

Fall 2014

## Volume 2014 - Issue 4 - Fall, 2014

Echoes Staff

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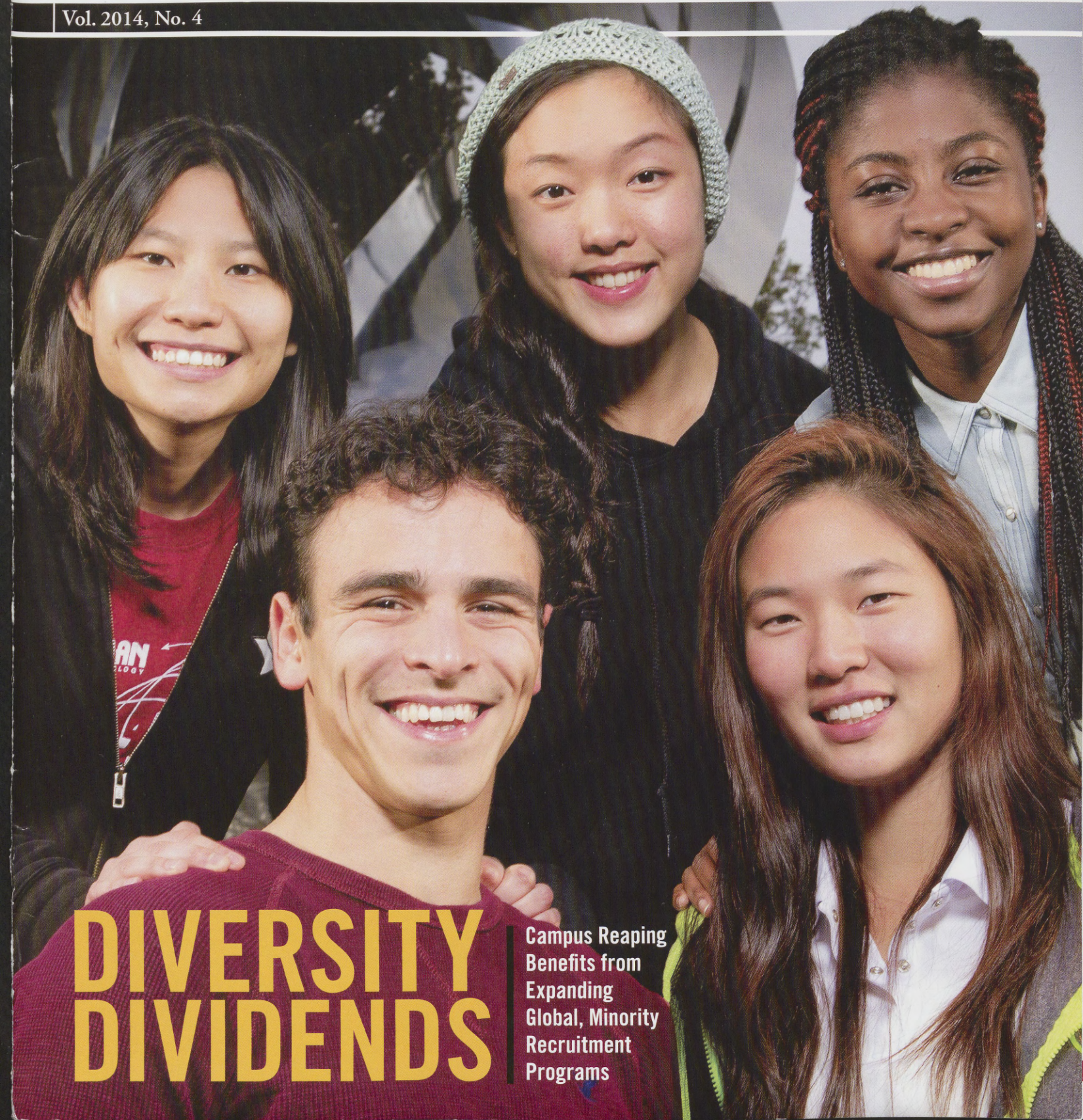


# Echoes

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

FALL 2014

Vol. 2014, No. 4



## DIVERSITY DIVIDENDS

Campus Reaping  
Benefits from  
Expanding  
Global, Minority  
Recruitment  
Programs





## ROSE-HULMAN VENTURES CELEBRATING 15 YEARS OF DELIVERING INNOVATIVE ENGINEERING SOLUTIONS

Rose-Hulman's unique design and product development operation, Rose-Hulman Ventures, is celebrating 15 years of delivering technology-based solutions that yield industry results and address real-world business challenges. Founded in 1999 with Lilly Endowment Inc. support, the engineering consulting business has worked with 170 client partners on innovation-based projects for a variety of industry sectors. Featured innovative engineering solutions developed for clients include:



◀ **FAST BioMedical:** Rose-Hulman Ventures helped this private, Indiana-based clinical stage medical technology company develop technology for quantifying volume status and kidney function in a clinically actionable timeframe.

◀ **Precision Planting:** Agricultural data collection tools have been developed to help farmers reach their best yield. One device uses an iPad application to document the distance between freshly sprouted cornstalks—collecting more than three million data points during the past two years.



◀ **SimpleOnBoard:** Human resources is complex. Rose-Hulman Ventures' team worked with SimpleOnBoard to develop software that is simple to use, speeds up the hiring process, and helps with EEOC compliance. SimpleOnBoard integrates with applicant tracking systems and payroll, and helps companies to hire employees properly.

Learn more at [www.rhventures.org](http://www.rhventures.org).

**ROSE-HULMAN**  
**Ventures**  
DESIGN · DEVELOP · DELIVER



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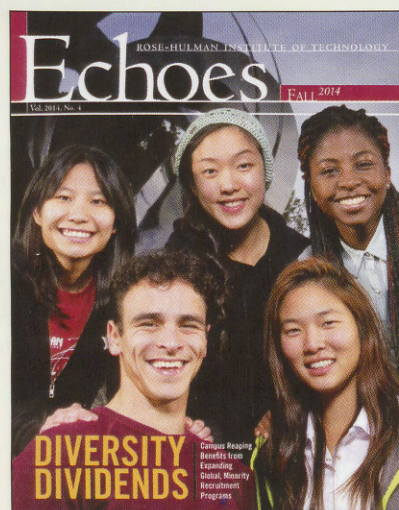
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## Alumni Can Connect Through RoseSTEM

Stay connected through <http://rovestem.rose-hulman.edu>—finding old friends and classmates, register for social events and other activities, submit your news and class notes, network with alumni in your career field, and live chat with other alumni.

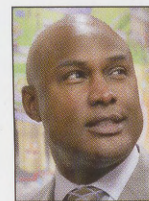


## ON THE COVER

Students from throughout the world, and a variety of diverse backgrounds, are coming to Rose-Hulman for the best undergraduate science, engineering, and mathematics educations in the United States. Five of those students are featured on the cover of this issue that's examining increasing campus diversity: (top row, from left) Elena Chong, from Panama; Si Fi (Faye) Li, from Hong Kong; and Barbara Arhin, born in Ghana. In front are Guilherme Sprowl, born in Brazil, and Napassorn (Peem) Chanrotchanaphan, from Thailand. (Photo by Shawn Spence)



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# A Diversity of Ideas Needed To Address Our Future

by Jim Conwell

I had the opportunity earlier this fall to visit Rockwell Collins, a supplier of aviation and communications systems for military and commercial aircraft.

As you walk into their Cedar Rapids, Iowa, headquarters, you see a snapshot of the large number of countries in which the company has production facilities, engineering facilities, and service representatives. Their employee base is an amalgamation of every kind of diversity that you can imagine: people from every background in the world.

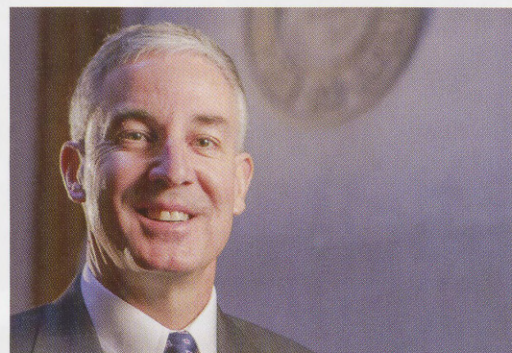
This is my vision for Rose-Hulman. I want us to create a campus that is a snapshot of the global environment in which our students are going to find themselves working when they graduate.

Companies like Rockwell Collins, doing business around the world, realize that the strength of their solutions is dependent upon taking a diverse approach to technical challenges. They need different products depending on the culture and environment where they are being used and the technical ability of the users. Our students need to be prepared to work in this



**“Everyone benefits as we become more diverse. As more students leave Rose-Hulman equipped to address the challenges of a global economy, the value associated with a Rose-Hulman degree will increase.”**

—Jim Conwell, Rose-Hulman President



type of global environment, and they need to be comfortable working with diverse groups.

That's why one of my highest priorities is increasing the diversity on our campus. I believe it is a crucial component to our students being successful in their post-graduate careers. If Rose-Hulman is going to remain one of the world's leading educators in the areas of science, technology, engineering, and mathematics (STEM), we must represent the world on our campus.

### Lessons Learned From Industry

While working on international projects for Jacobs Engineering Group, I observed that the best engineers are those who have the ability to work in diverse groups to tackle the increasingly complex problems that society is generating.

In 2010, I managed a project in Cologne, Germany, for a supplier of automotive HVAC systems that wanted to expand from being an United States-centric firm to selling products globally. We gathered a team of engineers and non-engineers from around the world to discuss the technical issues that the

facility needed to address to sell products worldwide. As a result, we made drastic changes to the design of the facility, and today

that company is incredibly successful around the world. My experience in Cologne convinced me that it is essential for companies to take a diverse approach to problem-solving.

Our students are no longer going to leave our campus and go work for a company in Indianapolis, Detroit, or Seattle for their entire careers. Instead, they are going to work all over the world. We need to provide them with the opportunity to learn in a diverse community so they are fully prepared for the global economy.



Follow President Conwell  
@RoseHulmanPrez

### We're Taking Steps In The Right Direction

Rose-Hulman is making progress on diversity. In the last five years, we've doubled the number of international and Hispanic-American students, and we've increased the number of African-American and female students too. But we have a long way to go until our student body is representative of the work environment at today's thriving corporations.

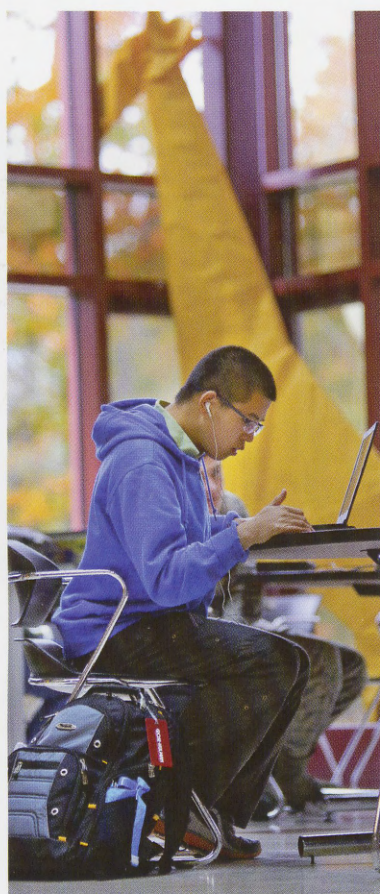
We're now focused on increasing our diversity through gender, race, ethnicity, and socio-economic backgrounds in our student body, faculty, and staff. Looking toward the future, we are increasing our involvement with Project Lead the Way, a non-profit organization that has created a STEM curriculum used by 6,500 kindergarten through 12th grade schools nationwide. Project Lead the Way schools are found in urban, suburban, and rural communities, as well as public, private, and charter schools in all 50 states and the District of Columbia. We are helping this group develop teaching methods that attract students to STEM fields and prepare them to matriculate to Rose-Hulman and other colleges.

Everyone benefits as we become more diverse. As more students leave Rose-Hulman equipped to address the challenges of a global economy, the value associated with a Rose-Hulman degree will increase. As our students disperse across the globe upon graduation, Rose-Hulman's name recognition and brand identity will continue to grow, which adds value to existing and future diplomas.

We need support from the entire Rose-Hulman community to reach our diversity goals. We are fond of saying that everybody on campus is an educator: our staff, our faculty, our fellow students, and our alumni. If we all work together to increase diversity, we will provide a more realistic and more dynamic environment for our students to live, learn, and grow. ■

*Jim Conwell is president of Rose-Hulman.*





# DESTINATION

## Rose-Hulman is Accelerating its Drive to

When Chemistry and Biochemistry Professor Luanne Tilstra, PhD, walks across Rose-Hulman's campus these days, she likes what she sees.

"Twenty years ago, every face I saw was a white male face. Now, I see black, brown, Chinese, Japanese, and Korean faces. I see women. I see men. I see clusters of people talking about something, and they don't all look alike or speak the same language," Tilstra says. "Diverse groups are working together in problem-solving."

Tilstra, director of Rose-Hulman's Center for Diversity since its launch in 2011, says the college has made tremendous strides in improving the diversity of its student body.

"We are on a very steep curve of improving our climate of respect and understanding," she says, adding that eventually she would like there to be "no dominant culture."

Tilstra's view is common throughout Rose-Hulman. From the board of trustees to administrators, faculty, staff, and students, there is energy around the goal of improving campus diversity.

### Progress Being Made in Several Areas

During the last five years, Rose-Hulman has doubled the number of international and Hispanic-American students, and increased its population of women and African-American students. But the school has a long way to go before it reflects the diversity that corporations need for their engineering teams of tomorrow.

"When the environment gets to the point where we have all dimensions of diversity in the student body, faculty, and staff—when it feels natural and is expected—that will be a signal that we have crossed the threshold," says trustee Darin Moody





# DIVERSITY

## Become a Multicultural Community

By Carolyn Duffy Marsan

(CHE, 1987), vice president of corporate engineering at Eli Lilly and Company.

Rose-Hulman leadership believes that the school must become more diverse in order to retain its No. 1 ranking as the nation's top undergraduate engineering school, and to maintain corporate recruiting. Further, the school can't prepare its students to work in diverse teams unless it exposes them to multicultural experiences as undergraduates.

"The quality of life has improved immeasurably by adding diversity to the campus," says Jim Goecker, vice president for enrollment management and strategic communication. "Our students are exposed to different kinds of viewpoints and have the opportunity to interact with different kinds of people. Our graduates are working in a very diverse world, so being educated in that kind of environment is incredibly important."

### Financial Resources Are Key to Success

There's still plenty of room for improvement if Rose-Hulman is going to meet its goal of being at the forefront of educating underrepresented populations of students in engineering fields.

For example, African-American students represent 4 percent of all engineering students at U.S. colleges, but only 2.5 percent of Rose-Hulman's students. Goecker says Rose-Hulman loses African-American students because it can't offer generous enough scholarship packages.

"Every African-American student who comes to Rose-Hulman turned down better financial aid offers to come here," Goecker says. "We need to be more competitive in the scholarship arena."

Rose-Hulman is gaining traction in the Hispanic-American community, where the school's family-oriented message resonates. The institute exceeds the national engineering average



# DIVERSITY DIVIDENDS

**"The quality of life has improved immeasurably by adding diversity to the campus. Our graduates are working in a very diverse world, so being educated in that kind of environment is incredibly important."**

—Jim Goecker, Vice President for Enrollment Management and Strategic Communication

when it comes to women, who represent 22 percent of the 2014 Rose-Hulman freshman class.

Goecker has aggressive goals for further improving campus diversity. By 2020, he would like to see women represent a third of the freshman class. Other goals are to double the number of African-American, Hispanic-American, and multiracial students.

"These are real stretch goals, but ones I believe we can attain," Goecker says.

## Alumni Blaze Trails for Diversity

Alumni who were trailblazers while at Rose-Hulman are helping transform the school by changing attitudes, along with the gender and racial makeup of the student body.

Improving diversity is "important for the long-term prosperity of the school," Moody says. He adds that Rose-Hulman needs to close the gap with other engineering schools that are doing a better job at recruiting a diverse student body. For example, Harvey Mudd College's Class of 2018 is 47 percent women and 60 percent non-white.

"If you believe that Rose-Hulman has a role to play as a leader in defining the future of what engineering and science education, then we must set the standards with a very diverse faculty, staff, and student body," Moody says.

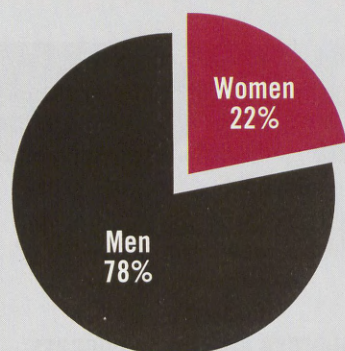
Trustee Warren Mickens (ME, 1977), vice president of operations at CenturyLink, came from an all-black high school in Gary, Indiana, to become the only African-American in his Rose-Hulman graduating class. He finds that the ethnically diverse students on Rose-Hulman's campus today are just as driven as he and his classmates were in 1977.

"Despite the lack of diversity in the old days, if you bought into the Rose-Hulman model, it worked," Mickens says. "When you look at the campus today, it's still all about quality people and performance. It's the same kids. They just look a little bit different."

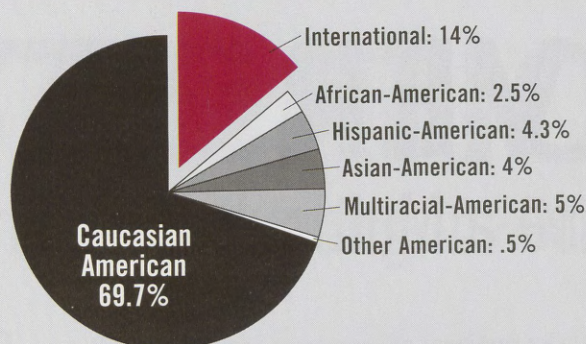
Dexter Jordan, associate director of admissions and multicultural recruitment, says Rose-Hulman's track record of retaining and graduating students from underrepresented populations puts the institute in a good position to reach its goals.

## BY THE NUMBERS

**Class of 2018 Gender Diversity:**



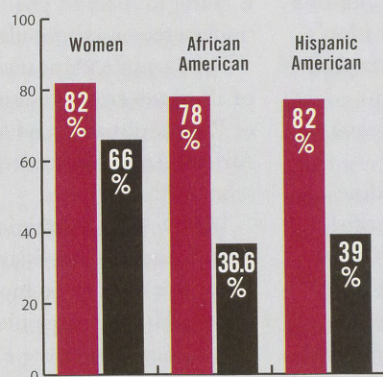
**Class of 2018 Racial Diversity:**



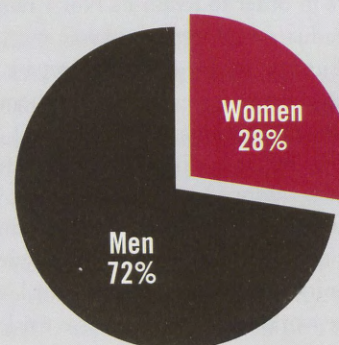
**Graduation Rates:**

Rose-Hulman's Four-Year Graduation Rates for Underrepresented Students Far Outpaces the National Average for U.S. Engineering Colleges:

■ Rose-Hulman  
■ U.S. Engineering Schools



**Faculty Gender Diversity:**





"We are trying to reach that critical mass of students of color so that when students come to look at Rose-Hulman, they will feel comfortable with the atmosphere here," Jordan says.

## Institute's Reputation Could Be at Risk

Rose-Hulman administrators say the college's No. 1 ranking, sterling reputation, and corporate recruiting are at risk if the school doesn't improve diversity during the next five years.

"If we're not able to improve diversity, we will never be regarded as a truly great institution," Goecker says. "Our corporate friends want a diverse workforce. If we don't continue to improve diversity, these corporations may choose to recruit elsewhere."

Improving diversity on campus benefits everyone, including Rose-Hulman's traditional population of white males, proponents say.



"When the environment gets to the point where we have all dimensions of diversity in the student body, faculty, and staff—when it feels natural and is expected—that will be a signal that we have crossed the threshold."

—Darin Moody (CHE, 1987), Vice President of Corporate Engineering  
Eli Lilly and Company

If Rose-Hulman doesn't improve diversity, "our students will not be as hire-able," Tilstra says. "All of our students are very good learners. But corporations need to hire individuals who have an attitude of being open to differences. Our students shouldn't be stymied by a culture different than their own. They need a skillset to work with people who come from a different culture." ■

*Carolyn Duffy Marsan, a frequent Echoes contributor, is also a national correspondent for Network World, and has written for MacWorld, PC World, and CEO magazine.*



## What Alumni Can Do to Improve Diversity at Rose-Hulman

- **Identify Potential Students** from underrepresented groups in your community when they are sophomores or juniors in high school, and pass along their names to the Office of Admissions.
- **Join RoseDART**, the Diversity Alumni Recruiting Team. RoseDART members visit targeted high schools, answer questions from interested students and parents, and encourage accepted students to attend Rose-Hulman.
- **Support Rose-Hulman's Center for Diversity**, which provides workshops and programs for faculty, staff members, and students. A \$5,000 donation underwrites the cost of a speaker and dinner for Martin Luther King Jr. Day or Women's History Month.
- **Donate to Rose-Hulman's Endowment Fund**, which is used to support student scholarships. Rose-Hulman lags behind its rivals in the size of its endowment, which means the school has less financial aid to offer students from underrepresented groups.
- **Sponsor a Student to Attend a Professional Meeting**, such as the National Society of Black Engineers, the Society of Hispanic Professional Engineers, or the Society of Women Engineers. This costs about \$1,000, depending on the location of the meeting. Faculty members need funding to attend these meetings, too.
- **Sponsor a Student to Attend Operation Catapult**, Rose-Hulman's summer program for rising seniors that is one of its most successful recruiting tools. This three-week program costs \$2,500 per student.
- **Fund the ROSE-BUD Program**, which has attracted 20 outstanding women to Rose-Hulman in the last five years with scholarships, mentoring, and social activities. Initial funding provided by the National Science Foundation expires in May 2015. Rose Building Undergraduate Diversity (ROSE-BUD) program provides scholarships worth \$10,000 per year to four women majoring in electrical engineering, computer engineering, computer science or software engineering. Rose-Hulman needs \$100,000 a year to maintain ROSE-BUD. ■





**SPANNING THE GLOBE:** A group of international students attending Rose-Hulman proudly showcase the origins of their home countries.

# GLOBAL PATHWAYS

Students from Many Cultures Making An Impact on Campus

Story by Terri Hughes-Lazzell/Photos by Shawn Spence

Rose-Hulman is becoming an educational crossroads for students from throughout the world, making the campus a more diverse, globally connected community in which to live, learn, and work.

International students from 21 countries call the institute home this academic year, participating in degree and non-degree programs in a variety of science, engineering, and mathematics fields. They've come from China, India, Kenya, Malaysia, Nigeria, Russia, Singapore, and more.

"Our international students have contributed to providing Rose-Hulman with a global perspective, and brought awareness to different cultures and values," says Karen DeGrange, director of Rose-Hulman's international student services office.

For this special issue that looks at diversity, *Echoes* examined why four students with international backgrounds chose to attend Rose-Hulman, and what they have experienced during their time on campus.



## STUDENT PROFILE

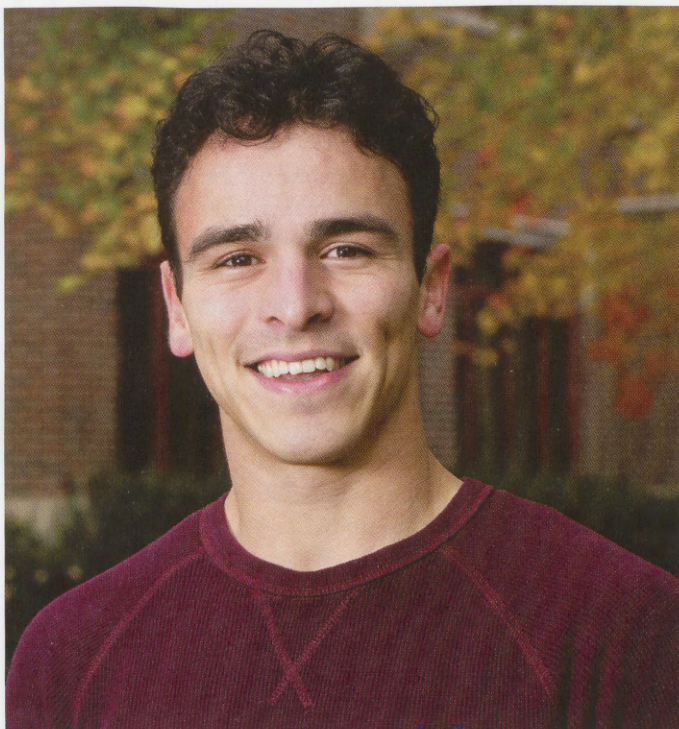
### PEEM CHANROTCANAPHAN: Finding the Right Fit

Attending Rose-Hulman has allowed Napassorn (Peem) Chanrotchanaphan to do two things she loves: study chemical engineering and play golf. She turned down offers to play golf at NCAA Division I institutions to focus on her studies.

"Rose-Hulman was a place I could focus on academics and play competitive golf," says the sophomore from Thailand who has earned All-Heartland Collegiate Athletic Conference honors during her first two collegiate golf seasons.

Chanrotchanaphan learned about Rose-Hulman through an Internet search, discovering the institute's No. 1 ranking in *U.S. News & World Report's* annual college guide. She chose to attend the college without making a campus visit.

"In my culture we're not focused on how nice a campus looks, but on the quality of the education. So, it was the academic programs that brought me here," she says. "I like the people here. Everyone is willing to work with you. Professors don't get annoyed if you need help. Golf practice and competitions are scheduled so that you won't need to miss class." ■



## STUDENT PROFILE

### GUILHERME SPROWL: Helping Hispanic Community Grow

Guilherme Sprowl has found a comfortable and challenging life at Rose-Hulman. He's elated to be part of a growing Hispanic culture that features students from Brazil's Science Without Borders (SWB) program and Society of Hispanic Professional Engineers' student (SHPE) chapter.

Born in Brazil, the senior chemical engineering student moved to Indianapolis with his siblings after being adopted by a family that had been doing mission work in Brazil. Scholarships from the Bill and Melinda Gates Foundation, Coca-Cola, and Lilly Endowment Inc. allowed Sprowl to attend his first-choice college—and one that is close to his family.

Since arriving on campus, Sprowl has been involved in a variety of activities, including organizing special Brazilian Day and World Cup Warm Up campus events, helped welcome students attending Rose-Hulman as part of the SWB program, and being a SHPE chapter leader.

"Since I've been here, I have seen a growing diversity on campus—people from different backgrounds and cultures. It has been great to see how we approach problems differently," he says. ■



## STUDENT PROFILE

### ELENA CHONG: Wanting to Impact the World

Being a part of the Rose-Hulman community was a delightful surprise for Elena Chong, who originally sought a larger American college. However, she fell in love with the institute's small-college charm and educational atmosphere.

"I love Rose-Hulman's special campus environment," she says. "There's a lot of stress and the academic pace is so fast. However, there are so many things to enjoy: the blue skies, grass, and trees. It's motivating and inspiring."

That environment is a sharp contrast to Chong's home in Panama City, Panama. The junior is studying for dual degrees in electrical engineering and mathematics, and hopes to someday return to her homeland to help build things that will make a difference in other people's lives.

"I want to make an impact on the world," she says, knowing that an engineering career offers the best opportunity to realize those goals.

At Rose-Hulman, Chong is organizing a Makers Club to create a database of equipment and expertise available on campus. Faculty members will be part of that valuable knowledge base.

"The faculty here is amazing," she says. "They treat the students with respect." ■



## STUDENT PROFILE

### BARBARA ARHIN: Learning About Entrepreneurship

When a teacher in her native country of Ghana urged Barbara Arhin to consider becoming an engineer, the student had one simple question: Women can become engineers? Such career aspirations are not encouraged in many international cultures.

The freshman biomedical engineering student is expanding her educational horizons at Rose-Hulman. She is learning about the entrepreneurial mindset and meeting successful entrepreneurs as a member of the inaugural class of students participating in Rose-Hulman's Engineering Student Community Actively Learning Advanced Technical Entrepreneurship (ESCALATE) program.

She also is adapting to the campus. "Rose-Hulman is so friendly, with many places to study," says Arhin, who moved to the Chicago area a couple of years ago. "I have friends everywhere and it feels like a family. This is my home away from home. While I miss my family, I have quickly developed friends that make this place feel like home." ■



**ALUMNI PROFILE**



**JEFF HARRISON (EE, 1989)**

Incoming President/CEO  
Citizens Energy Group

# Jeff Harrison Still Leading by Example

Story by Dale Long/Photo by Chris Minnick

As the son of a southeastern Indiana bricklayer, Jeff Harrison was a first-generation college graduate who knew that hard work would be the key to a successful career. He had no idea it would be as an engineer.

“A high school guidance counselor suggested I take a look at engineering because of my standing among the top-10 percent of my graduating class [at Jeffersonville High School]. I had no knowledge about engineering or Rose-Hulman, but was willing to give it a try,” says Harrison. “I knew I had the strong work ethic to accomplish anything that I put my mind to do.”

**“I believe in strong customer service, and being nice to people. I have never forgotten my humble roots and am always looking to give back to others.”**

—Jeff Harrison  
Citizens Energy Group

Now, 25 years after earning his electrical engineering degree, Harrison is on the verge of becoming president and chief executive officer of Citizens Energy Group on July 1, 2015. He is well prepared for this challenge. He has served as senior vice president of engineering and sustainability since January, 2013, and has had a variety of leadership roles.

Citizens Energy is a public trust utility providing natural gas, steam and chilled water, water, and wastewater treatment services to customers in the Indianapolis area.

“Jeff has displayed remarkable leadership as Citizens has embarked on unprecedented investments in the community’s aging water and wastewater systems,” says Dan Appel, president of the Citizens Energy Board of Directors. “In addition to his extensive utility industry experience, Jeff has always shown great ability to inspire and motivate employees.”

Prior to joining Citizens Energy, Harrison served in positions of increasing responsibility during 13 years at Indianapolis Power & Light, including corporate strategist.

Harrison has succeeded at every career juncture while being among the few minorities in leadership positions on his engineering or management teams.

“Hopefully, I am respected because of the work I have accomplished and my ability to work with people to get things done,” he says. “I have tried to set a positive example for others. I believe in strong customer service, and being nice to people. I have never forgotten my humble roots and am always looking to give back to others.”

Harrison is a leader in Indianapolis’ Center for Leadership Development, mentoring minority youths toward careers in engineering and high-tech careers.

“Engineering has afforded me so many opportunities and I encourage as many youths as possible to consider engineering as a career. If I can make it, they can too,” he states. ■

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



## ALUMNI PROFILE

# Hispanic Role Model

## David Olivencia is Paving Pathway for STEM Diversity

While determining innovative information technology (IT) strategies for a variety of Fortune 500 companies, David Olivencia has observed two critical issues for America and its future.

First, there's a notable shortage of employees and students with a basic understanding of science, technology, engineering, and mathematics (STEM) principles. Then, there's an alarming lack of diversity among those interested in STEM careers.

Without solving these issues, Olivencia believes American companies will have a hard time remaining competitive in a global economy. That's why he co-founded and is a board member of the Hispanic IT Executive Council (HITEC), a board member of the Congressional Hispanic Leadership Institute, and, this year, was invited by Indiana Governor Mike Pence to serve

as a commissioner on the state's minority and women's business enterprises division. The organization is actively promoting, monitoring, and enforcing the standards for certification of minority, women, and veteran business enterprises.

"I do a lot of work trying to help boards become more diverse. In many cases, the first step is acknowledging that there is a problem. Then you can move on to concrete actions in those areas," says Olivencia, a senior vice president with Softtek, an international IT solutions provider based in Mexico. He directs efforts to

generate growth for technology and communications industries within North America.

"Diversity is more than just gender or background," he says. "It includes diversity of thought or experiences. These areas are extremely important to the success of any organization."

As a member of the Hispanic community and a first-generation college graduate, Olivencia welcomes the opportunity to serve as a role model for potential engineers. He has had



**DAVID OLIVENCIA (EE, 1994)**  
Senior Vice President, Softtek

leadership roles with Verizon, Oracle, Ford Motor Company, Nippon Telegraph, and Accenture.

"David has gone out of his way as the co-founder of HITEC to assist talented Latino companies in getting access to capital, and he has mentored senior Hispanic corporate leaders in how to pursue activities that will prepare them to sit on corporate boards. He is a man of true character, a tireless leader, and a courageous advocate of Latino causes," states Charles P. Garcia, chief executive officer of the Association of Latino Professionals in Finance and Accounting.

Alejandro Mainetto, a digital executive who worked with Olivencia at Oracle, adds, "David is a role model for the Hispanic community. He is genuine, honest, and upfront, and has a true passion for technology, diversity, and service."

Olivencia's advocacy efforts were recognized with the Latino Leaders Technology Innovation Award (2013) and the Great Minds in STEM's Executive Excellence in Technology Award (2012).

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



**FACULTY PROFILE**

# Berry Increasing Diversity One Woman at a Time

By Carolyn Duffy Marsan

When Heather Finnell traveled from her hometown of Decatur, Tennessee to visit Rose-Hulman for the first time, she immediately felt a bond with one of the school's leading advocates for diversity: Carlotta Berry, PhD, associate professor of electrical and computer engineering.

"She is from Nashville, so we had an instant connection," Finnell says. "She is so fun, and she tells it like it is. She is exactly the kind of person that you want teaching you and to be your faculty advisor."

Finnell (CPE, 2014) was one of four women in her class to participate in the Rose Building Undergraduate Diversity (ROSE-BUD) program that Berry helped establish in 2008 with faculty colleague Deborah Walter, PhD, and support from the National Science Foundation. It has attracted 20 outstanding women to the institute's electrical engineering, computer engineering, computer science, and software engineering programs through a combination of scholarships, special programs, and social activities to build a sense of community.

"We give students a sense of value, and emphasize that it is important that they are at Rose-Hulman. It's not just about throwing money at a problem," says Berry.

**"I wanted to change the face of engineering by showing that the profession could be cool, interesting, exciting, engaging, and, most importantly, diverse."**

—Carlotta Berry, PhD  
Associate Professor of Electrical and Computer Engineering

Like the ROSE-BUD participants, Berry knows what it's like to be in the minority. She is Rose-Hulman's lone African-American female faculty member and one of four female professors in the Department of Electrical Engineering. (Nationally, as of 2011 African-American women make up 4 percent of all women currently in the engineering professoriate.)

"I became an engineering professor 20 years ago while sitting in class and realizing that I had never had a professor who looked like me, acted like me, or even seemed interested in me," she



**CARLOTTA BERRY**  
Associate Professor of Electrical  
and Computer Engineering

says. "I wanted to change the face of engineering by showing that the profession could be cool, interesting, exciting, engaging, and, most importantly, diverse."

Berry has accomplished that goal through ROSE-BUD, being a judge and organizer at FIRST Robotics competitions, and helping start Rose-Hulman's multidisciplinary robotics program. She says having more women in the electrical engineering, computer, and software programs is in Rose-Hulman's best interest.

"Research shows that working on multicultural and multidisciplinary design teams gives better results," she says. "As engineers, we want to answer the world's problems. We want to design systems and processes that help humanity and society. We have to be able to understand the world and be familiar with people who are different. If you don't have a diverse perspective, it's very hard for you to empathize with the needs of others." ■

Carlotta Berry's article, "They Call Me Doctor Berry," was published in *The New York Times* this fall.

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





**ROOTING FOR ENGINEERS:** A new version of the institute's mascot, Rosie, helped cheerleader Matthew Fletcher lead the cheers as the Engineers won this year's homecoming football game.

## Homecoming Builds Special Memories for All Ages

Alumni, family members, and friends— young and old—enriched their Forever Rose memories throughout this year's homecoming festivities. The fact that the Fall Career Fair was conducted two days before this special weekend helped bring even more alumni back to campus.

As part of homecoming, alumni were asked why Forever Rose is so special to them.

trusting, welcoming environment. The experiences we've all had (at Rose-Hulman) are shared only by those that have been part of the community. We're forever part of the 'Rose-Hulman Family.'"

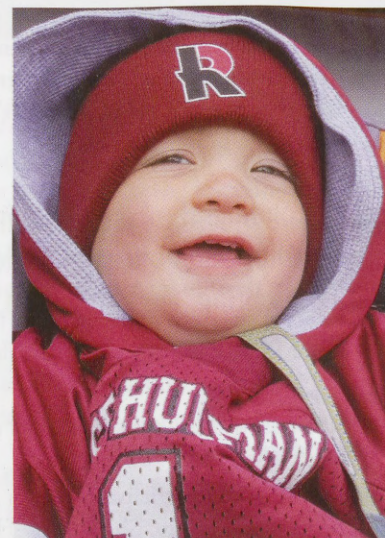
"I know that the lessons I learned at Rose-Hulman will influence the rest of my life," adds Alex Bubulka (CHE, 2013).

The Alumni Association recognized

four Honor Alumni Award winners: Jack Farr (BIO, 1975), Michael Hatfield (EE/MA ECON, 1984), William

Olah (BIO, 1974), and Al Shipp (EE, 1978). See profiles on pages 16-17.

Five other alumni received Distinguished Young Alumni Awards: Eliza Brock (SE/CS, 2006), Richard Franko (CE, 2007), Adam Jarboe (ME, 2005; MSEM, 2007), Scott Small (ME, 2005; MSBE, 2007), and Stefani Vande



**HAPPY HOMECOMING:** A possible future Engineer enjoyed all of this year's festivities.

Lune (AB, 2006; MSBE, 2008). Profiles on these alumni will be published in *Echoes'* winter issue. ■

# FOREVER ROSE

"While my undergraduate years were very memorable, my fondest memories are the most recent—reuniting and reconnecting with fraternity brothers and classmates," says former Alumni Association President Jeff Myers (EE, 1987).

Matt Niesen (ME, 2006) states, "Rose-Hulman has always meant a





**PEP RALLY FUN:** Cheerleader Emily Bochnowski got students and alumni ready to celebrate homecoming weekend.



**REMEMBERING MELEYNA:** Students honored former student Meleyna Kistner by placing her name on the outhouse that topped this year's bonfire. Kistner was killed in an auto accident during the summer.



**LEADING THE CHEERS:** Delta Delta Delta members share a variety of emotions after winning the pep rally cheer contest.



**CHERISHING OLD TIMES:** The 50-Plus Club welcomed this year's inductees, the Class of 1964, during a gala celebration.



**CONTINUING TRADITION:** Students constructed another dazzling bonfire to keep alive one of the institute's many proud traditions.



## Farr is a Pioneer in Orthopedics

Jack Farr has a knack for being in the right place at the right time.

A stint in the emergency room while attending medical school sparked an interest in orthopedics, an interest that led to a 25-year career as a leader in sports medicine and cartilage restoration.

Farr practices at Indiana Orthopedics Hospital (OrthoIndy) in Indianapolis, and has been recognized as one of central Indiana's top orthopedic surgeons by *Indianapolis Monthly* magazine. He is also the founder of the Cartilage Restoration Center of Indiana, in conjunction with OrthoIndy's Orthopedic Research Foundation, and his research has been featured in more than 50 published articles and two books.

"The science and mechanics behind orthopedics are just as complicated and involved as any other field of medicine," he says.

In 1998, Farr was on the forefront of articular and meniscal cartilage restoration, and the process is now considered common practice for the millions receiving knee and hip replacements annually.

Farr earned his medical degree from Indiana University in 1979, and completed his orthopedic surgery residency at Indiana University Medical Center in 1986. He was awarded an honorary degree from Rose-Hulman in 1999. ■



HONOR ALUMNI AWARD RECIPIENT

**JACK FARR, M.D.**

Biological Engineering, 1975

## Hatfield Stays Ahead of Innovations

Michael Hatfield is once again on the verge of transforming computer networking. His California-based company, Cyan, has added a new application for its software-defined networking platform designed to help service providers more quickly spin out services from their physical and virtual networks.

Cyan's Planet Orchestrate is a multi-vendor and multi-domain, network function virtualization and Cloud orchestration application. This combines Wide Area Network service creation and automation with the orchestration of virtual resources, creating a software-defined engine for revenue generation in carrier networks.

Then, this spring, Cyan began collaborating with Telefónica and Red Hat to develop a network functions virtualization (NFV) architecture to support the deterministic placement of virtualized network functions (VNFs).

"We're proud to be working on such an innovative technological project with industry thought leaders Telefónica and Red Hat," says Hatfield. "Our Blue Planet is a multi-vendor NFV orchestrator, ensuring that communications service providers (CSPs) can successfully use this architecture for a wide variety of use cases."

Hatfield is no stranger to success in the technology sector. Prior to Cyan, he founded Calix, a publicly-traded communication systems company, and Cerent, a leading provider of high-speed fiber optics systems. ■



HONOR ALUMNI AWARD RECIPIENT

**MICHAEL HATFIELD**

Elect. Eng./Math Economics, 1984



## Olah Serves Business and Rose-Hulman

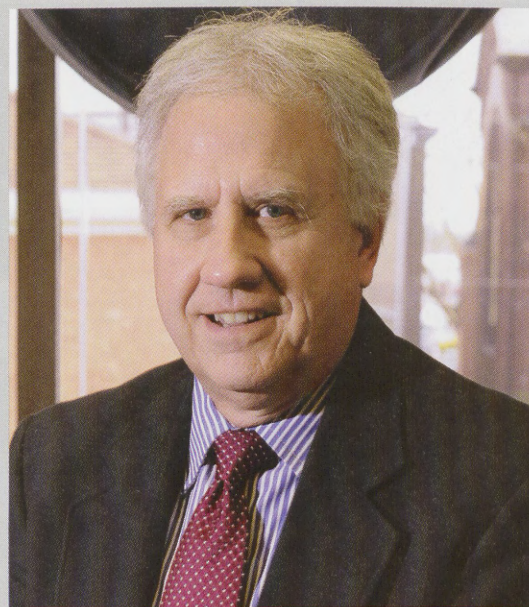
William Olah is a self-proclaimed “townie”—born and raised in Terre Haute, and a proud Rose-Hulman graduate who has spent most of his professional career in the city.

Surprisingly, he states, “I never visited any other schools; never applied anywhere else; never even set foot on the campus until the first day of classes. This was a sacred place that I respected so much.”

Now, Olah is a member of the Rose-Hulman Board of Trustees and an accomplished attorney who has helped negotiate several sizeable planned gifts to benefit the institute. He is an equity partner who leads the business division in the law firm of Wilkinson, Goeller, Modesitt, Wilkinson & Drummy, and has been part of three petitions for writs that have gone before the United States Supreme Court.

That’s not bad for a biological engineering graduate who turned an internship into a job at General Motors’ AC Sparkplug division before earning a law degree from the University of Arkansas. He then returned home to start his law practice and become a local business owner.

“I have been very fortunate, worked hard, and made strong partnerships along the way,” he says. ■



HONOR ALUMNI AWARD RECIPIENT

**WILLIAM OLAH**

Biological Engineering, 1974

## Shipp Cutting Pathways for Advancing Technology

Criminals beware; Al Shipp is watching you. His San Francisco-based 3VR Inc. uses facial recognition software to help law enforcement capture the most cunning of lawbreakers whose actions have been caught on video.

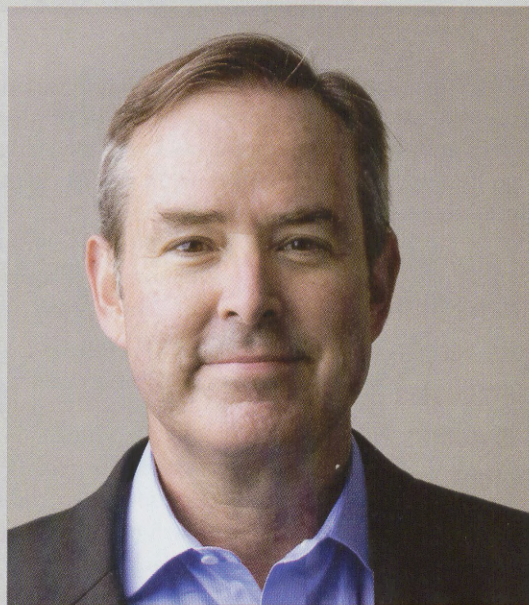
That’s what happened when a thief stole some mobile telephones from a West Coast T-Mobile store. Even though the man was wearing a mask over part of his face, 3VR Inc. helped T-Mobile quickly match his eyes and eyebrows with the image of someone who had earlier paid for service at a nearby store. Police arrested the man, got a confession, and retrieved several stolen devices.

This amazing ability is what made Shipp leave a lucrative position as vice president of enterprise at Apple Inc. to become 3VR’s president and chief executive officer in 2009.

“I spotted something very special,” he says. “3VR is a ‘can’t fail’ business with incredible upside potential.”

Founded in 2002, 3VR now leads the market with the largest private facial recognition deployment in the world, and is poised to enter a new phase of growth, expansion, and sales.

Shipp helped Apple’s enterprise division become one of the company’s most profitable business units. Earlier, he was president of Critical Path, senior vice president at Inktomi, and president of the eCommerce server and worldwide sales divisions at BEA Systems. ■



HONOR ALUMNI AWARD RECIPIENT

**AL SHIPP**

Electrical Engineering, 1978



# Continuing Chauncey's Legacy

Alumni, Friends Helping Institute  
Meet Future Challenges with  
Chauncey Rose Society Donations

Story by Dale Long/Photos by Terry Miller

Businessman, entrepreneur, and philanthropist Chauncey Rose and nine of his friends founded an institution in Terre Haute to provide the finest possible education in science and engineering. That philosophy is even stronger today, with Rose-Hulman becoming a national leader in undergraduate

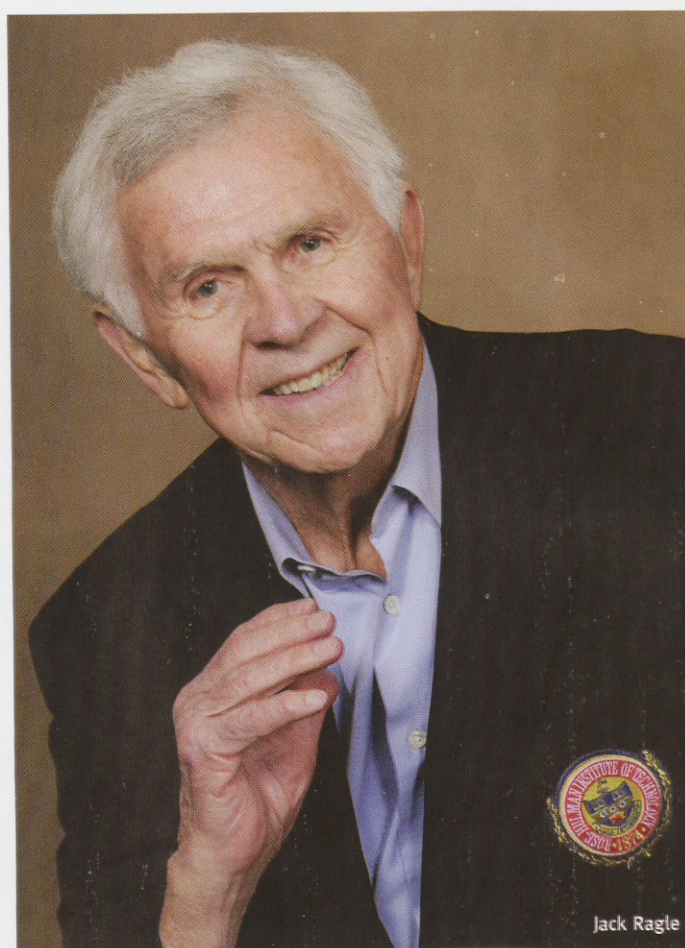
education—thanks to continuing financial assistance of alumni, faculty, staff, and friends.

The institute's Chauncey Rose Society recognizes those people whose cumulative giving exceeds at least \$50,000. There are several special stories behind each of these donations.

Jack Ragle was a Terre Haute businessman who was invited by Tony Hulman to join Rose-Hulman's Board of Trustees and help supervise a \$12 million gift, along with other assets, to the institute from the Hulman Foundation—

**"I love Rose-Hulman, its people, and the graduates it produces to address the world's problems. I relish my relationships with the trustees, who are self-made people with always Rose-Hulman's best interests at heart."**

—Jack Ragle  
Trustee



the latest in a long line of transformative family donations. Over the course of the next 40 years Ragle would become chair of the trustees, play a key role in the coeducation decision, become a valuable confidante to several presidents and institute leaders, and help guide the successful investment management committee.

"I love Rose-Hulman, its people, and the graduates it produces to address the world's problems," says Ragle, a 1989 honorary doctorate recipient. "I relish my relationships with the trustees, who are self-made people with Rose-Hulman's best interests at heart."

Marcella Guthrie is continuing a relationship with Rose-Hulman that was so important to her late husband, distinguished chemistry professor Frank Guthrie. The couple came to campus in 1952 after marrying while Frank was finishing his doctorate degree at Indiana University. Private colleges were special to both: Frank was a Hanover College graduate; Marcella earned an education degree at Manchester College.

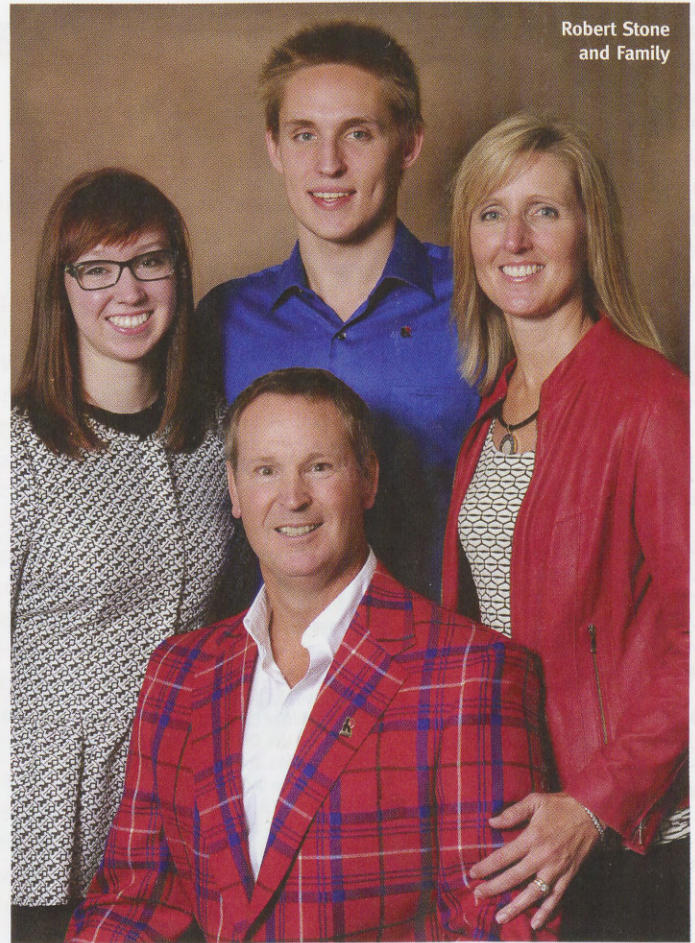
"Rose-Hulman meant so much to Frank. He loved teaching the students and being around his faculty colleagues," she says. "Supporting the institute was the right thing to do. We have always believed in Rose-Hulman and its mission so much."

Marcella established a scholarship fund to support science





Marcella Guthrie

Robert Stone  
and Family

students attending the college—contributions putting her on the Chauncey Rose Fellows' list (donations between \$250,000 and \$499,999).

A new Chauncey Rose Society member is Robert (Bert) Stone, a 1986 electrical engineering alumnus whose son, Benjamin, is a freshman on campus majoring in biomedical engineering and mechanical engineering.

"I was turning 50 and the family thought achieving Chauncey Rose Society status would be a special holiday gift," Robert states. "I consider it the ultimate win-win: I get to support a place, Rose-Hulman, which was so important in my life and is now playing a role in getting Benjamin off to a great start on his career. We share something very special."

Following in his father's footsteps, Benjamin is living in Deming residence hall and has pledged to join the Alpha Tau Omega fraternity.

"He's a chip off the old block, and we couldn't be more pleased," says Robert, senior vice president of Franklin Electric Company.

**See the latest Chauncey Rose Society list on Page 20. ■**

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

## MILLENNIUM PINS, JACKETS SIGNIFY CHAUNCEY ROSE SOCIETY MEMBERSHIP

Rose-Hulman provides the following recognition items to those achieving Chauncey Rose Society lifetime contribution status:

### Platinum Torchbearer Pin

\$10 million and up

### Diamond Torchbearer Pin

\$5 million

### Torchbearer Pin | \$1 million

### Navy Jacket | \$500,000

### Rose Tartan Jacket | \$50,000





# CHAUNCEY ROSE SOCIETY

## CHAUNCEY ROSE MILLENNIUM SOCIETY

*This society recognizes alumni, faculty, staff, parents, and friends whose cumulative gifts total at least \$1,000,000 through June 30, 2014.*

### Platinum Torchbearer \$10,000,000 and above

Mr. and Mrs. Anton H. George H'03  
Ms. Mari Hulman George H'98  
Mr. and Mrs. Michael L. Hatfield '84 H'04  
Mrs. Theresa Vonderschmitt

### Diamond Torchbearer \$5,000,000 to \$9,999,999

Mr. and Mrs. Carl Cook  
Mr. and Mrs. Niles L. Noblitt '73 H'96  
Mrs. Christa Percopo

### Torchbearer \$1,000,000 to \$4,999,999

Mrs. Gayle Cook  
Mr. William R. Fenoglio and  
Mrs. Stephanie Salter '61 H'87  
Mrs. Margaret W. Foley\*  
Mr. and Mrs. Gregory L. Gibson '84  
Mr. and Mrs. David L. Hannum '81  
Mr. and Mrs. Gregory A. Lowe '84 H'14  
Mr. W. Darin Moody '87  
Mr. and Mrs. Eston L. Perry  
Mr. Richard H. Raab\* '43 H'96 and Mrs. Jean E. Raab  
Mr. Jack W. Ragle H'89  
Mr. and Mrs. Glen Raque '69 H'99  
Mr. and Mrs. L. Donald Simpson '57 H'94

## CHAUNCEY ROSE SOCIETY

*This society recognizes alumni, faculty, staff, parents, and friends whose cumulative gifts total at least \$50,000 through June 30, 2014.*

### Chauncey Rose Chieftains \$500,000 to \$999,999

Mr. Jerry D. Badger '62  
Mr. and Mrs. James R. Baumgardt '70 H'10  
Mr. and Mrs. Robert E. Bright '57 H'01  
Mr. and Mrs. John S. Chinn '56  
Mr. and Mrs. Morris L. Cleverley '62  
Mr. and Mrs. Robert A. Compton H'02  
Mrs. Ruby Cooney  
Mrs. Marian Dedert

Mr. and Mrs. James D. Dunlop, II '52  
Mr. and Mrs. Howard P. Freers '48 H'90  
Mrs. Muriel Hannig  
Dr. and Mrs. G. Felda Hardymon '69 H'13  
Mr. and Mrs. Larry J. Hatfield  
Rex and Marge Hauser '54  
Dr. Samuel F. Hulbert H'04 and Mrs. Joy E. Hulbert H'04  
Mr. and Mrs. Donald M. Ings '70 H'99  
Mr. Robert Kahn\* '39 H'81 and Mrs. Louise Kahn  
Mr. and Mrs. Edward P. Kelley '64  
Mr. Milton J. Lowenstein '48 H'95  
Dr. and Mrs. Chris A. Mack '82  
Mr. and Mrs. Fred Maienschein '45  
Mr. and Mrs. Jeffrey S. McCreary '79 H'04  
Ms. Jennifer M. Meyer '02  
Dr. and Mrs. David C. Mitchell '48 H'83  
Mrs. Marjorie Pearce  
Mrs. A. Janet Raines  
Mr. Ronald G. Reeves '58 H'97  
Mr. and Mrs. Burton E. Rossiter '69  
Mr. and Mrs. John N. Royse H'00  
Mr. and Mrs. William D. Schindel '69 H'01  
Mr. and Mrs. Donald W. Scott  
Mr. and Mrs. Delbert C. Staley H'81  
Mrs. June Swango  
Mr. Clyde F. Willian '52 H'95

### Chauncey Rose Fellows \$250,000 to \$499,999

Mr. and Mrs. Donald J. Almqvist H'93  
Mr. and Mrs. Jeffrey G. Belskus H'09  
Mrs. Mildred L. Benning  
Mr. and Mrs. Charles M. Boesenberg '70  
Mr. and Mrs. H. D. Brown, Jr. '57 H'00  
Mr. Warren Coffman\*  
Mr. Andrew B. Conru '90  
Mr. and Mrs. B. Guille Cox, Jr. H'02  
Dr. Michael A. Evans and Mrs. Andrea Terrell H'11  
Mr. and Mrs. Mac Fehsenfeld '52 H'95  
Mrs. Marcella F. Guthrie  
Mrs. Frances B. Keating  
Mr. and Mrs. Charles F. Kleptz '58  
Mr. and Mrs. Andre B. Lacy H'85  
Mr. and Mrs. Robert E. Leonard '64  
Mr. and Mrs. John K. Malmquist '69  
Mrs. Cindy S. Martin and Mr. James Martin  
Ralph and Sue Mitchell '47 H'94  
Mr. Anthony Mlinar '72  
Dr. Dennis J. Paustenbach '74 H'07  
Mrs. Kathy A. Perry and Mr. Russell Perry  
Mr. Peter Feibleman and Mrs. Susan S. Root-Feibleman  
Mr. and Mrs. Robert W. Schwier '49  
Mr. and Mrs. P. Carter Smith '56 H'92  
Mr. Michael D. Thomas '64 H'97  
Mr. John V. Titworth '49 H'80  
Ms. Josephine T. Tyler\*  
Mrs. Sally Vance  
Mr. Stephen R. White '73  
Mrs. Marilyn Winters  
Mrs. Marjorie Withers\*

### Chauncey Rose Members \$50,000 to \$249,999

Dr. and Mrs. Ronald S. Artigue  
Mr. Frank Aten  
Mr. and Mrs. David H. Badger '53  
Mr. and Mrs. Steven E. Bakota '93  
Dr. and Mrs. John A. Biral '57 H'00  
Mr. and Mrs. John L. Bloxome '57  
Dr. and Mrs. Jack C. Bokros H'86  
Mr. and Mrs. Wesley J. Bolsen '00  
Mr. and Mrs. David B. Boodt '81  
Lee and Judy Brda '62  
Mrs. Myri Brehany\*  
Barlow and Ursula Brooks '59

Mr. and Mrs. Timothy G. Brown '82  
Mr. and Mrs. Morgan M. Bruck '69  
Mr. and Mrs. Timothy M. Bruemmer  
Mr. and Mrs. Jeffrey B. Burgan '77  
Mr. and Mrs. Bruce E. Cahill '70 H'12  
Mr. and Mrs. Patrick H. Cahill '67  
Dr. Mary Ann Carroll  
Mr. and Mrs. Dennis L. Carter '73 H'99  
Mr. and Mrs. Richard M. Christman '72  
Mr. David Chu  
Mr. and Mrs. Fred O. Clayton '70  
Mr. and Mrs. James A. Coles, Sr. '69  
Dr. and Mrs. James C. Conwell  
Mr. and Mrs. Robert L. Crowell '84  
Mrs. Salome Demaree  
Mrs. Joe Sue Denney  
Mr. and Mrs. Thomas T. Dinkel '72  
Mr. and Mrs. Ronald Dollens H'99  
Dr. and Mrs. William J. Eccles  
Mr. and Mrs. Robert P. Failing, Jr. '52  
Mr. Jim Fehsenfeld  
Mr. and Mrs. Vern W. Fellows '62  
John and Margo Fenoglio '59  
Mr. David C. Flock '57  
Mr. and Mrs. Jack L. Foltz '57 H'99  
Mr. and Mrs. Marshall D. Garino '61  
Mrs. Holly Gerace and Mr. Terence A. Gerace  
Ms. Carol Giacometto  
Dr. J. Darrell Gibson and Mrs. Peijun Sun  
Mr. and Mrs. Max Gibson  
Mr. Eugene H. Glass '49  
Mr. Fred W. Goetsch, Jr. '57  
Mr. Max E. Goodwin\* '63 and Mrs. Dorothy B. Goodwin  
Mr. and Mrs. Douglas A. Grim  
Mr. and Mrs. Elmer A. Guerri '65  
Mr. and Mrs. W. Kent Harris  
Mr. Robert H. Harrison '70  
Mrs. Myrna Hart  
Mr. and Mrs. Barton D. Hartsock '58  
Mr. and Mrs. Donald J. Heath '52  
Dr. William H. Heller '83  
Mr. Gregory L. Henneke and Mrs. Martha O'Connor  
Mrs. Marlene Herakovich and Dr. Carl T. Herakovich '59  
Mr. and Mrs. Michael L. Hines '84  
Ms. Sandra J. Hodge  
Mike and Martha Hogan  
Mr. and Mrs. Willard R. Holland, Jr. '65 H'96  
Frank and Linda Huff '60  
Mr. Jack R. Hughes '55  
Mrs. Julie Humphrey Nimmons  
Mr. and Mrs. Howard H. Irvin '43 H'87  
Mr. Erik N. Jansen '78 H'00  
Mrs. Patsy N. Jansen  
Mr. Richard Johann  
Mr. and Mrs. William B. Johnson '60  
Mr. and Mrs. Michael E. Johnson '64  
Mrs. Betsy Jones  
Mr. and Mrs. David A. Jones  
Mr. Irvin Keeler '42  
Mr. and Mrs. L. Birt Kellam '56  
Mrs. Barbara A. Kelley  
Mr. Walter Kindrick\*  
Bruce and Susan Kopf '64  
Mr. and Mrs. George Kyle '48  
Cary and Norma Laxer  
Ms. Elaine Lee  
Mr. and Mrs. James M. Lowes '70  
Mr. and Mrs. Edward T. Mabley '47  
Mr. James T. Malone '62  
Mr. and Mrs. Kenny M. McCleary '83  
Thomas O. McCormick '91  
Mrs. Alane Meis and Mr. Lucien Meis  
Mrs. Roberta C. Meredith  
Mr. and Mrs. Warren L. Mickens '77 H'99  
Mrs. Mary Kate Miller  
Mrs. Robert J. Moody

Dr. and Mrs. Noel E. Moore  
Mr. and Mrs. Michael A. Mussallem '74 H'99  
Mr. and Mrs. John T. Mutchner  
Arthur and JoAnn Nelson '75  
Mrs. Mary Ann Nelson  
Mr. Werner E. Neuman  
Mr. and Mrs. John M. Nevins '48  
Mr. William B. Nicewanger '63  
Dr. and Mrs. John L. Nichols  
Mr. and Mrs. Patrick J. Noyes '76  
Mr. and Mrs. William M. Olah '74  
Mrs. Joanne Pease  
Mr. and Mrs. Robert W. Pease '80  
Mr. and Mrs. Jeffrey Perry  
Mr. Francis H. Potts '56  
Dr. and Mrs. George F. Rapp H'93  
Mrs. Jean Reifenberg  
Mr. and Mrs. David L. Robinson '73  
Mr. and Mrs. John M. Robson  
Mr. and Mrs. Robert J. Schacht '72  
Mrs. Stella M. Scharf\*  
Mr. and Mrs. William D. Schindel '69 H'01  
Mrs. Georgia Schmidt  
Mr. and Mrs. Richard E. Schue '75  
Mr. Norman G. Schuld '65  
Mr. and Mrs. William D. Schwab '41 H'78  
Mr. and Mrs. R. Allen Shipp '78  
Mr. Gregory M. Shutske and  
Mrs. Maria A. Markovich '71  
Mr. and Mrs. William W. Sisson  
Mrs. Mary K. Small  
Brodie Smith '06  
Mr. Donald E. Smith  
Mr. and Mrs. Donald L. Sparks '72  
Mr. and Mrs. George H. Stearley '49  
Mr. and Mrs. Allan W. Stiles '52  
Mrs. Mary Jane Stineman  
Dr. and Mrs. J. L. Stoelting  
Mr. and Mrs. Robert J. Stone '86  
Mrs. Naomi L. Summerlot  
Mrs. Ronni Templeton  
Mr. and Mrs. Thomas E. Templeton  
Mr. and Mrs. Thomas O. Trueb '68  
Mr. and Mrs. Jimmie J. Trueblood '77  
Mr. and Mrs. Gary Tyrrell '90  
D. James and Katherine Umpleby '80  
Mr. Joe M. Valentine '43  
Mr. and Mrs. Richard W. Van Kempema '43  
Mrs. Rosemary Voges  
Mr. and Mrs. Alexander J. Vogl '49 H'98  
Dr. and Mrs. David R. Voltmer  
Mr. and Mrs. Roger C. Ward '71  
Mr. and Mrs. Dennert O. Ware  
Mr. Mark H. Ware '00  
Mrs. Reba Weaver  
Mr. J. Prewitt Wehle\* '47 and Mrs. Mary Wehle  
Mrs. Evelyn Weibel  
Mr. William M. Welch  
Ms. Linda E. White  
Mr. and Mrs. David A. Whiteley '78  
Mr. and Mrs. Jack A. Wilcox '57  
Mr. M. Andrew Williams '88  
Mr. and Mrs. John S. William  
Mrs. Marian Woosley  
Mr. and Mrs. Alfred A. Yee '48 H'76

'00 Alumnus/ae class year  
H'00 Honorary degree recipient  
\* Deceased



## Kern Family Foundation Assisting Entrepreneurially-Minded Learning

A \$2.25 million grant from The Kern Family Foundation will encourage further development of entrepreneurially-minded learning (EML) programs through educational practice, faculty engagement, and student experiences on campus through 2018.

Rose-Hulman is a select member of the Kern Entrepreneurial Engineering Network (KEEN), a national effort by The Kern Family Foundation to align U.S. private engineering colleges to

produce graduates who possess enterprising attitudes, resolute integrity, and entrepreneurial mindsets—characterized by exercising curiosity, seeking connections, and creating value.

The grant will help engage faculty in multi-disciplinary groups to create EML-infused courses in each academic discipline, including humanities; support activities for a Professor of Practice and staff within the EML program; and build vision for the KEEN/Rose-Hulman Case Study Initiative, started through a Kern Family Foundation grant in 2013.

Also, faculty will be educated about EML principles through a series of workshops,

conferences, and renewal experiences; high school students will be introduced to EML principles through projects in the Operation Catapult summer STEM exploration program; the Making Academic Change Happen Workshop will educate national engineering educators in the subtleties of leading change within an academic setting; and Rose-Hulman's student Leadership Advancement Program will be expanded. ■

**"The entrepreneurial mindset is a central attribute in the development of a Rose-Hulman graduate. The EML ecosystem is an area of focus at Rose-Hulman as we continue to improve the value proposition for our prospective and current students."**

—Richard Stamper, PhD, (ME, 1985)  
Dean of Faculty

## CAMPUS BUILDS IU BUSINESS SCHOOL PARTNERSHIP

A new 4+1 integrated master's degree program with Indiana University's Kelley School of Business will provide Rose-Hulman graduates with an accelerated path to a master's degree, and bolster their credentials and starting salary after completing their studies.

"Rose-Hulman students will find this a good match and a very worthwhile program that will help them navigate today's business world," says Idalene "Idie" Kesner, dean of the Kelley School of Business and the Frank P. Popoff Chair of Strategic Management.

Recent studies have indicated that while graduates of engineering programs enjoy high employment and earnings rates, many employers also are looking for those employees with business knowledge and skills.

Contact Scott Lemmon at [slemmon@indiana.edu](mailto:slemmon@indiana.edu) for more information. ■

## #ONE ...again!

### WE'RE NO. 1 FOR 16TH YEAR

For the 16th consecutive year, Rose-Hulman has earned distinction as America's No. 1 undergraduate engineering college, based on a national survey of deans and senior faculty conducted by *U.S. News & World Report* for its 2015 college guidebook. In addition, once again, we're ranked No. 1 in five academic programs: chemical engineering, civil engineering, computer engineering, electrical engineering, and mechanical engineering. The ranking is among colleges that offer the bachelor's or master's as its top degree in engineering.

### CONSORTIUM EXAMINING REFLECTION

Rose-Hulman is contributing to a national effort that's focused on developing and promoting teaching practices to help engineering students reflect on their experiences. Twelve U.S. colleges are examining how to enhance student learning, increase student retention and graduation, and foster a more diverse and better-prepared engineering workforce.

### FALL CAREER FAIR BREAKS RECORD

A record 244 companies came to the Fall Career Fair, and remained on campus to conduct more than 2,000 interviews for full time, co-op, and internship positions. The list of companies included Preferred Corporate Partners ArcelorMittal, Duke Energy, Interactive Intelligence, Rockwell Collins, and Zuken. These companies are seeking to meet the high job demand in STEM career fields.



### DOERING NAMED NI 'ELITE EDUCATOR'

National Instruments has recognized the contributions of Electrical and Computer Engineering

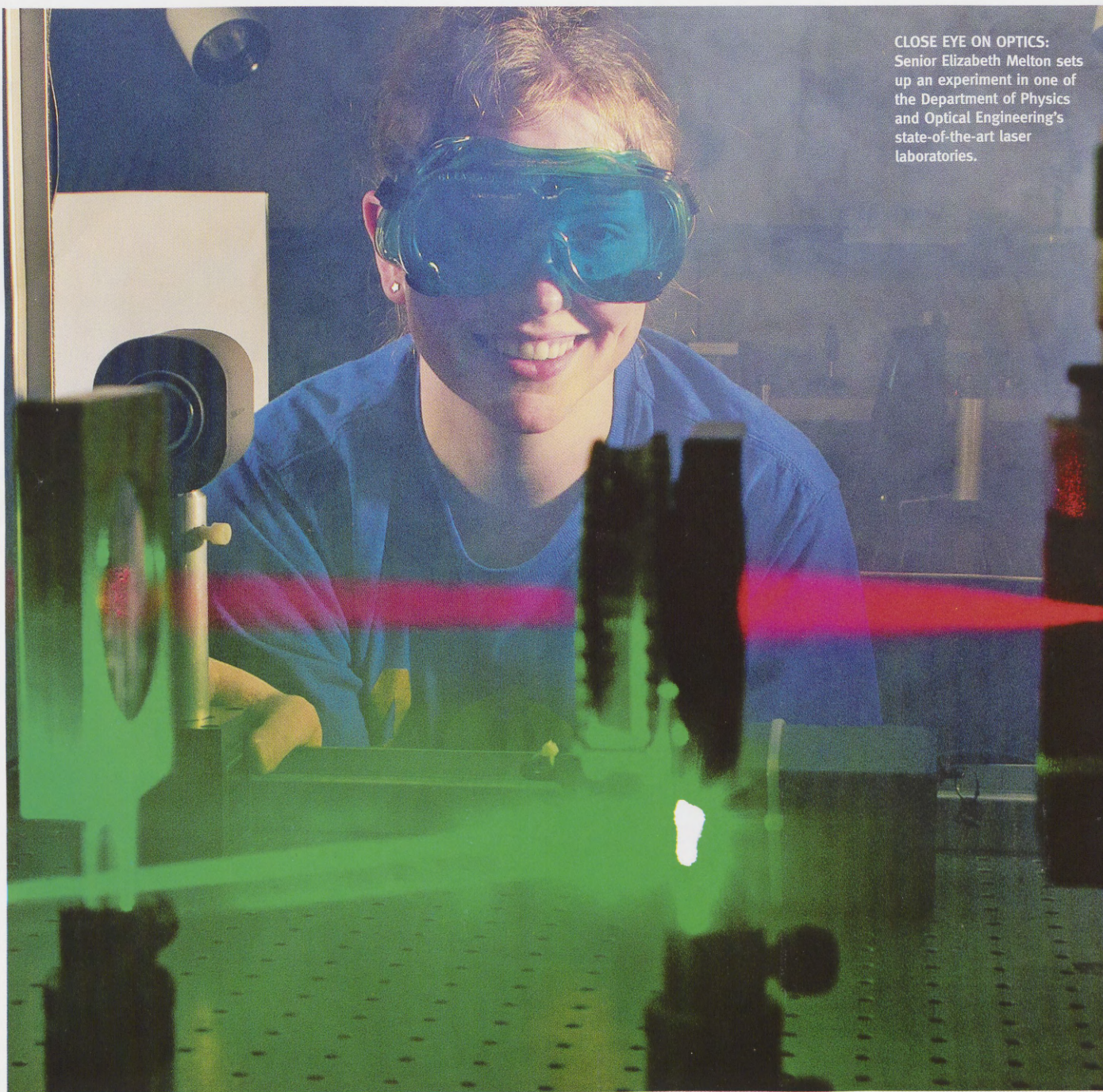


Professor Ed Doering with his selection among the inaugural group of 25 NI Elite Educators Award winners. Doering's latest project, the NI myRIO Project Essentials Guide, helped launch NI's myRIO, a product for embedded systems, controls, mechatronics, and robotics.

Stay Informed About Rose-Hulman at [www.rose-hulman.edu](http://www.rose-hulman.edu)



**CLOSE EYE ON OPTICS:**  
Senior Elizabeth Melton sets up an experiment in one of the Department of Physics and Optical Engineering's state-of-the-art laser laboratories.



# OPTICAL HORIZONS

Trailblazing Science Program Shines Light  
On Student Research, Faculty Achievements

Story by Terri Hughes-Lazzell / Photos by Shawn Spence and Chris Minnick





**LASER LIGHT SHOW:** Students (from left) Upamanyu Bose, Deepak Charles, CJ Stein, and Marshall Mullins work together to conduct an optics project.

For three decades, Rose-Hulman has been a national leader in shedding the light on optical engineering and providing valuable skills for graduates to meet the needs of a growing industry, now estimated at \$500 billion annually.

The institute is one of only four nationally accredited optical engineering programs in the U.S. Its graduates are in demand by industry and graduate schools.

"The opportunities for our undergraduate students are extensive," says Charles Joenathan, PhD, head of the Department of Physics and Optical Engineering. "We're blessed with state-of-the-art facilities, high-quality faculty, and inquisitive students. That has provided us with a strong foundation that has earned Rose-Hulman an international reputation in optics education."

H. Philip Stahl, president of the SPIE International Society for Optics and Photonics, commends Rose-Hulman as a visionary educational institution in the area of optical engineering.

"All things need light," he says. "Just imagine life without optics. There would be no light bulbs, no computers, no cell phones, no TV, no flat-panel displays, no cameras, no GPS, and no medical digital tools, such as X-rays or CT Scans."

Azad Siahmakoun, associate dean of faculty and professor of physics and optical engineering, goes even further, adding that optical engineering is an enabling technology that touches every industry, and optics has become a vital part of everyday life. Examples include laser printers, Internet switches, grocery store checkout scanners, computers, and eye surgery.

### Helping Develop 'Smart Lighting' Systems

Since 2008, Rose-Hulman students and faculty have helped the National Science Foundation-sponsored Smart Lighting Engineering Research Center (ERC) hasten the transition of important innovations from the laboratory bench to the classroom and marketplace. Rose-Hulman is one of the ERC's

university outreach educational partners, and has hosted summer undergraduate research experiences for students. Projects are led by Professor Robert Bunch, PhD, and Joenathan.

This fall, a team of five Rose-Hulman optical engineering students was one of five winners in the Optical Society of America's (OSA) International Year of Light competition. The students replaced piano strings with laser beams to control sound. The International Year of Light is a global initiative, endorsed by the United Nations, highlighting the importance of light and optical technologies in everyday life.

There are other student experiences that prepare them for industry as well. Physics and optical engineering students have worked alongside Professor Sudipa Kirtley, PhD, in studies conducted at some of the United States government's most advanced research laboratories.

Throughout her faculty tenure, Kirtley has been analyzing sulfur chemical moieties at the Brookhaven National

### OPTICAL ENGINEERING AT ROSE-HULMAN

**1983:** Optics education started on campus with an academic minor in applied optics

**1985:** Center for Applied Optics Studies started; Master of Science in applied optics made available

**1988:** Bachelor of Science degree program offered in applied optics (first graduates receive degrees in 1990)

**2003:** Academic program name changed to optical engineering

**2004:** First group of bachelor's/master's degrees in optical engineering graduate

**2007:** Optical engineering program accredited by ABET





**LEADING THE WAY:** Department of Physics and Optical Engineering Head Charles Joenathan, PhD, is a fellow of SPIE International Society of Optics and Photonics and the Optical Society of America.



**RESEARCH OPPORTUNITIES:** Professor Sudipa Kirtley, PhD, is one of six department faculty receiving the Trustees' Outstanding Scholar Award. She takes students to work on projects at the Brookhaven National Laboratory's National Synchrotron Light Source.



**HE WROTE THE BOOK:** Professor Galen Duree, PhD, authored *Optics for Dummies* to help educate others about optics. He is director of the institute's Ultrashort Pulse Laser Laboratory.

Laboratory's National Synchrotron Light Source, Argonne National Laboratory's Advanced Photon Source, and Lawrence Berkeley National Laboratory's Advanced Light Source. She has involved undergraduate and graduate students in her projects.

"The students learn about the optics of the particular beam lines, the optimization of the beam parameters for their purposes, effective data acquisition, and meaningful data analyses," says Kirtley, who has earned the Board of Trustees' Outstanding Scholar Award.

### Hands-On Learning Opens Career Opportunities

The Department of Physics and Optical Engineering shares in Rose-Hulman's educational philosophy that the best way to learn is by doing. Emphasis is placed on laboratory work with a hands-on approach, and the institute's teaching and research laboratories are equipped with the most modern equipment.

**"We're blessed with state-of-the-art facilities, high-quality faculty, and inquisitive students. That has provided us with a strong foundation that has earned Rose-Hulman an international reputation in optics education."**

—Charles Joenathan  
Head of the Department of Physics and Optical Engineering

"This individualized attention makes the optical engineering program at Rose-Hulman stand out among the best internationally," says Joenathan, a fellow of SPIE and OSA. "We take great pride in allowing our students to have ample opportunities to perform directed research in many exciting inter-disciplinary areas, with individual guidance from faculty members who are tops in their fields."

An \$8 million project with the U.S. Navy from 2000-03 helped the department establish a state-of-the-art fiber optics/microwave photonics facility. The project also supported summer stipends for more than 60 students, post-doctorate students, and faculty members in optical engineering during the four years.

Siahmakoun is a SPIE Fellow, a senior member of the Optical Society of America, and a Senior Fellow in the U.S. Office of Naval Research. He is among five current faculty members and one emeriti professor who have earned the Trustees' Outstanding Scholar Award. Others on the list include Joenathan, Robert Bunch, Richard Ditteon, Kirtley, and Art Western. Michael Moloney and Galen Duree have received the Dean's Outstanding Teacher Award.

This environment is a reason each optical engineering graduate has an average of five job offers annually, and the choice of attending leading graduate school programs. ■

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





**IN SPOTLIGHT:**  
Sophomore Tim Balz was featured in a segment of the Intel Developer Forum's Digital Daily Show earlier this fall in San Francisco. (Photo courtesy of Intel)

# Making Connections

Sophomore Tim Balz Helps Intel Assist Others through Wheelchair Technology By Dale Long

Tim Balz's commitment toward using technology and ingenuity to make a difference in other's lives received a monumental lift this fall from worldwide technology leader Intel and renowned physicist/cosmologist Stephen Hawking.

Balz, a sophomore mechanical engineering major, led a team of Intel engineering interns to design a custom technology platform that can transform standard wheelchairs into data-driven, connected machines.

The Connected Wheelchair topped Intel's Top 10 List of the Coolest Internet of Things designs, and Balz demonstrated the new technology in a presentation at the 2014 Intel Developer Forum (IDF) in San Francisco.

"This is the next stage in my goal to be involved with things that change people's lives and make a difference in the world," says Balz.

Using the Intel Galileo Development kit and Intel Gateway Solutions for Internet of Things (IoT), Balz's multi-disciplinary team created a wheelchair proof of concept that enables the collection of biometrical information from the user, as well as mechanical information from the machine, that can then

be analyzed. The team also built an application that allows wheelchair users to map and rate the accessibility of locations, further enhancing the user experience.

Hawking has taken a personal interest in Balz's project, discussing how technology can be a life-changing force for the disabled. He has a motor neurone disease related to amyotrophic lateral sclerosis (ALS).

"Medicine can't cure me, so I rely on technology. It lets me interface with the world. It propels me," says Hawking. "(The Connected Wheelchair) is a great example of how technology for the disabled is softening the proving ground for the technology of the future. These technological achievements are due to the innovations and creative forces of developers like you...Keep pushing and never give up."

Balz, who was featured in Hawking's video presentation, is familiar with wheelchair technology through his Freedom Chairs non-profit enterprise which restores discarded electric wheelchairs for youths and elderly in need throughout central Indiana. ■

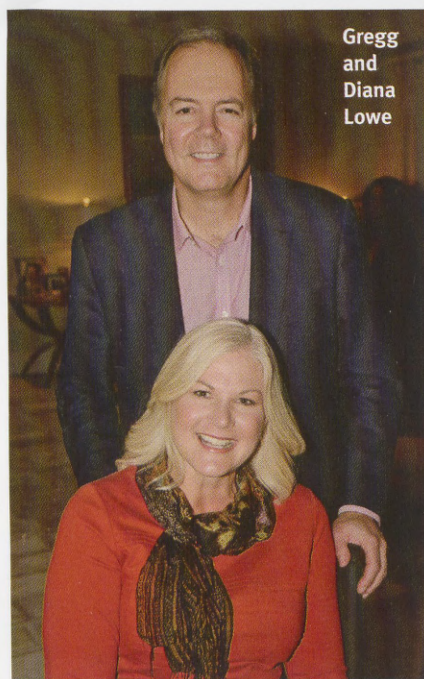
*Dale Long is executive editor of Echoes and director of news services.*



## Gregg and Diana Lowe Create Breakthrough Scholarships

Gregg and Diana Lowe have provided a \$1.6 million gift to establish a scholarship fund through Rose-Hulman to encourage high school students from the Breakthrough college preparatory program toward science, technology, engineering, and mathematics (STEM) career fields.

Gregg Lowe (EE, 1984) is president and chief executive officer of Freescale Semiconductor, and a Rose-Hulman trustee. He and



Freescale actively support educational endeavors that encourage K-12 students to pursue STEM studies and earn degrees in STEM-related fields.

Diana Lowe is a member of Breakthrough's board of directors in Austin, Texas, and supports many community and educational initiatives.

The couple's generous financial gift will allow two Breakthrough students to participate in Rose-Hulman's Operation Catapult summer STEM exploration program for high school students.

Also, one Breakthrough program graduate that gains Rose-Hulman

admission will be provided a four-year scholarship covering tuition and on-campus residence expenses.

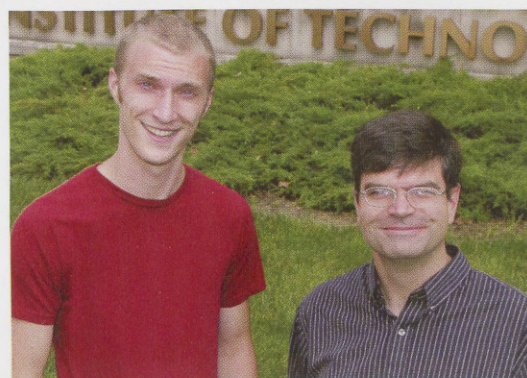
Priority will be given to students participating in Breakthrough programs in Austin, Texas, and Santa Fe, New Mexico.

"Diana and I are excited to partner with Rose-Hulman, Breakthrough Austin, and Freescale by offering this program to students with a passion for STEM," says Gregg Lowe. "We are investing in our future innovators and couldn't be more eager to witness these kids enter academia, intern at Freescale, and graduate with a degree that someday makes a big impact in our world." ■

## GRADUATE, PROFESSOR TEAM ON GLOBAL MATH SOLUTION

Brent Austgen (MA/SC/EE, 2014) and Mathematics Professor Allen Holder, PhD, used their operations research and computational science skills to help a leading global manufacturer determine if optimization technology could improve operations at a foundry in Australia.

The nine-month process produced optimized schedules that indicate a possible one-third reduction in manufacturing time, substantial cost savings, and gains over other quality manufacturing paradigms.



**CREATIVE PROBLEM SOLVERS:** Brent Austgen (left) and Mathematics Professor Allen Holder developed a cost-saving production solution for an Australian company.

Australian-based Pentair Water Solutions manufactures a range of irrigation-related products on a metal casting production line. This process involves pouring molten metal into a series of molds across two pouring lines—involving as many as 1,300 molds being produced at different metal temperatures and cooling schedules from the same original ladle that pours the molten metal.

Austgen was asked to improve the process—with never personally observing the plant's operations. Dana Hofheins (EE, 1983), Pentair's operations director, provided eight large spreadsheets, a few diagrams, and an hour-long video of the foundry's operations.

Holder assisted Austgen on the project, which started in late September, 2013, and final approval came before Augsten received his degrees and started work with Intel in Urbana-Champaign, Illinois. The project has been featured in international manufacturing publications. ■



James A. Goecker

## GOECKER LEADING ENROLLMENT MANAGEMENT AND STRATEGIC COMMUNICATIONS

Experienced campus leader James A. Goecker is now supervising the activities of admissions, financial aid, communications, and marketing as the institute's vice president for enrollment management and strategic communications.

Goecker has spent the past six years as vice president for enrollment management, leading student retention and persistence efforts. Under his guidance Rose-Hulman's enrollment has increased by 20 percent, and diversity and female enrollments have improved to historic levels. Since 2008, freshman-to-sophomore retention has risen from 88 to 92 percent.

"Rose-Hulman is a truly great institution, and I am honored to be given the opportunity to grow its recognition and tell the incredibly enriching stories of our outstanding students, faculty, staff, and alumni," says Goecker, who was a member of Rose-Hulman's Office of Admissions staff from 1986 to 2008 before being elevated to dean of admissions and financial aid in 2005. ■



# Bailey Challenge

By Professor Emeritus Herb Bailey, PhD

**IN ORDER TO RETAIN** my joy of teaching, I am now doing some tutoring. I have very few customers for two reasons: I do not advertise; and I do not charge (some think that you get only what you pay for). The fall bonus problem was suggested by one of my current students.

## FALL PROBLEM 1

Joe, Bill, and Sally are equally matched in the 100-meter dash. Anyone could win and they never tie. Sally wants to beat both of the boys. Is her best strategy to race each separately or set up a single race for all three of them?



## FALL PROBLEM 2

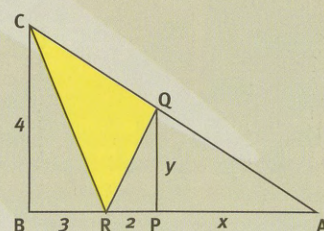
- Find a way to divide a rectangular cake into two equal pieces, with a single straight cut. Find five more ways to divide the cake into two equal pieces.
- Mary baked a rectangular iced cake. Merlin secretly carved out a rectangular piece, ate it and vanished. The remaining cake has to be split evenly between Mary's two kids. How could this be done with only one straight cut through the cake? Extra credit for a second method, if there is no icing.

## FALL BONUS PROBLEM

When traveling and wanting to turn right onto Poplar Street, there is a hill  $D$  feet to the left that hides oncoming cars. These oncoming cars are travelling 35 mph and refuse to brake. My 2004 Toyota Camry can accelerate from 0 to 60 mph in 6.8 seconds. I see no oncoming car, enter Poplar Street and push the accelerator pedal to the floor. What is the smallest value of  $D$ , so that I am sure not to be bumped?

## SOLUTION TO SUMMER BONUS PROBLEM:

The area of the yellow triangle is 5 and  $QP$  is perpendicular to  $AB$ . Let  $x$  and  $y$  be the lengths of  $AP$  and  $QP$ . You found many interesting ways to determine  $x$ . The area of the trapezoid  $CBPQ$  is  $5 + 6 + y$ , this area is also its height times the average of its two bases. Thus  $11 + y = 5(4 + y)/2$ , hence  $y = 2/3$ . From the similar triangles  $APQ$  and  $ABC$ , we have  $y/x = 4/(5 + x)$ . Combining with  $y = 2/3$  gives  $x = 1$ .



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. Alumni should include their class year.

## SUMMER CHALLENGE ATTRACTS MORE THAN 100 SOLVERS!

As a mathematician, Herb Bailey likes working with numbers, but he was pleasantly surprised at the more than 100 solvers of the challenges posed in the Summer Echoes issue. There were solvers from 48 different graduating classes! Congratulations to the following solvers:

**ALUMNI:** T. Jones, 1949; R. Dutton, 1950; R. Bennett, 1952; R. Brunner, 1952; C. Hirschfield, 1954; B. Hall, 1955; C. Cooper, 1956; A. Sutton, 1956; H. Brown, 1957; D. Carrell, 1957; D. Bailey, 1959; J. Dhooge, 1960; R. Archer, 1961; J. Ray, 1961; R. Turecky, 1961; J. Tyndall, 1961; N. Hannum, 1962; S. James, 1965; A. McLaughlin, 1967; J. Lafuze, 1967; K. Metz, 1969; S. Jordan, 1970; W. Pelz, 1971; J. Spearing, 1971; G. Lash, 1972; T. Nelson, 1972; R. Collins, 1973; R. Smith, 1973; D. Wheaton, 1974; M. Bailey, 1976; B. Hunt, 1976; D. Walker, 1976; P. VandeMotte, 1977; S. Van Dyck, 1977; D. Perrings, 1978; R. Priem, 1979; J. Slupesky, 1979; D. Engelhardt, 1980; R. Joyner, 1980; J. Farrell, 1981; S. Nolan, 1981; R. Roll, 1981; R. Spung, 1981; M. Taylor, 1982; D. Elmer, 1983; J. Marum, 1983; D. Burdette, 1984; V. Hasler, 1984; S. Blonigen, 1986; L. Cramer, 1986; D. Price, 1986; D. Johnson, 1987; M. Lancaster, 1987; T. Cutaia, 1988; T. Doerr, 1988; G. Hurst, 1989; J. Jachim, 1989; R. Parks, 1989; E. Cegielski, 1990; D. Gossert, 1990; G. Tyrrell, 1990; S. Weigand, 1990; D. Weiser, 1990; B. Burger, 1991; J. Harris, 1991; R. Hochstetler, 1991; P. Kimmerle, 1991; B. Swanson, 1992; C. Rettig, 1994; G. Wise, 1994; J. Markwardt, 1995; M. Pilcher, 1998; J. Mathison, 1999; C. Mills, 1999; P. Reksel, 2000; B. Hirsch, 2004; J. Somann, 2004; J. Lange, 2005; K. Hassler, 2006; J. Krall, 2007; D. Schluneker, 2008; J. Cartwright, 2009; K. Kragh-Buetow, 2010; D. Straub, 2010; and P. DeJarnatt, 2013.

**FRIENDS:** A. Andrews, S. Bonney, E. Boyer, P. Daggett, R. Golliver, L. Gossert, S. Lam, J. Ley, J. Marks, L. Metcalfe, L. Puetz, A. Racker, M. Ross, K. Shafer, S. Tenney, B. Vail, D. Voltmer, and E. Winn.

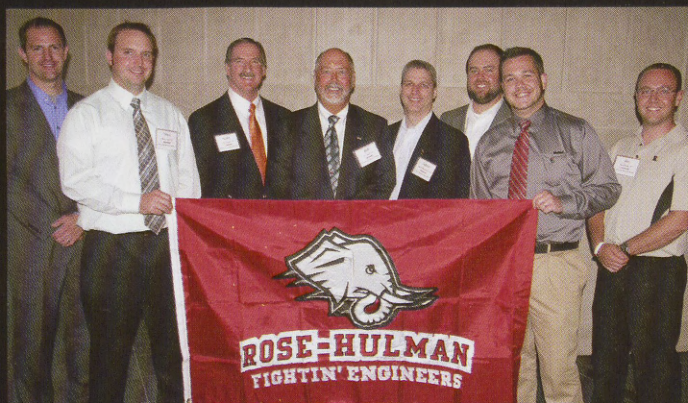


# ALUMNI PHOTO ALBUM

**MEMORABLE FIRST PITCH:** Gary Ellis (CE, 1978) got the thrill of a lifetime this summer by throwing the ceremonial first pitch to his son AJ, who is the Los Angeles Dodgers' catcher.



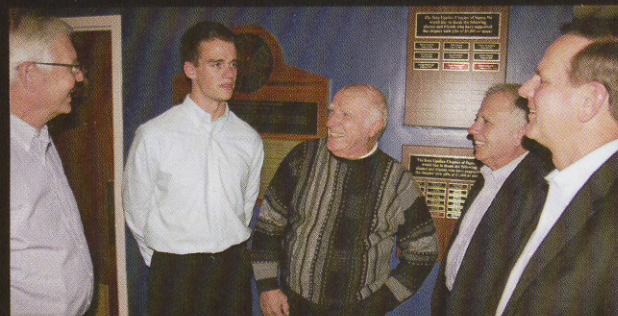
**HALL OF FAMERS:** 2014 Athletic Hall of Fame inductees were (from left) Jessica (Farmer) Albert (CHE, 2004), Elizabeth Gillett Sweatt, representing the family of Logan Gillett (ME, 1933), Lynsey (Hart) Staes (ME, 2004), Dylan Tarr (CE, 2004), Matt Moore (CHE, 2004), Jason LaBella (ME, 2004), and David Breiding (ME, 2004).



**PROUD ALUMNI:** Several alumni from Indianapolis-based Bowen Engineering were on hand as the company honored longtime president/chief operating officer Jed Holt (CE, 1970) by setting up a scholarship fund at Rose-Hulman.



**FAMILY LEGACY:** The Neal family has a proud Rose-Hulman legacy, including (from left) Greg Holler (ME, 1979), Travis Holler (CHE, 2001), Nathan Lockhart (ME, 2002), Tracey (Neal) Lockhart (ME, 2002), Robert A. Neal (ME, 1977), Richard A. Neal (EE, 1977), and Richard L. Neal (ME, 2014). Missing from the photo are Jim Neal (CE, 1991) and Gary Lane (ME, 2004).



**SIGMA NU SCHOLARSHIP:** Sigma Nu alumni honored longtime chapter mentor William Sisson (middle) by presenting a scholarship to senior Jack Tift. Making the presentation were David Burgner (EE, 1972), left, Bill Olah (BIO, 1974), and Patrick Noyes (ME, 1976), right.



**YOUNG DONORS:** Fall inductees into the President's G.O.L.D. Circle were (from left) Genevieve (Apke) Sullivan (ME, 2004), Ryan Snyder (OE, 2005), and Jon Pohlman (ME, 2004). Missing from photo was Andrew Sullivan (CPE, 2002).

**RAYTHEON ALUMNI:** A group of current alumni working for Raytheon's Indianapolis operations—from 1970 to 2014—features (front row, from left) Clayton MacCrindle, Cindy Heckman, J.D. Hill, Tyler Shelton, Joseph Hentz, Jessica (Gross) Shea, Federico Pabon, Gareth Shields, and Ryan Roberts. In the back row are (from left) Mike Jerrell, Todd Stahlhut, Mike O'Brien, Rex Beach, Bob Naylor, Eric Tullis, Perry Peters, Clay "Pat" Meredith, Nathan Scherwinski, and Jeremy Hochstedler.





**1947**

**Millard Ferguson** (EE) earned national screen credit as an associate producer for the PBS documentary *Diamond in the Dunes*. He was an associate producer of the popular PBS documentary *Age of Champions*.

**1948**

**David Mitchell** (EE; HD, 1983) retired after 16 years with SCORE—Mentors to America's Small Business chapters in Cincinnati, Ohio, and Terre Haute.

**1965**

**R. Tobey King** (CHE) has been elected to the board of the Santa Fe Alliance for Science, an organization that partners with local public schools to promote interest in STEM subjects.

**1980**

**Fred Cartwright** (ME) has started a three-year term on the Society of Automotive Engineers Foundation's board of trustees. He is executive director of Clemson University's International Center for Automotive Research.

**1983**

**Thomas Sutliff** (ME) received a Federal Acquisition Certification for senior-level NASA program and project managers. He continues to serve as deputy program manager for NASA's radioisotope power systems program.

**1985**

**Gary Parker** (ME) is director of manufacturing for Great Dane Trailers, leading manufacturing plants in Brazil and Terre Haute, Indiana; Jonesboro, Arkansas; and Wayne, Nebraska.

**1986**

**Robert Tubbs** (CHEM) is a safety representative for KLJ in Bismarck, North Dakota. He has more than 13 years of environmental and safety experience.

**1988**

**Adrian Lawhorn** (MA) is a product weight variance analyst at Zachary Confections in Frankfort, Indiana.

**1989**

**Capt. Paul Snodgrass** (MA) is the new commander of the U.S. Navy's Submarine Squadron Six, which exercises operational control over seven attack submarines from the Norfolk, Virginia base.

**1991**

**Ross Maue** (ME) has purchased the assets of L'Acquis Consulting Engineering to form Enverity Engineering. The Indianapolis-based company is a leader in providing energy-efficient building systems for large-scale projects, including public spaces of Lucas Oil Stadium.

**Kent McCorkle**, PhD, (CHEM) accepted a tenure-track chemistry faculty position

at Mira Costa College in Oceanside, California. He lives in the San Diego area.

**2001**

**Caleb Tennis** (EE) has been appointed to the Columbus, Indiana, Board of Public Works and Safety. In 2008, Caleb helped found Data Cave, a data storage and protection company that securely houses IT infrastructure for enterprise organizations.

## ALUMNI NEWSMAKERS



### BORK MANAGING GLOBAL ALZHEIMER'S PLATFORM PROJECT

The newly formed Global Alzheimer's Platform has tapped **Jason Bork** (CHE, 1995) as a project management leader. He hopes to help reduce the time and cost of clinical trials, develop an infrastructure that promotes innovation, and assure international collaboration. Bork is on loan from an executive position with YourEncore, an Indiana-based life sciences company, after being in management positions with Covance Central Laboratories and Eli Lilly and Company. ■



### ORMSBY LEADING AIR FORCE'S SCIENCE, TECHNOLOGY PROGRAM

**Charles Ormsby** (EE, 1992) has been promoted to lieutenant colonel in the U.S. Air Force's Office of Science, Technology, and Engineering in Washington, D.C. He is responsible for preparing policy, guidance, and advocacy for the Air Force's annual \$2 billion science and technology program. He also helps implement a broad range of engineering and technical management policies, and manages more than 14,000 military and civilian scientists and engineers. ■



### BYRLEY BEGINS U.S. DIPLOMATIC CAREER IN BELIZE

**Andrew R. Byrley** (ME, 2009) has started service as an American diplomat, being a consular officer in Belmopan, Belize, for the U.S. State Department. He is helping national security, promoting economic interests, providing services to Americans in Belize, and reaffirming America's role in the world. Byrley augmented his Rose-Hulman degree with a master's degree from Georgia Institute of Technology. ■



### BARRON IN CHARGE OF NEW ENGLAND CORPS OF ENGINEERS

Col. **Christopher J. Barron** (PH, 1991) has taken over command of the U.S. Army Corps of Engineers' New England District, a six-state region. He is overseeing civil works activities and engineering, and construction and real estate work for Department of Defense and federal activities. Barron has served in Iraq, Somalia, Haiti, Germany, Macedonia, and Bosnia in a 23-year career with the engineering corps. ■

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



# CLASS NOTES

## Class Notes

**2002**

**Ryan Crisel, MD, (ME)** is an interventional cardiologist at Piedmont Heart Institute in Fayetteville, Georgia. He earned a medical degree from Emory University School of Medicine, and completed his internal medicine residency at the University of California-San Francisco.

**2003**

**Diedric Day (CHE)** was a finalist in the health and life sciences category for Indianapolis' Best and Brightest competition.

**Grant Hoffman (ME; MSBE, 2004)** has returned to campus as the visiting Professor of Practice – Entrepreneurship. He is also founder and chief executive officer of Foster Ohio after being the Innovations Officer for the Cleveland Clinic.

**2005**

**Adam Jarboe (ME; MSEM, 2007)** is now the kitchen innovation manager for Taco Bell in Orange County, California.

**2011**

**Chris Carrico (ME)** and his 2011 Spitzer Top Dragster won the National Hot Rod Association's Top Dragster Division 3 national championship. ■

### CORRECTION



An incorrect profile photograph of alumnus **Matt Moore (CHE, 2004)**

was published in a listing of the 2014 Athletic Hall of Fame inductees in the Spring *Echoes* issue. *Echoes* and Rose-Hulman regret this oversight and apologize for any inconvenience for Matt and his family.

## Obituaries

**1937**

**Burt F. Raynes** died on August 25, 2014.

**1939**

**Victor W. Peterson (ME)**, 95, died on October 31, 2013, in Avon, Indiana. He was awarded 23 U.S. patents as chief designer for General Motors' Allison Division, where he retired in 1974.

**Roy E. Warren (EE)**, 95, died on October 2, 2013.

**1943**

**T. Jack Warrick (EE)**, 91, died on April 22, 2014, in Henderson, North Carolina. He was an electrical engineer for General Electric's Transportation Division until 1984.

**1949**

**James L. Born (EE)**, 89, died on October 5, 2014, in Indianapolis. He worked for the U.S. Naval Avionics Facility and RCA Corporation, retiring in 1987.

**Carl R. Hildebrand (EE)**, 87, died on September 5, 2014, in Beverly Hills, Michigan. He was active in the welding industry and laser engraving.

**1950**

**M. Gene Clingerman (ME)**, 84, died on July 11, 2014, in Nashville, Indiana. He retired from Cummins Engine Company in 1983.

**Harold B. Forsythe (CE)**, 89, died on August 25, 2014.

**1952**

**Vernon S. Salzman (ME)**, 90, died on July 26, 2014, in Jeffersonville, Missouri. He worked for Allis Chalmers for

### FRIENDS



**Louise Kahn**, 97, died on September 26, 2014, in Upper St. Clair, Pennsylvania. She joined her husband, the late **Robert S. Kahn (CHE, 1939)**, in being major benefactors to Rose-Hulman. Their names are enshrined on the main banquet room in the Hulman Memorial Student Union.



**Reba Weaver**, 91, died on August 11, 2014, in Indianapolis. She established the Weaver Undergraduate Research Award program to memorialize the late **Joseph B. Weaver (CHE, 1935)** and support summer research projects by undergraduate students during the past 20 years. She was a board member of Science Education Foundation of Indiana.

30 years and then for Allied Signal until his retirement.

**1956**

**Francis H. Potts (ME)**, 84, died on September 2, 2014, in Cincinnati, Ohio. He worked for General Electric.

**John C. Scott (EE)**, 80, died on June 11, 2014, in Cincinnati, Ohio. He earned seven U.S. patents while working at General Electric for 35 years.

**1957**

**Robert "Bugs" Armstrong (EE)**, 79, died on August 29, 2014, in Indianapolis. He retired as an electrical engineer for Naval Avionics, and was recognized as a pioneer of Indiana caving.

**Thomas Lee Step (CE)**, 77, died on May 1, 2014, in Paris, Illinois. He was a retired civil engineer with the Illinois Department of Transportation and a farmer.

**1966**

**Robert E. Wattleworth (MA)**, 70, died on September 8, 2014, in Wayne, Michigan.

**1981**

**Robert Gann (ME)**, 56, died on July 15, 2014, in Chattanooga, Tennessee.

**1988**

**Michael R. L. Coon (PH; MSAO, 1991)**, 48, died on August 29, 2014, in Copperas Cove, Texas. He was a tutor at Central Texas College and a math teacher for the University of Phoenix in Killeen.

**1991**

**Bartley D. Millikan (AO)**, 45, died on August 21, 2014, in Gilbert, Arizona.

**1995**

**Adam D. Staley (CE)**, 40, died on June 13, 2014, in Green Township, Ohio. He was a licensed professional engineer. ■



## Marriages

**1993**

**Eric Brodeur** (EE) and Whitney Joondeph were married on May 24, 2014, in Minneapolis, Minnesota. Eric is working at EMC, and the couple resides in Minneapolis.

**2006**



**Nicholas Philbrook** (SE) married Lauren Richard on July 19, 2014, in Fletcher, Vermont. The couple lives in Seattle, Washington.

**Brandon Long** (ME) married Andrea Bollinger (CE, 2008) in July 2014. The couple resides in Arvada, Colorado, where Brandon works for Encore Rail Systems.

**2007**

**Nick Alexander** (ME) and Elizabeth Burns were married on September 28, 2013, in Cincinnati, Ohio. Nick is an engineer for Toyota Motors. The couple resides in Cincinnati.

**2008**

**Andrea Bollinger** (CE) married Brandon Long (ME, 2006) in July 2014. Andrea works for Kennedy/Jenks Consultants in Arvada, Colorado, where the couple resides.

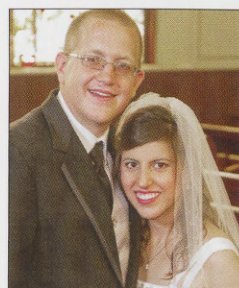
**2010**

**Jeanie Sozansky** (AB) and Jose Lujan (CHE, 2011) were married on July 26, 2014, in Fort Wayne, Indiana. Jeanie is a medical student at Northeast Ohio Medical University in Rootstown, Ohio. The couple resides in Cleveland, Ohio.



**Kristin Greer** (AB) and Nathanael Hensley were married on September 6, 2014, in Batavia, Ohio. Kristin is a registered nurse with Kindred Healthcare in Pittsburgh, Pennsylvania, where the couple resides.

**2011**



**Molly Gillam** (AB) married Matthew Hardebeck on June 7, 2014, in Lafayette, Indiana. She is a fourth-year graduate student at the University of Texas-Southwestern in Dallas, where the couple lives.

**Jose Lujan** (CHE) and Jeanie Sozansky (AB, 2010) and were married on July 26, 2014, in Fort Wayne, Indiana. Jose is a chemical engineer in Ohio, and the couple resides in Cleveland.

**Elizabeth Stewart** (AB) married Michael Darnell on September 6, 2014. She is attending the Indiana University School of Medicine.

**2012**

**Heather Demor** (ME) and **Jordan Oja** (BE) were married on July 12, 2014. The couple resides in Copley, Ohio. ■

## Rosebuds

**1991**

**Kent McCorkle**, PhD, (CHEM) and wife, Kim, welcomed a son, Connor Jaxen, on September 18, 2013. The family resides in the San Diego area.

**1999**



**Jennifer (Schmitt) Etapa** (ME) and husband, Jeff, welcomed their first

child, Carleigh Emily, on July 28, 2014. The family resides in Elkhart Lake, Wisconsin.

**2002**

**Jennifer (Funk) Gibbs** (ME) and **Kevin Gibbs** (CS) welcomed their fourth child, Isabel, on May 27, 2014. The family resides in Olympia, Washington.

**2006**



**Ryan Gulden** (ME) and his wife, Jessie, welcomed a daughter,

Madeline Grace, on September 13, 2014. The family resides in Madison, Wisconsin.

**2007**



**Catherine (Walker) Dragani** (BE) and her husband, Dave, welcomed

a daughter, Kylie Jane, on September 23, 2014. Catherine



**2004**

**Christopher Strain** (EE) and wife, Jana, welcomed their second son, Reece Aaron, on July 10, 2014. He is adored by his big brother, Chase, 3. Christopher is employed with CSN in Terre Haute.

works at Johnson & Johnson, and the couple resides in New Jersey.

**2009**

**Zach Gilmore** (ME, 2009; MSEM, 2010) and wife, Tina Trivett (ME, 2010), had their second child, Grant Duncan, on June 20, 2014. The couple's first child, Rosalee Rebecca, was born on October 18, 2012. The family resides in Indianapolis.

**2010**

**Tina (Trivett) Gilmore** (ME) and husband, Zach Gilmore (ME, 2009; MSEM, 2010), welcomed their second child, Grant Duncan, on June 20, 2014. The family resides in Indianapolis. ■

## WE WANT YOUR NEWS

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



## Lockhart Moves into Leadership Role with Alumni Association

Coeducation marked another milestone on campus this fall with alumna Tracey (Neal) Lockhart becoming the first female president of the Rose-Hulman Alumni Association.

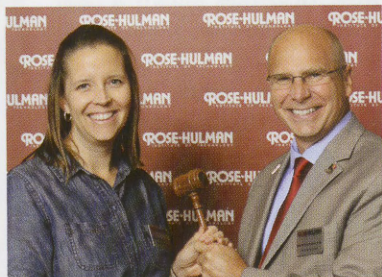
The 2002 mechanical engineering graduate has been a dedicated association leader, being former president of the Young Alumni Council and chair of the homecoming committee. She

follows a Neal family legacy at Rose-Hulman. (See photo on page 28)

At Rose-Hulman, Lockhart was a leader in the Delta Delta Delta women's fraternity, a varsity cheerleader, and member of the drama club.

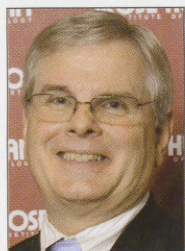
Lockhart has worked at Rolls-Royce Corporation for 12 years in a variety of manufacturing and quality engineering areas. She lives in Greenwood, Indiana, with her husband, Nathan (ME, 2002), and two children.

Lockhart succeeds Dan Wolodkiewicz (ME, 1982) as association president. ■



**GAVEL EXCHANGE:** Tracey (Neal) Lockhart (ME, 2002) took over as president of the Alumni Association from Dan Wolodkiewicz (ME, 1982) during this year's homecoming.

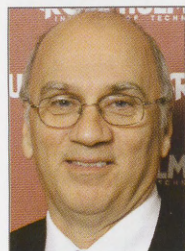
## Mech, Cunning Named Faculty, Staff Honorary Alumni



**Andy Mech**

The Alumni Association presented honorary alumni status to mechanical engineering professor Andy Mech, PhD, and chemical engineering technician Frank Cunning in recognition for their service and dedication to the campus.

Mech, a faculty member since 1986, has a long association with Rose-Hulman and its traditions. His father, Raymond, wrote the music for the institute's alma mater, and Andy updated the lyrics following coeducation. Andy is known for helping students at any time of the day or night, and inspires students to think outside of the box and consider the needs of others. His wife, Mimi, accompanied the Rose Chorus and other student music groups for several years.



**Frank Cunning**

Cunning has helped thousands of chemical engineering students for 32 years, and has the distinction of being the only technician since the department moved into Olin Hall in 1983. He is one of the institute's most influential staff members, being a former staff representative to the Board of Trustees. ■

**SAVE THE DATE**  
**HOMECOMING 2015**  
SEPTEMBER 18-19

## ALUMNI CALENDAR

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

### SPECIAL ALUMNI EVENTS

Peoria/Central Illinois Alumni Clubs' Holiday

Event | **December 6**

Men's Basketball Alumni Game | **December 6**

Alumni Advisory Board/Young Alumni Council Meeting, Bankers Life Fieldhouse, Indianapolis | **January 31**

Indianapolis Mini-Marathon | **May 2**

Career Achievement Awards, Hatfield Hall | **May 2**

Indianapolis 500 Pole Day, Indianapolis Motor Speedway | **May 17**

### PERFORMING ARTS SERIES—Alumni Receptions

Russian National Ballet's The Sleeping Beauty | **January 7**

Michael Kelsey | **May 15**

## Sigman, Reives to Represent Alumni on Board of Trustees



**Chuck Sigman**

After being active in campus affairs while students, Chuck Sigman and Thomas Reives continue their involvement with Rose-Hulman as newly elected alumni representatives to the Board of Trustees.

Sigman (CHE, 1980), the alumni representative to the trustees, is a senior budget analyst for the U.S. government in Washington, D.C. He has earned honors as a financial manager of information systems and technology for the Office of Administration in the Executive Office for the President of the United States. He earned the Rose-Hulman Alumni Association's Career Achievement Award in 2000.



**Thomas Reives**

Reives (ME, 2008; MSEM, 2010) is the young alumni representative to the trustees. He earned Academic All-American honors in football and track/field during

a distinguished career as a student-athlete. He also earned the Thomas Arkle Clark Award as the Alpha Tau Omega fraternity's most outstanding senior, and was a leader in the National Society of Black Engineers and EcoCAR advanced transportation project. Reives is now a regional logistics operations manager for Eli Lilly and Company.

Sigman succeeds fellow classmate, Robert Pease (CHE, 1980), as alumni representative, while Reives follows Sarah Sanborn (CHE, 2004; MSBE, 2006) in representing young alumni. ■



WE  
ARE



## PROVIDE A GIFT IN 2014. MAKE AN IMPACT ALL YEAR LONG!

The end of the year is rapidly approaching and time is running out to include Rose-Hulman in your 2014 charitable giving plans.

Make a gift before December 31 and you can celebrate 2015 knowing that your generosity will have an impact throughout the year.

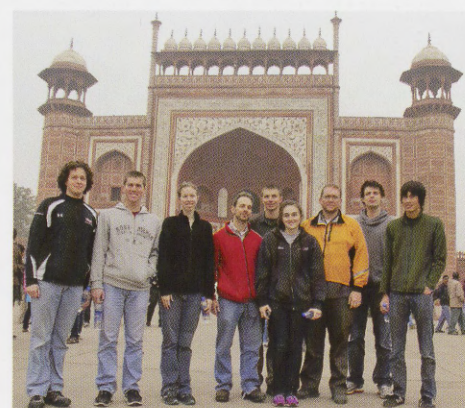
Here are a few of the ways that your gifts have impacted our students' lives and made a difference around the world:



**YOU** helped make it possible for Engineers Without Borders members to expand public health facilities and bring clean water sources to a Dominican Republic village.



**YOU** helped our students mentor a local high-school team that formed the winning alliance for the FIRST Robotics' 2014 Crossroads Regional, and competed in the World Championship in St. Louis.



**YOU** made sure Human Powered Vehicle team members could travel to New Delhi to manage the American Society of Mechanical Engineers' inaugural HPV India Competition.

**You can continue to make an impact on the lives of our students by giving to Rose-Hulman by December 31.**

Change student lives, support world-class faculty, and help Rose-Hulman end a successful 2014 by sending a donation, making an online gift to [www.rose-hulman.edu/give](http://www.rose-hulman.edu/give), or calling 812-877-8217.



DevelopmentOffice@rose-hulman.edu  
812-877-8217  
Terre Haute, IN 47803  
5500 Wabash Avenue

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Thank you for investing in the lives of  
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helps Rose-Hulman prepare its students  
for lives of purpose and success.  
Please make your gift by December 31.

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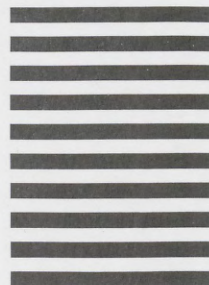
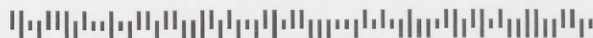
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Your gift to The Fund for Rose-Hulman supports the institute's mission to provide its students with the world's best undergraduate science, engineering, and mathematics education.

I/we want to advance Rose-Hulman's impact on the lives of its exceptional students and renowned faculty with a \$ \_\_\_\_\_ gift for one or more of these key initiatives:

- ☐ Rose-Hulman's Greatest Needs
- ☐ Other \_\_\_\_\_
- ☐ Student Scholarships

### ANNUAL GIVING CIRCLES

*Recognizing annual gifts from July 1 to June 30*

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

### PRESIDENT'S G.O.I.D. CIRCLE

*Recognizing cumulative young alumni giving*

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

Name \_\_\_\_\_ Class Year \_\_\_\_\_

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- ☐ Rose-Hulman is included in my/our estate plans.
- ☐ I/we would like to learn more about how to leave a legacy at Rose-Hulman.

### Giving Options

- ☐ A check made payable to Rose-Hulman is enclosed.
- ☐ Credit Card: ☐ V ☐ MC ☐ D ☐ AE

Expiration: \_\_\_\_\_ (Month) / \_\_\_\_\_ (Year) \_\_\_\_\_ (CVV)

- ☐ Give online at [www.rose-hulman.edu/give](http://www.rose-hulman.edu/give)

### Corporate Match Information

My employer, \_\_\_\_\_, will match my/our gift.

My spouse's employer, \_\_\_\_\_, will match my/our gift.

Please note, effective July 2014, donations to Rose-Hulman are deposited directly to our bank for quicker processing.



# Echoes

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## PARTING SHOT

### Enjoying Accessibility to More Fall Campus Beauty

Freshmen Alex Hirschfeld, from Rollingwood, Texas, and Yvonne Lumetta, from Pasco, Washington, enjoy a leisurely fall afternoon riding their skateboards on a new perimeter road added to better connect western parts of campus. (Photo by Shawn Spence)