commendation (1994) and was a two-year resident assistant. He earned the 2013 Jess Lucas Alumni Leadership Award, recognizing the career achievements of former residence life staff members. ■

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

# ALUMNI PHOTO ALBUM



**CALENDAR ENTRY:** A photo of New York's Hadley Bow Bridge, by David Honan (CE, 2005), is featured in ASCE's Bridges 2014 calendar (October).

**LEADERSHIP EXCHANGE:** Jeff Myers (EE, 1987; MSEM, 2003), right, passes the Alumni Association presidency onto Dan Wolodkiewicz (ME, 1982) during homecoming festivities.



**INTERNATIONAL JUDGE:** Chris Wlezien (ME, 2010) served as chief judge of ASME's first human powered vehicle event in India.



**YOUTH BEING SERVED:** Young Alumni Council leaders exchange ideas about programming and service initiatives during the group's winter board meeting.

**CIVIL ADVISORS:** 2003 alumni Walter Flood (left) and Aaron Burke provide valuable industry feedback as members of the Department of Civil Engineers' Board of Advisors.



**INNOVATION ON DISPLAY:** Celebrating the opening of General Electric's Innovation Wall on campus were company alumni (from left) Christopher Anderson (ME/MA, 1999), James Enloe (CHE, 1981), Ralph Kirkpatrick (ME, 1974), and Andrew Zehnder (EE, 1998).



**DOCTOR IS IN:** Mark Schuld, MD, (CHE, 1991) has returned to campus as medical director of the new employee health services clinic and current student health services office.

**1977**

**Donald E. Galler** (ME) was inducted into the International Space Hall of Fame for his leadership role in the Delta Clipper Experimental (DC-X) project, that, in 1993, demonstrated the use of airline-like operating processes for affordable space travel.

**1986**

**Robert J. Schukai** (EE), global head of mobile technology for Thomson Reuters, was named a member of the Order of the British Empire on the Queen of England's New Year Honours 2014 list for outstanding community service.

**1988**

**Timothy P. Zimmer** (ME) is the new facilities director at Eastern Illinois University. He has held similar positions at University of Illinois and with the U.S. Air Force.

**1991**

**Ed Camden** (EE) has been elected president of the Border Industrial Association, which represents one of New Mexico's largest industrial bases. He is president of Southwest Steel Coil, a steel processor and supplier located in Santa Teresa, New Mexico.

**1992**

**William N. Eccles** (EE) was elected to the Tolland Town Council in Connecticut. The former Air Force captain is the principal electrical engineer at Bloomy Controls Inc.

**2000**

**Andrew Wlazlo** (ME) has started a new business, Petras Automotive Services, which subcontracts as the primary servicer to a large landscaping company's fleet of vehicles and other equipment.

**2002**

**Brad A. Brosmer** (EE) has founded Superior Insulation, a Ferdinand, Indiana, company offering the latest technology and services concerning insulation, seal barrier, air barrier, and custom applications.

**Erik Nelson** (EE) is the new structured cabling systems and health care technology team lead at Environmental Systems Design Inc., an international consulting and engineering firm. He formerly was a lead communications engineer with Jacobs Engineering Group.

**2007**

**Brandon J. Hathaway** (ME) has completed his doctorate thesis on solar thermochemical fuel production at the University of Minnesota.

**2009**

**Amanda (Ferrell) Pollock** (CHE) is staff process engineer at Materion Corporation. She resides in Toledo, Ohio, with her husband, Jonathan.

**2010**

**Tyler Gonnsen** (MA/SE) is software architect and website/web application developer for One Community, a non-profit organization creating open source and free-shared software to address societal global challenges. His first project is designing and developing sustainable city management software.

**2011**

**Molly E. Richardson** (CE) is a website designer, SEO specialist, and social media consultant at MR 21 Solutions.

**2012**

**Elizabeth Garcia** (EE/MSEM, 2013) is a sales and marketing engineer and part of Intel's SMR program.

## ALUMNI NEWSMAKERS



### CONFIRMED: SENATE APPROVES WILKINS AS D.C. CIRCUIT COURT JUDGE

**Robert L. Wilkins** (CHE, 1986) has started the year with a new job after earning U.S. Senate confirmation as judge of the influential U.S. Court of Appeals for the Washington, D.C. Circuit. He was nominated by President Barack Obama.

Wilkins had been judge of the federal district court in Washington, D.C. since 2010, was a former partner with Venable LLP, and a staff attorney and head of special litigation for D.C.'s Public Defender Service. He was named one of the "40 under 40 most successful young litigators in America" by the National Law Journal.



### WOSZCZYNSKI NAMED CUMMINS' VICE PRESIDENT, CHIEF MANUFACTURING OFFICER

**Stan Woszczynski** (ME, 1980) is the new vice president-chief manufacturing officer of Cummins Inc. He has also assumed additional leadership responsibilities as a member of Cummins' supply chain transformation leadership team.

In his new role Woszczynski will lead several areas within Cummins, including manufacturing strategy, manufacturing operational and functional excellence, and advanced manufacturing. He has worked at Cummins since 1988, most recently being vice president-supply chain and manufacturing.



### JOICE AWARDED NATIONAL EXECUTIVE MANAGEMENT AWARD

**Joe Joice** (EE, 1994), vice president of United Sortation Solutions, has been awarded the 2014 Executive Management Award by SmartCEO. It honors executives who have exemplified exceptional leadership, ethics, collaboration, and creativity in their organization.

Joice works with Fortune 50 clients and other executive leaders to develop customized, automated material handling solutions. Current and past experiences have taken him throughout the United States and Europe. His portfolio includes work with Amazon, Federal Express, Target Stores, and the United States Postal Service. ■

**2013**

**Durushka I. Ahmed** (CHE) is a field engineer trainee at Schlumberger.

**Garrett A. Broadnax** (ME) is a CAD designer at Stuart Consulting Group Inc. ■

# CLASS NOTES

## Rosebuds

**1998**

**Scott Thomas** (CHEM) and wife, Kathy, welcomed a daughter, Carter Rose, on December 25, 2013. Scott is a senior chemist in product development for Bostik in Wauwatosa, Wisconsin.

**2000**

**Alyssa (Riley) Hill** (CHE) and her husband, Chris, welcomed their first child, Graham, on June 20, 2013, in Houston, Texas.



**2001**

**Bradley Braun** (CPE) and wife, Angela, had a daughter, Emily, on July 16, 2013.

**2003**

**Josh Lehnert** (CPE) and **Elizabeth (Shook) Lehnert** (EE) welcomed a son, Henry Joshua, on September 6, 2013. He joins older sister, Lauren, who was born in 2010. The family currently lives in the Baltimore area, where Josh and Elizabeth work for Northrop Grumman.



**2006**

**Eric Reyes** (ECON/MA) and wife, Jamie, welcomed a daughter, Ivy Amanda, on January 8, 2014. Erik is an assistant professor of mathematics at Rose-Hulman.

**2007**

**Devin Cook** (CE) and wife, Kristen, welcomed their first child, Aria Brynn, on August 27, 2013. Devin is now a senior project engineer for TLF, a structural engineering firm, and the family lives in Indianapolis.



**2008**

**Steve Hawkins** (CE) and wife, Neeley, added their second daughter, Ivy, to the family on November 26, 2013. Steve is an operations supervisor with Marathon Petroleum Company LP in Robinson, Illinois. The couple lives in their hometown of Casey, Illinois.

**2009**

**Greg Mitchum** (ME) and Jessica (Neeb) Mitchum welcomed their first child, Michelle, on August 26, 2013. Greg is a senior design engineer for Cummins.

**2010**

**Jessica (Neeb) Mitchum** (BE, 2010)



and Greg Mitchum welcomed their first child, Michelle, on August 26, 2013. Jessica is a biomedical development engineer for Medivative Technologies.

**Jared Stermole** (CE) and wife, Terri Sue, welcomed a son, Owen Jared, on July 16, 2013 in Williamsport, Pennsylvania. ■

## Marriages

**2005**

**Chad Zarse**, MD, (AB/BCMB) married Emily McKillip on November 9, 2013, in Indianapolis. He is chief nephrology fellow in the Indiana University School of Medicine's Division of Nephrology after completing medical school at IU in 2009 and internal medicine residency at IU in 2012. Emily is a psychiatry resident at the IU School of Medicine. Both plan to practice in the Indianapolis area, where they reside.



in Nashville, Tennessee. They live in Nashville, where he is chief technology officer at Zeumo and she operates her own software consultancy, Eliza Brock Software.

**2007**

**Ted Lyman** (ME/MA) and **Bridget Mayer** (AB/CHEM) were married on August 24, 2013, in Colorado Springs, Colorado. They reside in Los Alamos, New Mexico.

**2008**

**Keith Marcum** (SE/CS) and **Eliza Brock** (SE/CS) were married on October 5, 2013

**2010**

**Colin Shipley** (ME) and **Natalie Freienmuth** were married on September 7, 2013 in Albuquerque, New Mexico. He is an engineer with Bastian Material Handling. The couple lives in St. Louis.

**Eric Smith** (CHEM/BIOCHEM) and **Leah Howard** (BE) were married on August 4, 2012, at Turkey Run State Park. Eric



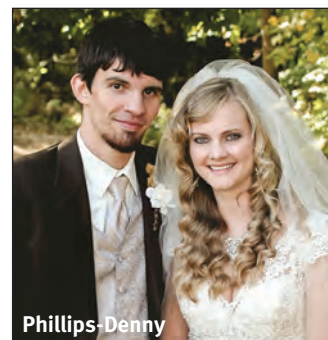
is living in Cincinnati, where he is a fourth-year medical doctor/doctorate candidate in the University of Cincinnati Medical Scientist Training Program. Leah resides in Warsaw, Indiana, where she recently joined Zimmer's development engineering team as an Adecco contractor.

**2011**

**Natalie Freienmuth** (CHEM/BCMB) and **Colin Shipley** were married on September 7, 2013, in Albuquerque, New Mexico. She earned a MBA from the University of New Mexico. The couple lives in St. Louis.

**2012**

**William "Amos" Denny** (CE) and **Kelli Ann Phillips** (CE) were married on October 26, 2013, at the White Chapel at Rose-Hulman. Amos is a staff consultant at Civil & Environmental Consultants, Inc. in Indianapolis. Kelli is a natural gas distribution engineer at Vectren in Danville, Indiana. They reside in Plainfield, Indiana. ■



## Obituaries

**1943**

**James R. Garrett** (ME), 92, died on November 15, 2013, in Stanley, North Carolina.

**1949**

**Tom E. Price** (CE), 86, died on November 12, 2013, in La Crosse, Wisconsin.

**Shinji Soneda** (CE), 87, died on November 13, 2013, in Honolulu, Hawaii. He retired as civil engineering chief of Hawaii's Department of Health.

**1952**

**Philip C. Gardner** (CE), 84, died on August 7, 2013, in Greenfield, Indiana. He retired as a partner in F&G Engineers.

**Joseph Perona** (CHE), 83, died on December 5, 2013, in Brevard, North Carolina. He retired after being a professor at the University of Tennessee.

**1953**

**William E. Weaver** (ME), 83, died on October 20, 2013, in Indianapolis. He retired from General Motors Corporation.

**1954**

**Robert E. Rader** (CE), 81, died on November 29, 2013, in Roswell, Georgia. He retired as vice president of the Clark Patterson Association.

**1958**

**James C. Oakes** (CHE), 77, died on December 12, 2013, in Clifton Park, New York. He was a nuclear engineer at Knolls Atomic Power Laboratory.

**1959**

**Berndt L. Olson** (ME), 76, died on November 17, 2013, in Pittsburgh. He was president of Salem Furnace Company.

**Joseph C. Vendel** (ME), 77, died on January 8, 2014, in Ashtabula, Ohio. He retired as a plant manager for Cleveland Electric Illuminating Company.

**1962**

**L. Robert "Bob" Carter** (CE), 73, died on December 15, 2013, in Pittsboro, Indiana.

**1963**

**Philip A. Chute** (PH), 72, died on November 11, 2013, in Eau Claire, Wisconsin. He was department chair and physics professor at the University of Wisconsin-Eau Claire.

**1965**

**David B. Holobaugh, Jr.** (CE), 70, died on October 16, 2013, in Floyds Knobs, Indiana.

**1972**

**Kevin M. O'Sullivan** (ME), 62, died on November 10, 2013, in Tampa, Florida.

**1974**

**James P. Osburn** (EE), 61, died on November 26, 2013, in South Carolina. He worked at Wireless Infield, Numerical Concepts, and Applied Computing Devices in Terre Haute.

**1976**

**Joseph Ringwald** (ME), 59, died on November 1, 2013, in Loogootee, Indiana. He was a mechanical engineer at the Naval Surface Warfare Center in Crane, Indiana.

**1979**

**Clare I. Rice** (HDENG), 59, died on November 20, 2013, in Austin, Texas. He played an important role in the development of the avionics industry and retired as vice president of world marketing

**1950**

**William R. Gray** (ME) died on August 10, 2013, in Lake Forest, California. He retired as general manager of corporate planning for Ispat Inland Inc., after having several leadership roles with Inland Steel Company. He lived in the Chicago area for many years and served as president of the Chicago Rose Tech Club, Northwest Indiana chair of the Rose-Hulman Centennial Development Campaign, and chair of the institute's annual fund-raising campaign (1969-70).

**1967**

**Gary W. Boone** (EE), 68, died on December 12, 2013, in Colorado Springs, Colorado. He was a microprocessor pioneer, developing the world's first 8-bit microprocessor and single-chip microcontroller (for Datapoint), engine and powertrain electronic control systems (Ford Motor Company), and microcontrollers for calculator and watch applications

(Litronix). He also worked for Texas Instruments, General Computer, and Atari, where he managed the team that designed the graphics chip at the heart of the Atari 7800 ProSystem game console. ■

for Rockwell International. He was inducted into the Aviation Hall of Fame.

**1980**

**Matthew T. Harter** (CHE), 55, died on November 22, 2013, in Arizona. He was an operations engineer for Halliburton Company.

**1994**

**Michael R. Lawrence** (CHE), 41, died in a traffic accident on November 10, 2013, in Evansville, Indiana. He had leadership roles at Berry Plastics, where he was employed for 18 years.

**1995**

**David A. Marquam** (CS), 41, died on November 26, 2013, in Westfield, Indiana. He was a software engineer for Wolters-Kluwer.

**2004**

**Brad C. Buening** (CPE/EE), 31, died on October 14, 2013, in Teutopolis, Illinois. He was a computer engineer at the Naval Surface Warfare Center in Dahlgren, Virginia.

**2005**

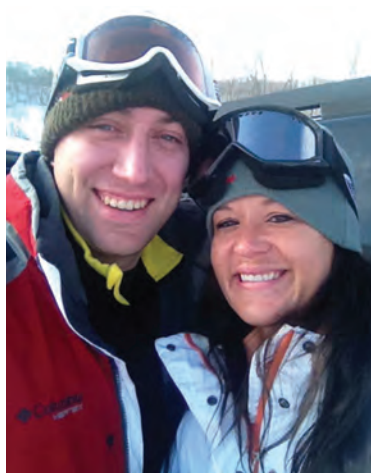
**Andrew Cooper** (SE), 30, died on November 21, 2013, in San Jose, California. He was a software engineer for Amazon.com.

**Faculty**

**Gary R. Turner**, 59, died on November 23, 2013, in Columbus, Indiana. He taught music theory and music appreciation courses from 1995 to 2013, developed the music minor degree program, and directed the jazz, concert, and musical pit bands. ■



**WINTER FUN:** Young alumni joined Rose-Hulman students in enjoying a ski trip in January.



## GOLF SCRAMBLE HELPS SCHOLARSHIP FUND

The annual Alumni Golf Scramble on June 5 at Prairie View Golf Course in Carmel, Indiana will once again raise valuable scholarship funds to support Wabash Valley and Indianapolis area students.



Since 2007, more than \$175,000 has been awarded to students through this outing.

Corporate partners can help sponsor this event by calling 812-877-8217.

Golfers can register at [rosetem.rose-hulman.edu/events](http://rosetem.rose-hulman.edu/events) starting on April 1. We hope to see you on the greens! ■

## Young Alumni Happy Hours Coming to a City Near You

In the spirit of affirming lifelong connections to Rose-Hulman, while also having a good time, the Young Alumni Council (YAC) has worked with alumni to organize Young Alumni Happy Hours throughout the country. These events bring together young alumni for an evening of socializing, networking, and fun. Past Happy Hours have been conducted in brew houses, bowling centers, or restaurants—the venue is up to the imagination of local hosts.

The YAC is hoping to organize Happy Hours this spring in a city near you. Events are listed on the Alumni Calendar (right) or [www.rose-hulman.edu/alumni](http://www.rose-hulman.edu/alumni). If you would like to host a future event, contact Lauren Jackson, associate director of alumni affairs, at 812-877-8949 or [Jackson3@rose-hulman.edu](mailto:Jackson3@rose-hulman.edu).

Meanwhile, YAC members gathered in Indianapolis on January 11 to discuss other ways to engage young alumni with the institute and provide more services to this growing group. YAC leadership had an informational meeting with Rose-Hulman President James C. Conwell and other campus officials on January 27.



**Lauren Jackson**

### Lauren Jackson Ready to Help Alumni

As the new associate director of alumni affairs, Lauren L. Jackson is supporting Young Alumni Council activities; assisting in the coordination of homecoming, commencement, alumni club, and affinity activities; coordinating alumni web page functions; and helping with Alumni Advisory Board and Alumni Association activities.

Jackson is also helping with the Distinguished Young Alumni Award program, assisting in the creation and distribution of printed material and electronic information sent to alumni, and supporting alumni clubs throughout the country.

## Nominees Sought for Honor Alumni, Honorary Alumni Awards

The Alumni Association is seeking nominations for this year's honor alumni and honorary alumni awards, and the young alumni representative to the Board of Trustees.

The Honor Alumni Award recognizes four graduates annually for their meritorious service to Rose-Hulman and professional achievement. One faculty and a staff member are bestowed honor alumni status each year. Nominations can be submitted online by April 1. The young alumni representative online nomination deadline is March 17. ■

## ALUMNI CALENDAR

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

### SPECIAL ALUMNI EVENTS

FIRST Robotics' Crossroads Regional, Rose-Hulman | **March 6-8**  
 Indianapolis Mini-Marathon | **May 3**  
 Career Achievement Awards Ceremony | **May 10**  
 Armed Forces Bump Day, Indianapolis Motor Speedway | **May 18**  
 Class of 1964 50th Reunion Commencement Celebration | **May 30-31**  
 Summer Scholarship Scramble | **June 5**

### 'ROSE ON THE ROAD' EVENTS

Washington, D.C. | **March 29**  
 Boston | **April 2**

### SUPPORTING THE ARTS EVENTS

Motionhouse: Scattered | **March 29 – 6:30 p.m.**  
 (Purchase tickets at [www.hatfieldhall.com](http://www.hatfieldhall.com))

### COUNTDOWN TO COMMENCEMENT EVENTS

Deciding Where to Live-To Rent or to Buy? | **March 18**  
 Planning Your Financial Future | **April 8**  
 Wine Tasting | **May 1**  
 Senior Celebration | **May 30**  
 Commencement | **May 31**

save the date for  
**HOMECOMING**  
**OCTOBER 3-5**

# A WORTHY INVESTMENT AT ANY AGE

You had goals when you were a student. You have goals for your career.  
Have you considered your philanthropic goals?

No matter what stage of life you are in and what relationship you might have with Rose-Hulman, giving a planned or deferred gift can help you achieve some of your future goals. In doing so, you help us continue to transform the lives of our students.

Take the case of Dick Johann, a proud Chauncey Rose Society member who did not go to Rose-Hulman—his son, Jeff, is a 1985 electrical engineering alumnus. “I was just so pleased with the education that Jeff received there. If I was going to give to other schools, Rose-Hulman was going to be one of them,” he says about his philanthropic choices.

The Johann family has a long history of supporting education. Dick’s grandfather and great-grandfather were both college presidents, and he was a high school teacher before his technical background led him to a career with General Electric. The company’s matching gift policy ignited Dick’s interest in giving.



Here are a few of the ways you can invest in Rose-Hulman’s future:

## **Will Bequests**

A will provides the opportunity for you to secure financial support for your loved ones while also supporting Rose-Hulman.

## **Retiree Beneficiary Designation**

Naming Rose-Hulman as one of the beneficiaries in your retirement plan may help reduce long term tax implications and help establish your legacy.

## **Life-Income Plans**

Establishing a trust or annuity can provide a gift to Rose-Hulman, and at the same time provide an income to you.

So, at any stage of life, contact Rose-Hulman’s planned giving team and let them help you discover which options would be best for you, and for Rose-Hulman’s future.

**Call Chris Aimone at 812-877-8498 or e-mail [aimone@rose-hulman.edu](mailto:aimone@rose-hulman.edu) to discuss your planned giving possibilities.**

5500 Wabash Avenue  
Terre Haute, IN 47803

Address Service Requested



## Stay connected

Stay connected with Rose-Hulman 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

### Capturing Campus Beauty

Rose-Hulman has many picturesque locations, but this breath-taking view from inside the White Chapel on a crisp fall afternoon showcases why this building has become one of the Wabash Valley's most popular places for special events. It was provided through a donation by the late alumnus John R. White and his wife, Elizabeth. (Photo by Shawn Spence)