

Winter 2008

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Echoes Staff

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# Echoes

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Winter 2008-09

Vol. 2008-09, No. 2

## College Entrepreneurs to Watch

*Rose-Hulman's Jeremy Clarke happens to be just one of these*

Still Number One, *Rose-Hulman on top for 10 Consecutive Years*

What's the Future Hold, *Taking a Look at the Future of STEM Education*

Awards, Awards, Awards, *Alumni Honored on Several Fronts*



## HEARD IN THE HALLS OF MOENCH

*“I am Santa Claus right now. It’s awesome.”*

— Freshman volunteer **Doug Mann**, quoted in the *The Rose Thorn* student newspaper during the assembly day for the Bikes for Tykes program on campus. A total of 450 bicycles and tricycles were assembled.

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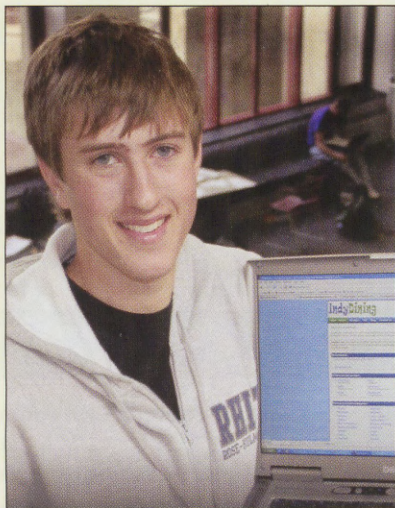
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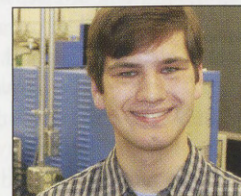


#### ON THE COVER

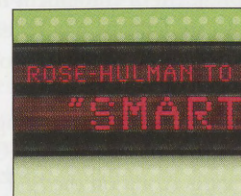
Photographer/writer Dale Long captures nationally recognized entrepreneur Jeremy Clarke at the portals of one of his businesses.



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## FRESHMAN CLASS BRINGS INCREASED DIVERSITY TO CAMPUS

Rose-Hulman Institute of Technology continues to become more ethnically and geographically diverse, with the top-ranked undergraduate engineering college attracting the largest number of African American students, the second largest number of international students and third largest number of women students as part of 486 students in the 2008 freshman class—the third largest in school history.

“We have attracted another talented and hardworking freshman class that’s ready to take its place among our very best,” states Jim Goecker, vice president of enrollment management. “This incoming class is filled with students who were leaders in their high schools, in and out of the classroom, and we’re looking forward to them making a difference at Rose-Hulman.”

Admirable attributes of the incoming class include a median 1280 composite SAT score, 29 composite ACT score, 28 students having perfect mathematics scores on the SAT or ACT, 55 students ranking among the top three positions in their graduating classes, 160 students were members of a high school academic team, 253 students participated in varsity athletics, 147 students were involved in community service activities, and 265 students were musicians, singers or drama club members in high school.

Twelve percent of the 2008 freshman class is non-Caucasian, showcasing an institutional emphasis in desiring a more diverse student

body. Also, students are coming to Rose-Hulman from such international origins as China, Bangladesh, France, Thailand, Netherlands and Canada.

And, Goecker points out that Rose-Hulman continues a decade-long trend of becoming more geographically diverse. Fifty-eight percent of the new students come from homes in 35 states and the District of Columbia.

“Rose-Hulman is becoming a national undergraduate engineering college that’s a top choice of students from the West Coast to East Coast,” Goecker said. “Now, we’re looking to expand our recruitment efforts on a global scale.”

Rose-Hulman received 3,164 applications for undergraduate admission and 92 applications for transfer admission during the 2007-08 recruitment season.

Twenty transfer students were also new to Rose-Hulman this fall. Students transferred from Purdue University, Indiana University, Indiana State University, Drexel University and Ithaca College. ■



Freshman students from throughout the world were welcomed to Rose-Hulman Institute of Technology by members of the college’s residence life staff before starting New Student Orientation activities. The incoming class has the largest number of African American students in Rose-Hulman history.

## Rose-Hulman Ranks No. 1 for 10th Consecutive Year

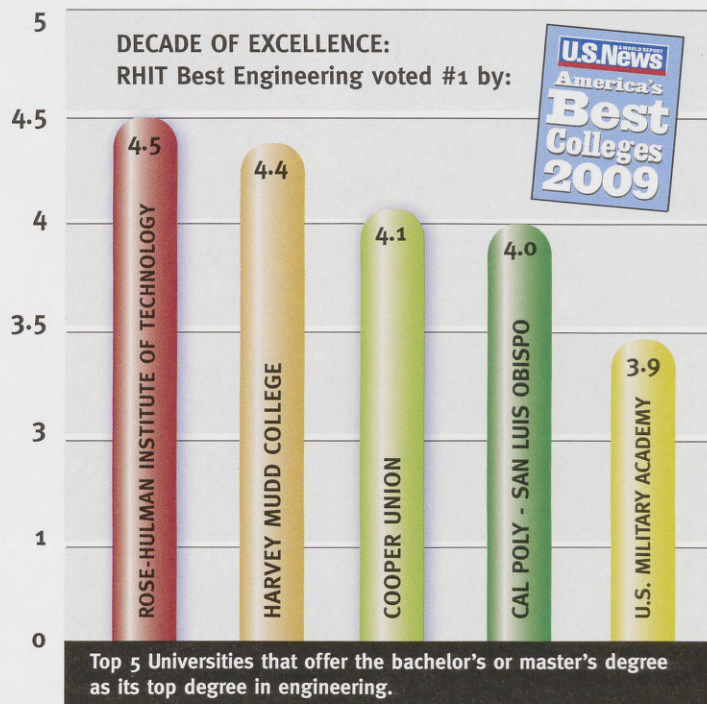
For the tenth consecutive year, Rose-Hulman Institute of Technology has been ranked the number one college or university that offers the bachelor’s or master’s degree as its top degree in engineering. The ranking is based on a national survey of deans and senior faculty conducted by U.S. News & World Report.

In addition to the college’s overall ranking, four individual Rose-Hulman engineering programs received number-one rankings: civil engineering, computer engineering, electrical engineering and mechanical engineering. Rose-Hulman’s chemical engineering program received a number-two ranking.

“The U.S. News ranking is an indicator of the excellence Rose-Hulman strives to achieve on a daily basis,” said Rose-Hulman President Gerald S. Jakubowski.

“Although the number-one ranking affirms our reputation as a national educational leader, it is not the only tool that should be used when evaluating Rose-Hulman,” Jakubowski pointed out. “The quality of our students, the effectiveness of our faculty and staff, our hands-on approach to learning, and the success of our alumni tell a broader story of how the college impacts individual lives and society in general.”

In this year’s U.S. News ranking, Rose-Hulman received a 4.5 peer assessment score on a scale of one to five. The remaining top five colleges are Harvey Mudd College in California (4.4), Cooper Union in New York City (4.1), Cal Poly - San Luis Obispo (4.0) and the United States Military Academy (3.9). The rankings are



based solely on peer survey of deans and senior faculty. For more information about the rankings, visit the U.S. News Web site at <http://colleges.usnews.rankingsandreviews.com/college/>. For specific information about engineering programs visit <http://colleges.usnews.rankingsandreviews.com/college/spec-engineering>. ■

## \$2.7 MILLION GRANT FROM LILLY ENDOWMENT ALLOWS HOMEWORK HOTLINE TO CONTINUE HELPING INDIANA STUDENTS



A \$2.7 million grant from Lilly Endowment Inc. will support and enhance Rose-Hulman Institute of Technology's Homework Hotline for

the next three school years, including increasing outreach to help students in the Indianapolis Public Schools (IPS) and other areas throughout the state.

"Thanks to the Lilly Endowment's loyal support, we'll continue to provide a quality tutoring experience to Indiana students, through conventional toll-free telephone service and online tutoring," stated Susan Smith, Homework Hotline director.

A record 44,151 callers and 2,652 e-mail senders were helped by the Homework Hotline during the 2007-08 school year. That total increased the number of calls received to more than 250,000 since the program's inception in 1991.

The Homework Hotline will have more tutors available this school year to respond to more calls and online services. The biggest challenge, according to Smith, is getting students to use the service for the first time.

"Our research shows that if a student calls or e-mails us once, the student has such a wonderful experience and gets the desired help, that he or she will call again," Smith said. "The Homework Hotline has experienced tremendous success reaching students, educators and community leaders across Indiana."

During the 2007-08 school year, the

Homework Hotline piloted an online, real-time tutoring system to further assist Indiana students. This project and other educational resources will be expanded during the next three years of the Lilly Endowment grant, according to Smith.

The Homework Hotline is not an answer line, but rather an educational resource that reinforces classroom concepts and offers assistance.

Sara B. Cobb, Lilly Endowment's vice president for education, stated, "The impact of Rose-Hulman's Homework Hotline is as basic and concrete as helping a student solve an algebraic equation, or as profound as increasing a student's confidence level and even sparking an interest in a technical field. The Homework Hotline continues to touch people on a very personal level by providing a needed educational resource through a unique learning program." ■

## \$950,000 Lilly Endowment Grant Supports PRISM Web Portal to Help Indiana Educators

The integration of advanced educational technologies into Indiana school classrooms will be strengthened through Rose-Hulman's Portal Resources for Indiana Science and Mathematics (PRISM) project, supported for the next three years by a \$950,000 grant from Lilly Endowment Inc. Started in 2003 through an initial Lilly Endowment grant, PRISM has become a valuable educational resource for Indiana middle school science, technology, (pre) engineering, and mathematics (STEM) teachers. The project offers a digital library of more than 2,300 resources indexed by the Indiana Academic Standards and cross referenced by learning concepts for grades 6-8. These learning tools mirror the actual practice of science and engineering in the workplace, according to PRISM Director Patricia Carlson.

More than 5,000 Indiana educators have PRISM accounts that grant access to online course materials for over 10,000 Indiana students. Many other educators use the open access library of simulations, modeling packages, cognitive skills games, and software that increases student task

engagement and motivates learning. The PRISM Web site ([www.rose-prism.org](http://www.rose-prism.org)) averaged 1,190 unique users per day at the end of the 2007-08 school year, and PRISM was named in 2006 as one of the top 15 educational technology innovations in the nation by the Journal of Technology Horizons in Education.

"PRISM is the premier Web site for Indiana middle school teachers' STEM coursework and has become a nationally recognized project," stated Carlson, who is also a professor in the Department of Humanities and Social Sciences. "PRISM has three well-defined strengths: a library of reviewed digital resources indexed by Indiana Academic Standards; a convenient framework for integrating Web resources into the classroom, and workshops and e-course offerings for teacher development." The latest Lilly Endowment grant will continue to integrate advanced educational technologies into STEM education in Indiana.

A major transforming agent for education in the near future will be the rapid advancements in informational

technology used in the workplace, according to Carlson. New tools for knowledge workers indicate that the next wave of educational reform may well require a focus on academic standards that incorporate emerging information technology proficiencies into the traditional STEM curricula.

To meet this rising need, PRISM began offering free distance education courses to train teachers in the use of the Moodle course management system and the PRISM digital resource library. Teachers are instructed on how to create their own online learning environment that allows them to post interactive assignments and design informative Web pages that allow their students to submit assignments electronically and critique the work of classmates. Over 300 teachers have completed the course since January. ■



## ROSE-HULMAN TEAM BEGINS ECOCAR: THE NEXT CHALLENGE

Rose-Hulman Institute of Technology students and faculty have received intense training to equip them with the tools and knowledge needed to design and model a functional fuel-efficient vehicle that mirrors industry practices in the EcoCAR: The NeXt Challenge, a three-year collegiate advanced technology engineering competition established by the U.S. Department of Energy in partnership with General Motors and being managed by Argonne National Laboratory.

Five students joined faculty co-advisers Zac Chambers and Marc Herniter at the Fall EcoCAR Workshop at the GM World Headquarters in Detroit, along with representatives of the other 16 participating North American universities. The Rose-Hulman group included Jon Kellerman, a senior electrical and computer engineering major; Theresa Selcke, a junior mechanical engineering major; Eric Stokes, a sophomore computer engineering major; and Andrew Corsten

and Dan Shepard, sophomore mechanical engineering majors.

Chambers and Herniter helped The MathWorks, a key EcoCAR sponsor, to train students on how to use Model-Based Design and industry standard software tools to design and model their vehicles.

Overall goals, objectives and technical format for the competition were covered and the sessions for the students included an introduction to Model-Based Design, MATLAB tools and PSAT.

"EcoCAR provides a unique opportunity for students to learn how to use advanced simulation techniques such as hardware-in-the-loop (HIL) to develop and refine control strategies that will address real-world automotive challenges," stated Mike Walstrom, controls and simulation engineer for Argonne National Laboratory, in a news release. In addition, GM representatives walked teams through its Vehicle Development Process to show students how they will follow a similar process to

develop their advanced technology vehicles for EcoCAR.

The competition goals are to challenge university engineering students across North America to re-engineer a GM Saturn Vue to achieve improved fuel economy and reduced emissions, while retaining the vehicle's performance and consumer appeal.

Students will design and build advanced propulsion solutions that are based on the vehicle categories from the California Air Resources Board (CARB) zero emissions vehicle (ZEV) regulations. Students will be encouraged to explore a variety of solutions including electric, hybrid, plug-in hybrid and fuel cells. In addition, they will incorporate lightweight materials, improve aerodynamics and utilize alternative fuels such as ethanol, biodiesel and hydrogen.

Argonne National Laboratory will provide competition management, team evaluation, as well as technical and logistical support. ■

## SOLAR CAR ENTERS COLLECTION OF ALUMNUS CHARLES KLEPTZ

Rose-Hulman Institute of Technology alumnus Charles "Chic" Kleptz has added a one-of-a-kind vehicle to his impressive automotive museum collection in Union, Ohio — an award-winning solar-powered vehicle that was designed, constructed and raced by students for an American cross country road race.

The Solar Phantom V, third-place finisher in the Sunrayce 99 solar racing competition, was presented to Charles and Arlene Kleptz during the college's recent Homecoming by Rose-Hulman President Gerald S. Jakubowski.

The vehicle has been added to the Kleptz's collection, which includes the largest display of rare Marmons and one of the first versions of a Bradley, with an engine from 1900.

"This car will have a special place because it is from Rose-Hulman, my college, and it is such a beautiful vehicle," Kleptz said.

The Solar Phantom V was the most successful vehicle that Rose-Hulman students competed in the biennial Sunrayce and North American Solar Challenge events from 1990 to 2003.

Kleptz, a mechanical engineering



graduate, co-founded the successful Ponderosa Steakhouse restaurant chain in Kokomo, Ind., in 1965. During the next eight years, the company grew to include more than 350 restaurants throughout the country. He retired in 1973 and now splits time between homes in Union, Ohio, and Naples, Florida. ■

Rose-Hulman has surfaced various places on the national scene in recent months. This provides a brief overview of where that spotlight has casts its glow. For more about each listing, visit the Rose-Hulman news web site at <http://www.rose-hulman.edu/news/>.

- Design News magazine highlighted Rose-Hulman for being "a small, elite" college that offers a "successful alternative to the big university model." Editor John Dodge points out that Rose-Hulman is focused on "turning out a well-rounded individual instead of someone maxed out in math and science in their respective field or students victimized by more bad instructors than good."
- Kevin Christ, associate professor of economics, was cited as a source in the Chronicle of Higher Education on the topic of whether the current financial crisis will affect the teaching of economic theory. He was quoted in the national higher education publication's The Critical Mass column.
- For the tenth consecutive year, Rose-Hulman Institute of Technology has been ranked the number one college or university that offers the bachelor's or master's degree as its top degree in engineering. The ranking is based on a national survey of deans and senior faculty conducted by U.S. News & World Report. (See page 2.)

## NATIONAL SPOTLIGHT SHINES ON ROSE-HULMAN.



- International experiences earned by Rose-Hulman Institute of Technology football players during a summer trip to Italy were featured on the "NCAA On Campus" program broadcast on ESPN Classic in September. View the video at <http://www.rosehulman.edu/news/articles/ncaaoncampus.htm>. A six-minute story about the football team's trip also features scenes from the Rose-Hulman campus (White Chapel and Percopo residence hall) and information about the institution from "NCAA On Campus" reporter Cat Andersen.

- Software engineering major Jeremy Clarke has been selected as one of the nation's top collegiate entrepreneurs in StartupNation.com's first Dorm-Based 20 competition. The list represents a cross section of collegiate impresarios from throughout the country. Clarke and the other 19 winners on the list were recently featured in MSN Money. He has developed successful web design businesses whose clients rave about his customer service.

The Indianapolis Star picked up on Clarke's honor in a feature article about entrepreneurship on campus, and he was featured on the "Inside Indiana Business" statewide television program. ■

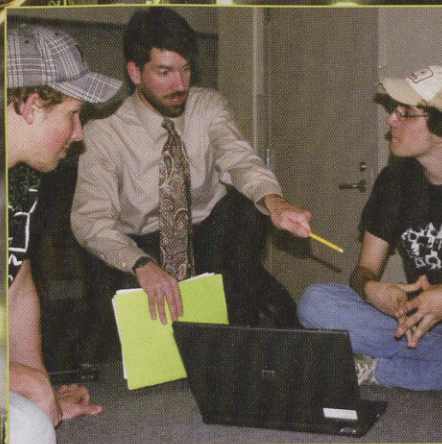
## CAREER FAIR RECORD

This fall's Career Fair set a record with 208 companies on campus being represented by 550 representative recruiters who packed the Sports and Recreation Center. Approximately 1,300 students attended, seeking full-time, internships and co-op opportunities.



# ROBOTICS CERTIFICATE PROGRAM

## PREPARES STUDENTS FOR TECHNOLOGY CHALLENGES



Faculty Advice: Matthew Boutell (middle), assistant professor of computer science and software engineering, helps freshmen Garry Payne and Matt Runchey with a computer programming question in a course that's part of Rose-Hulman's new robotics initiative. Boutell is among four faculty members that are teaching courses in the program.

Elements of computer programming, technology, mathematics, science and engineering are coming together in a new robotics initiative at Rose-Hulman that could lead to students earning the college's first robotics certificate.

The new Multidisciplinary Educational Robotics Initiative (MERI) has been eagerly anticipated by students, faculty members and companies that are clamoring for graduates with robotics skills and programming knowledge. Matthew Boutell, assistant professor of computer science and software engineering, compares robotics to the popularity of the personal computer industry in the 1970s.

"It (robotics) is ready to explode. It is where technology is headed in the future, and a familiarity with robotics will give Rose-Hulman students and graduates an advantage in their careers," he says.

Robotics is a multidisciplinary field, blending mechanics, electronics, controls, and software, and requiring engineers to have deep enough knowledge where they can contribute within their specialty, but broad enough knowledge to understand other engineers. They must also be able to work in multidisciplinary teams. Rose-Hulman's MERI program, supported by a Faculty Success Grant

from the Lilly Endowment Inc., strives to meet all of these objectives, according to David Fisher (Mech. Eng., '00), assistant professor of mechanical engineering.

"Engineers in the future will need to understand and appreciate the components of the entire system at a high level to communicate with others, but tend to contribute primarily in a concentration (areas like kinematics, controls or computer programming)," he says.

So, rather than have a robotics major, Rose-Hulman's new robotics initiative will include students who are enrolled in academic majors that most interest them: mechanical engineering, electrical engineering, computer engineering, computer science or software engineering. They then earn the robotics certificate by taking seven courses covering a variety of areas, depending on major course of study. Some of the courses on the list cover such topics as mobile robotics, artificial intelligence, digital systems, wireless systems, mechatronic systems, image processing and microprocessors. A senior-year multidisciplinary robotics project will cap the experience.

The robotics initiative started this fall with 18 freshmen and sophomore students enrolled in an Introduction to



Learning About Robotics: Freshmen Ian Stevenson and Karl Heidtbrink work together to solve a problem on their Roomba robot during a recent competition in the Introduction to Robotics Programming pilot course being taught this fall.

Robotics Programming pilot course.

"Robotics links several disciplines together — computer programming, mechanics, electrical circuits and problem solving. It's a thrilling challenge that I like exploring," states Virginie Frizon, a freshman computer science major.

Rose-Hulman's MERI program hopes to help the college attract students who have robotics experience through the FIRST Robotics, Botball, First Lego League and other national competitions. These students are ready to learn more about programming, electronics, controls, artificial intelligence, robot vision and kinematics, according to Carlotta Berry, assistant professor of electrical and computer engineering. ■

## RON REEVES ENDOWED SCHOLARSHIP FUND KICKS OFF AND YOU CAN JOIN IN

Ron Reeves has been changing lives at Rose-Hulman for over fifty years. Starting before his graduation in the Class of 1958, and extending through and beyond his retirement in 1997, his commitment to the college and its mission has been extraordinary. His loyalty, integrity, and his sacrificial willingness to help others go unmatched. Ron was instrumental in securing four of the largest gifts in the history of the school. He worked closely with John Logan on the Hulman Foundation gift in 1970 (facilitating all of the detailed work with the Hulman family). He spent several years working with Sam Hulbert in pursuit of the Olin Foundation commitment. He was the lead person engaging with Bernie Vonderschmidt during the many years of his support for Rose, and he was instrumental in nurturing the relationship with Mike Hatfield as well. This does not mention his work to secure employment for many new graduates, loan money for an "interview" suit to students, and the myriad of other ways Ron made Rose-Hulman the special place it was and remains today.

The Ron Reeves Endowed Scholarship Fund was established to help Rose continue to attract the best and brightest students possible. Mike Hatfield and Jeff McCreary made two lead gifts to get the fund quickly to the endowed level (\$50,000). The next

step was to reach out to ATO alumni who had a chance to engage so personally with Ron. From the early efforts, the fund has grown very well and presently has received gifts totaling over \$105,000 - 178 gifts from 163 donors. The original objective was to reach at least \$250,000, and now it is time to introduce the fund to all alumni and friends.

While we need large gifts to make this a great success, every gift is important and helps reach our goal. We know that Ron has been touched by this fund and is humbled by the numbers of donors and their generosity. Now is your chance to impact present and future Rose-Hulman students and to honor Ron.

You can make a gift by going to the Alumni web site at <http://alumni.rose-hulman.edu/> and then picking the Alumni Giving button on the left. On the secure giving screen, you will find an option to donate to Ron's fund. You can also send a check, or give by many other means. If you have questions about the fund or making a gift to it, please contact Bill Foraker by e-mail at [bill.foraker@rose-hulman.edu](mailto:bill.foraker@rose-hulman.edu) or by phone at 812-877-8219.

Thank you for supporting current Rose students and for honoring the lifetime work of Ron Reeves in this way. ■

## MALMQUIST, WEAVER GIVE FOR ANNUAL FUND CHALLENGE

Rose-Hulman Institute of Technology alumni are being encouraged to support their alma mater through the Malmquist-Weaver Annual Fund Challenge, supported through \$75,000 gifts by alumnus John Malmquist and Reba Weaver, widow of alumnus Joseph Weaver.

Malmquist and Weaver will match each dollar donated by Rose-Hulman alumni achieving one of the following goals: Constituents who are making their first gift to the college; constituents who have made a gift in the past, but did not make a gift in the 2007-08 fiscal year (June, 2007 to July, 2008) and will make a gift of at least \$100; or constituents who upgrade their annual giving to at least \$1,000, making them eligible for inclusion to the President's Circle group.

"The primary focus of this challenge is to create some excitement surrounding the Annual Fund, while gaining new donors and challenging others to either renew or increase their gift to the Annual Fund," stated Mark Lindemood, Rose-Hulman's vice president for institutional advancement. In particular, he noted, this challenge will be helpful in increasing the number of honors at the \$1,000 level.

Malmquist, a 1969 civil engineer graduate, lives in Madison, Wis., with his wife, Susan.

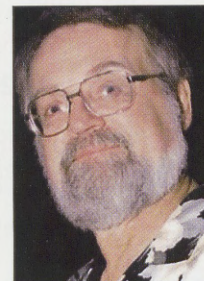
He is a retired engineer and financial representative for M.C.C. Inc., is active in the Triangle fraternity and is currently serving as the assistant secretary for the Triangle Building Loan Fund. He received a Career Achievement Award from Rose-Hulman in 1987 and has established the John K. Malmquist Endowed

Scholarship at Rose-Hulman.

"I had a great education (from Rose-Hulman) that's afforded me to enjoy a great life. I want future students to reap those same benefits," stated Malmquist. "I am one of the alumni that are so proud of my alma mater's consistent No. 1 ranking in U.S. News & World Report's Annual Guide (among undergraduate engineering colleges). You don't get to stay on top without a lot of hard work and support, and I think that alumni should give back to Rose-Hulman. We're all reaping the good fortunes of attending the college."

Reba Weaver, from Indianapolis, is a loyal supporter of Rose-Hulman. She established the Weaver Undergraduate Research Fund in memory of Joseph Weaver, a 1935 engineering graduate. The fund supports students and faculty willing to explore a wide range of science and engineering projects through a collaborative undergraduate research program. Reba Weaver has also sponsored other campus educational efforts and is actively involved in science fair competitions.

"I am happy to support the challenge gift program," stated Reba Weaver. "Enticing others to give provides extra bang for my financial support to the college that I hold in such high regard." ■



John Malmquist



Reba Weaver

# Bailey Challenge

By Professor Emeritus Herb Bailey

When good engineers solve a problem, they move right on to solve the next one. When good math folk solve a problem, they stay put and look for another way to solve the same one.

The Hindu mathematician Bhaskara Acharya (1114-1185) is credited with several proofs of the Pythagorean theorem. Two of his proofs were just a figure along with the word BEHOLD. Combining his two figures gives our BEHOLD SQUARED. Note that the middle square is the sum of the small square and 4 triangles. Thus if  $a$ ,  $b$  and  $c$  are the triangle sides, then the small square has area  $(b-a)^2$  and the middle square has area  $c^2$ . Hence  $c^2 = 4\frac{ab}{2} + (b-a)^2$ , and this simplifies to  $a^2 + b^2 = c^2$ .

This proof is one of Bhaskara's two behold proofs and it was the second problem in the previous *Echoes*.

## PROBLEM 1

Find another proof of the Pythagorean theorem based on the figure.

## PROBLEM 2

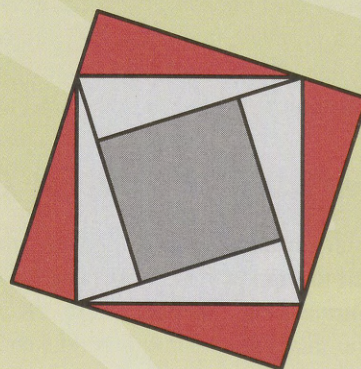
There are 30 people at a church service and each shakes hands with each of the others. How many handshakes in all?

## BONUS

Solve problem 2 another way and combine the two solutions to show that

$$1 + 2 + 3 + \cdots + 28 + 29 = \frac{(29)(30)}{2} . \text{ More generally, } \sum_{i=1}^n i = \frac{n(n+1)}{2}$$

(BEHOLD)<sup>2</sup>



Send your solutions to [Herb.Bailey@rose-hulman.edu](mailto:Herb.Bailey@rose-hulman.edu) or to Herb Bailey, Math. Dept., Rose-Hulman, 5500 Wabash Ave., Terre Haute IN 47803.

Please include your class year if you are an alum.

Solvers of the previous problems are listed on page 17.



5500 Wabash Avenue  
Terre Haute, IN 47803

from the desk of President Gerald S. Jakubowski

### Rose-Hulman's Guiding Principles During Current Economic Times

The world's economic conditions are creating headlines nearly every day. In light of the uncertainty these conditions create, I want to share with you the principles that will guide Rose-Hulman's actions and reactions to this uncertain future.

Our primary goal is to continue to provide our students the highest quality learning experience through project-based education, the finest faculty and staff, small class sizes and low student-to-faculty ratios. We provide a vibrant campus life that gives students, faculty and staff a rich life experience in addition to the school's academic rigor. Rose-Hulman is also proud to have a strong sense of community in which we take pride in each others' accomplishments, and help each other through difficult times.

These are the characteristics that have guided Rose-Hulman for 135 years and have made Rose-Hulman the number one undergraduate engineering college for 10 consecutive years. I am confident that they will provide the guiding light that will lead us through the current times and to greater successes in the future.

Nevertheless, these are extraordinary times. Few individuals or institutions can claim complete immunity from the pressures these economic conditions have created. Despite the financial realities of these economic times, I want to assure you that Rose-Hulman is in a strong financial position. We must, however, recognize that the future is unclear and we must prepare for any contingency, always following our strong tradition of putting students first.

It is likely that our families, students and friends will find the coming months as challenging as Rose-Hulman will as an institution. We are therefore exploring every alternative to ensure that sufficient funds are available for our students: from both traditional and new lending sources and from maximization of our existing financial aid resources.

This is the time to renew our dedication to our guiding principles and to maintain Rose-Hulman's proud tradition of student-first excellence in engineering, mathematics and science education. Working together, we will ensure that Rose-Hulman's rich heritage continues and grows long into the future.

Sincerely,

Gerald S. Jakubowski, Ph.D., P.E.  
President

## FIVE INDUCTED INTO ATHLETIC HALL OF FAME

Rose-Hulman added five new members into its Athletic Hall of Fame last fall.

With this year's induction class, the Rose-Hulman Athletic Hall of Fame grew to 147 members. The class featured four former track and field standouts, including a pair of two-sport athletes who also played football. Shakamak High School graduate Matt Sims rounded out the class of five for the event.

**Arvont Hill** captured a pair of conference titles in track and field and still holds the indoor 55-meter dash school record of 6.56 seconds. Hill holds top-four all-time efforts in the 200-meter dash both indoors and out, and was part of the 4-x-100-meter relay conference title team in 1997.

**Ernie Jones** helped lead the track and field team to an undefeated season in his senior campaign with school records in

the triple jump (46' 11 3/4") and pole vault. He was the team's leading scorer as a senior and was named Most Valuable Field Events athlete as a team captain.

**Ryan Loftus** earned a pair of NCAA Division III Indoor Track and Field National Championships and was named CoSIDA Track and Field Academic All-American of the Year in 1998. Loftus earned four All-American honors and was a four-time conference champion in the pole vault. He currently holds indoor (16' 8") and outdoor (16' 7 1/4") pole vault school records.

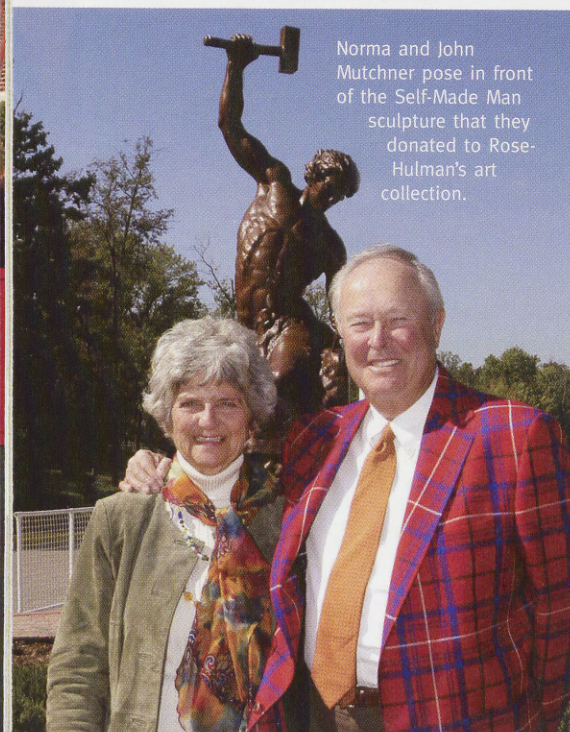
**Nathan Subbert** earned outdoor track and field All-American honors in the hammer throw in 1998 and was a two-time conference champion in the event. The school record holder in the 35-pound weight throw was also a four-year football offensive line starter and academic all-



Rose-Hulman's 2008 Athletic Hall of Fame Induction Class included (l to r) Nathan Subbert, Matt Sims, Arvont Hill, Ryan Loftus and Ernie Jones.

district honoree.

**Matt Sims** ranks third in Rose-Hulman history with 25 baseball pitching wins, fourth with 224 innings pitched and eighth with 157 strikeouts. Sims was 10-3 with a 2.56 earned run average for a 1996 squad that qualified for the NCAA Division III Playoffs. He was later signed to a contract in the Frontier League after graduation. ■



Norma and John Mutchner pose in front of the Self-Made Man sculpture that they donated to Rose-Hulman's art collection.

## ROSE-HULMAN DEDICATES MUTCHNER GIFT TO COLLEGE ART COLLECTION

The newest addition of art to Rose-Hulman, a gift from John and Norma Mutchner, was dedicated at the Sports and Recreation Center on Homecoming morning.

The Self Made Man Sculpture features a "man carving himself out of stone, carving his future." John Mutchner, who spent 25 years as athletic director and coach, was struck by the sculpture and how it depicted the efforts of the young men and women who are carving their futures with a Rose-Hulman education.

The Mutchners have had a long relationship with Rose-Hulman. John Mutchner served as basketball, baseball and tennis coach, and athletic director. His teams had a 341-295 record in 25 seasons as basketball coach, setting a school record for career coaching wins, and made four

postseason appearances.

"Few people in Rose-Hulman's history have had more positive influence on the co-curricular aspect of student development than John Mutchner. This beautiful work of art is a permanent reminder of the Mutchners and what it takes to be a Fightin' Engineer," said Rose-Hulman President Gerald Jakubowski.

An innovator, Mutchner brought "The Cannons" to Shook Fieldhouse and took his teams on many exotic trips, including the first trip by an American college team to play in Russia.

Former student-athletes Don Ings and Roger Ward joined Rose-Hulman President Gerald S. Jakubowski in making expressions of appreciation at the dedication ceremony. The sculpture was created by artist Bobbie Carlyle. ■

## EIGHT FALL SPORT STUDENT-ATHLETES NAMED ACADEMIC ALL-DISTRICT

Rose-Hulman fall sports teams combined for eight ESPN The Magazine academic all-district awards during the 2008 season, in results released by the College Sports Information Directors of America.

First-team honorees on all-district squads

included football players Calvin Bueltel and Reed Eason, along with women's soccer standouts Jen Lyman, Liz Ridgway and Annmarie Stanley. Second-team award winners included men's soccer player Corbin Clow and football teammates Kyle

Stevens and Andrew Steward.

The first team honorees advanced to their respective national ballots. Check the Rose-Hulman athletic website to see whether any of the first-team honorees were chosen for national honors. ■

## ROSE-HULMAN HONORS 1958 FOOTBALL TEAM AT HOMECOMING



Twelve members of the 1958 Rose Polytechnic football team returned to campus for their 50th anniversary of their undefeated season.

The most recent undefeated team in Rose-Hulman football school history was honored in the 50th year of its accomplishment at Homecoming festivities on Saturday.

Twelve players from the 1958 team

returned for a pregame luncheon recognizing their accomplishments. The team was also recognized at halftime of the Homecoming game against Manchester. Returnees included Joe Andel, Chuck Gilbert, Bart Gronberg, Carl Herakovich, Tom Hormuth, Dan Kingery, Ed Kostra, Bill Kuchar, Dick Pike, Al Raquet, Dan Scott and Jack Schreiner.

During the luncheon event, Herakovich presented a game ball from his final touchdown of the unbeaten campaign to Rose-Hulman, and also provided a painted ball from coach Phil Brown that highlighted the accomplishments of the team.

The 1958 Rose Polytechnic Fightin' Engineers outscored their opposition by a

270-31 margin. Rose Poly won a school record 15 consecutive games over two years and captured the Prairie Conference championship.

The Fightin' Engineer defense truly featured fight, as the team led the nation by allowing just 3.9 points per game. Rose Poly intercepted 21 opponent aeriels and allowed just 24 completions the entire season to rank second in the nation in pass defense.

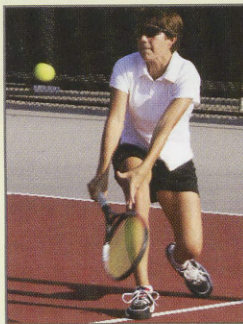
Offensively, the outstanding play of Herakovich helped lead the Engineer attack. The team captain helped the Engineers average nearly 34 points per game by becoming the national scoring champion with 168 points. He was honored with an autographed football from the 2008 team. ■

## TWO ENGINEERS NAMED HCAC PLAYERS OF THE YEAR

Rose-Hulman juniors **Sam Danesis** and **Stephanie Harrington** were named the Heartland Collegiate Athletic Conference Women's Tennis and Women's Golf Players of the Year for their efforts this fall.

Danesis became the first female student-athlete in Rose-Hulman history to earn three conference Player of the Year honors with her efforts in tennis.

This season, Danesis compiled a 17-1 singles record and a 14-2 doubles mark. She holds every Rose-Hulman women's



Sam Danesis was named HCAC Women's Tennis Player of the Year for the third straight season.

tennis career school record, including marks for singles victories (55), doubles wins (49) and career combined victories (104). Her career singles record is 55-10, with a doubles mark of 49-12.

Harrington was crowned the Women's Golf Player of the Year after firing rounds of 84 and 78 at the conference championship at Hulman Links Golf Course. She captured the victory by a two-stroke margin over Transylvania's Janca Millett.

Harrington also earned the first individual women's golf conference champion in school history and earned her third consecutive all-league award.



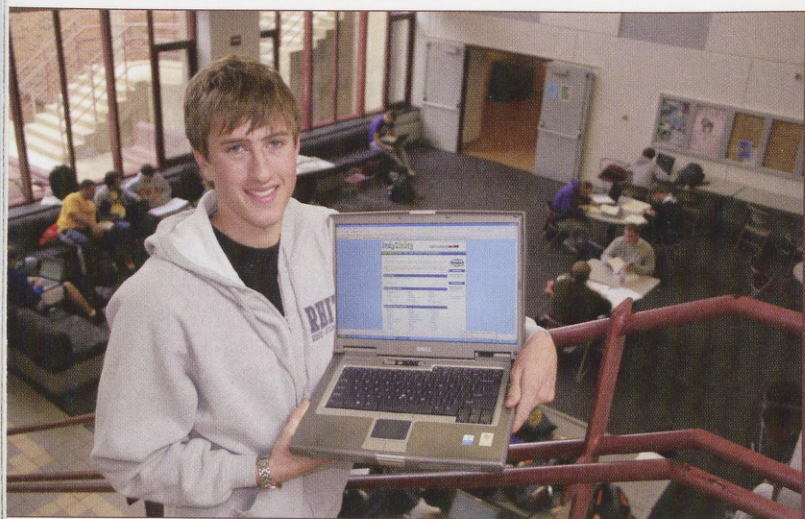
Rose-Hulman fall sports teams combined for eight ESPN The Magazine

academic all-district awards during the 2008 season, in results released by the College Sports Information Directors of America.

First-team honorees on all-district squads included football players **Calvin Buetel** and **Reed Eason**, along with women's soccer standouts **Jen Lyman**, **Liz Ridgway** and **Annmarie Stanley**. Second-

team award winners included men's soccer player **Corbin Clow** and football teammates **Kyle Stevens** and **Andrew Steward**.

The first team honorees advanced to their respective national ballots. Check the Rose-Hulman athletic website to see whether any of the first-team honorees were chosen for national honors. ■



Jeremy Clarke shows off one of his web-based businesses.

Through some nifty keystrokes on his laptop at Rose-Hulman Institute of Technology, Jeremy Clarke keeps track of three successful Web-based business enterprises while making quite a name for himself as a student entrepreneur.

The senior software engineering major has been selected one of the nation's top collegiate entrepreneurs in StartupNation.com's first Dorm-Based 20 competition. He also has been profiled in *Entrepreneur* magazine and recognized as the Top Entrepreneur Under 30 in northern Indiana.

Clarke is chief executive officer of Vortex Web Solutions, which specializes in creating business systems to help businesses be more efficient. These services include Web sites, database and maintenance systems, inventory tracking and other Web-based systems.

Vortex Web Solution has a strong portfolio of clients — large and small — and continues to grow each month. All of his new business is based on referrals.

StartupNation.com states that "Clearly Jeremy has the skills, motivation, smarts and know-how to manage and grow a business. This is one college entrepreneur to watch."

Clarke started his Web design business in high school.

"This business has far surpassed my

Middlebury, Ind., native. "Being a college student hasn't kept people from taking me seriously. My ideas, technical expertise and ability to meet client's deadlines are the keys to success. People don't know that I'm a college student, unless I tell them."

*"Being a college student hasn't kept people from taking me seriously. My ideas, technical expertise and ability to meet client's deadlines are the keys to success."*

Clarke's other ventures include Sharper Results, which gives parents and teachers a way to help students review for the Indiana Statewide Testing for Educational Progress-Plus educational assessment test, and IndyDining, a Web site that offers restaurant reviews, ratings, special offers and menus. These businesses bring in five-figure sales, Clarke disclosed to *Entrepreneur* magazine.

Clarke keeps track of the enterprises from his loft-style residence hall room on campus. He exchanges e-mail and telephone messages with clients, makes changes to Web sites and solicits future business contacts — while studying algorithms and managerial economics this fall. He also is a founding member of Rose-Hulman's Entrepreneurship

## ROSE-HULMAN'S JEREMY CLARKE IS 'ONE COLLEGE ENTREPRENEUR TO WATCH'

by Dale Long

expectations. And, I have been surprised with how receptive clients have been with my ideas and services," stated the

Club and is contemplating playing on the varsity tennis team this spring.

"I like to keep busy," the 21 year old told *Entrepreneur* magazine: "I'm always looking for new opportunities. I want to dip my fingers into as much as possible."

Clarke sets goals for every week, asking himself, "How much time do I want to give to each of my obligations? Some weeks I need to focus (more) on one business, but I always try to spend at least a few hours a week on each, just trying to plan for the future — and then studying when (I need to)."

Today's entrepreneurs have specialized Web tools available that enable entrepreneurs to manage technological processes more efficiently than in years past, but they also make it much easier for small startups to rapidly ascend to the global playing field, Alex DeNoble, professor of management and entrepreneurship at San Diego State University, told *Entrepreneur* magazine.

Clarke wants to continue his entrepreneurial pursuits after graduating from Rose-Hulman. More successful businesses could be on the horizon.

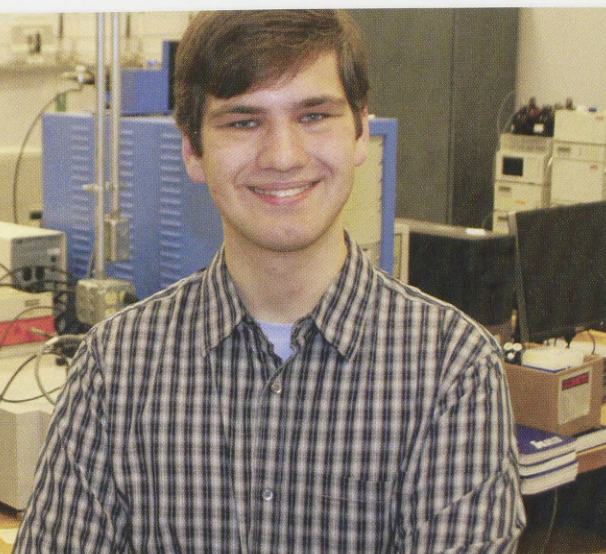
"I've really grown accustomed to working for myself," Clarke stated in a story published in *The Indianapolis Star*. "The thought of working for someone else — it doesn't even cross my mind anymore." ■

## SENIOR NAMED PRESTIGIOUS GOLDWATER SCHOLAR

### *Evan Breedlove Strives to Use Engineering Skills to Help Others*

by Dale Long

*"The humanitarian side of science is what I find very interesting and motivating."*



Evan in his chemistry lab

Motivation has never been a problem for Evan Breedlove.

Since his youth, the Rose-Hulman Institute of Technology senior mechanical engineering major has been passionate about becoming a third-generation engineer and using his problem-solving skills to help others.

Along the way, Breedlove has earned perfect scores on the SAT and ACT, had a perfect 4.0 grade point average through three years on campus, and been selected one of the nation's top American college students in science, engineering and mathematics by the Barry M. Goldwater Scholarship and Excellence in Education Foundation through the prestigious Goldwater Scholars program.

Breedlove has also published chemistry research, helped organize chemistry education programs for elementary school children, found time to volunteer as a pianist for Sunday church services at Terre Haute's Salvation Army chapel and has been a campus leader.

"Some people may think I'm a perfectionist, but, really, I'm not. I'm just motivated," he says. Breedlove grew up being taught the

value of books, a taste of museums and the appreciation of using a person's skills to assist mankind. Now, he's taking advantage of those lessons.

"There are a lot of options out there that are intriguing to me," admits Breedlove, who hasn't earned a non-'A' grade in the past 10 years. "The humanitarian side of science is what I find very interesting and motivating. I definitely like helping others. I see the world from other's point of view — in hopes that the world can be a better place."

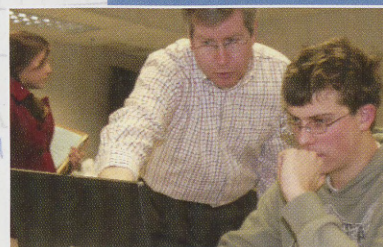
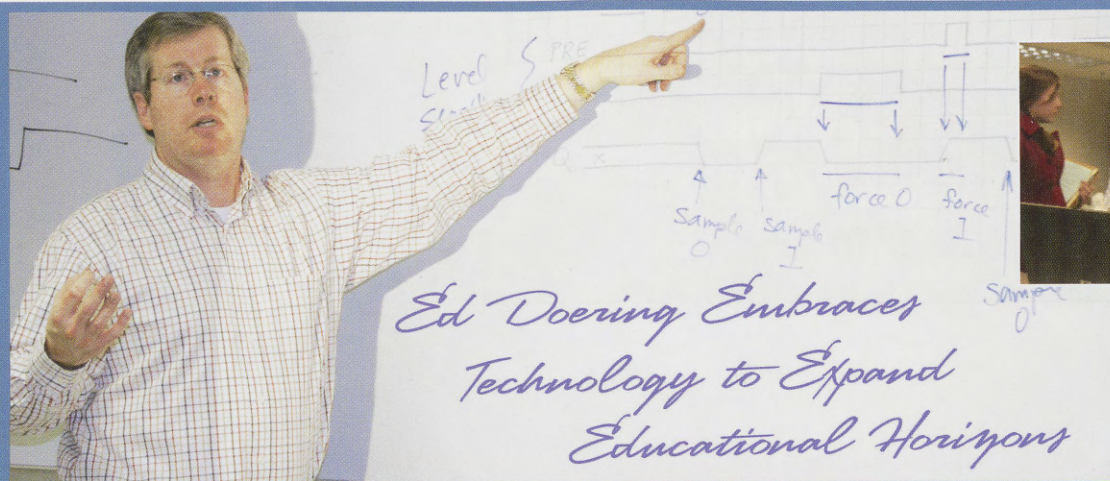
Breedlove's humanitarian efforts have included helping Rose-Hulman chemistry professor Mark Brandt study alcohol's effects on the estrogen receptor, which is involved in breast cancer and other endocrine cancers, and human growth, development and reproduction. He proposed a variety of experiments that might help lend insight into protein-small molecule interactions. "It was clear to me that Evan had been both thinking about and reading literature related to this project, and that he understands both the project and its significance," Brandt states. "Evan has outstanding potential as a clinician and scientist. He works well with people, he is creative and he has an infectious self-

confidence."

This fall, Breedlove has continued to push his academic pursuits by enrolling in a graduate-level Bone Biomechanics course, and plans to take several other advanced courses throughout his senior year. Research and studies at Rose-Hulman have motivated Breedlove to pursue a career in biomechanics.

"Evan is a lifelong learner who has the ability to complete complex research projects on time with a true sense of purpose and pride," stated Robert Sobel, director of technology and innovation for FONA International Inc. (Geneva, Ill.), where Breedlove has spent four summers as a chemistry and engineering intern. Last summer, he was a member of an architectural design team for the construction of an industrial research and development facility that FONA is building as a joint venture. He supported the contracted engineers, helping them to understand FONA's needs for the building, and verified that the designs would be suitable from continuing maintenance and met Leadership in Environmental and Energy Design (LEED) certification system requirements for "green" buildings.

*Continued on page 17*



Ed Doering offers a hand at teaching technology at Rose-Hulman.

by Dale Long

There are no boundaries to Ed Doering's passion for educating others on circuits, digital systems and electronic music synthesis.

That's why the popular Rose-Hulman Institute of Technology electrical and computer engineering professor is available 24 hours a day to help others—people of all ages and professions from around the world—through more than 300 innovative educational tutorial videos online. Doering's modules are accessed by an average of 90 visitors each day, for a total of over 36,000 viewers from 118 countries and territories since 2006. The educational materials have helped academically at-risk students and increased retention among these students.

"First and foremost, I am a teacher. The process of teaching is presenting material in a way that's most easily understandable," says Doering, a member of the Rose-Hulman faculty since 1994. "I enjoy making materials available to help others. This is a way for me to distribute information to a wide range of audiences in a way that's always available to help people."

Doering has hit on something with his Web-based content that's organized by small modules that are easily connected into larger collections or courses. The modules are broadly available to students regardless of location or time of day and fits seamlessly into courses being taken by most engineering students nationwide.

CLEO (Circuits Learned by Example Online), a project sponsored by the National Science Foundation and developed with Rose-Hulman colleague Xiaoyan Mu, offers over 250 examples covering a two-semester course sequence in engineering linear circuit analysis, including AC and DC circuits, phasors, transients, power and Laplace-based analysis. Each example has carefully scripted narrated video clips with handwriting and drawings appearing as if "by magic" (through TechSmith's Camtasia Studio and SnagIt screen capture software) to emphasize expert explanations of the

rationale behind the multi-step solution process. The audio commentary is directed to an audience of one, so that student feels that Doering is speaking directly to their particular need—as if sitting in a classroom at Rose-Hulman.

The student can also work examples in the repository before watching the video as a test of their own mastery, or they can watch the videos first for instruction in a new topic. The video format accommodates various styles and rates of student learning since students can interact with the material by pausing, replaying and skipping to points of interest as needed. The narration is available in English and Chinese, as well as closed-captioned text.

"It's shocking to know that at any minute my voice is being heard in Shanghai (China), Manila (Philippines) or Santiago (Chile). That's what makes technology so fascinating,"

Doering says. "I enjoy using new technology to reach out to students when they need it most." Doering's latest work, "Musical Signal Processing with LabVIEW" sponsored by National Instruments and hosted on Rice University's Connexions system, teaches signal processing through innovative use of LabVIEW VIs, screencast videos, familiar and engaging topics (music and audio), and modular organization and hosting on Connexions to encourage reuse. The online resource offers over 50 modules and more than 100 narrated videos based on a class taught annually by Doering at Rose-Hulman.

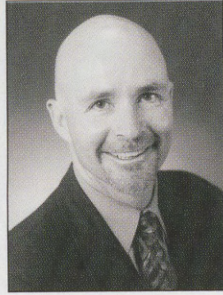
"I'm amazed at Ed Doering's ability to craft and deliver the educational materials of the future through multimedia and the Web," says Erik Luther, NI's textbook program manager. "He brings signal processing concepts to life using music to introduce and reinforce concepts. Delivering carefully-tailored lessons using text, videos, simulations and exercises allows Ed to maximize student mastery of the material. Ed's embrace of technology and the Web has allowed him to deliver this innovative curriculum to a worldwide audience beyond Rose-Hulman." ■

## Leadership Responsibility: A Mission of Unparalleled Importance

by Robert Bright, Chairman of the Board of Trustees and  
Jeff McCreary, Chairman of the Board; Advancement Committee



Bob Bright



Jeff McCreary

In recent weeks all eyes have seemed to focus on the global economic crisis. The problem is undeniable. It will impact virtually all

institutions, industries, and individuals. This crisis is important and urgent. As Jeff McCreary, chairman of the Board's advancement committee, and I reflected on this, we would like to share some thoughts.

When we think about the most critical challenges we face, we see bigger issues on the horizon. Unrelenting demand for energy is at the top of our list. We must establish economically viable alternative energy solutions (solar, wind, geo-thermal, etc.). Cleaner energy must be a priority in every deployment we establish. Energy efficiency in every aspect our lives must be a priority. We must find ways to raise the standard of living for everyone on our fragile planet without damaging our environment.

The global demand for clean fresh water will geometrically increase, as does our population. Likewise, we face an ever-increasing demand for food production. As our population continues to both grow and age, we must improve our health care from a cost, efficiency and an effectiveness perspective.

These BIG problems will take BIG science to resolve. Even more to the point for Rose-Hulman, it will take the application of science to meet these challenges. It is our view that the application element is what engineering is all about and it sits right at the heart of the Rose-Hulman experience.

Addressing problems like these means that Rose-Hulman's mission to provide the world's best undergraduate engineering, science, and mathematics education will remain of unparalleled importance. Our students are preparing to face these challenges. Our graduates are actively addressing them and really are changing the world for the better. The impact of engineering and science is extraordinary and so is Rose-Hulman's position in the solution chain. The work we

do at Rose-Hulman is more important today than it was in the past. Amazingly it will be even more important in the future than it is today.

There is a righteous sense of pride at Rose-Hulman. It is evident in our students, our faculty, our administration and our graduates. While it is great to have been ranked as the top undergraduate school in engineering and science for a tenth consecutive year, it is a lot more than that. We all recognize that Rose's unconfused focus on the education and development of our students results in a unique and powerful experience – the Rose-Hulman experience. We are

*"These BIG (global) problems will take BIG science to resolve... Our students are preparing to face these challenges... Our graduates are actively addressing them and really changing the world for the better."*

a leader in our field, sitting at the top of the food chain, and we have a disproportionately positive impact on the world.

Clearly the challenges our graduates are facing have become more diverse, more global, and contain a requirement for more integrated solutions. As such, you see a reflection of this changing environment in the strategic focus of the college. While retaining our hands-on, project focused, whole student engineering and science focus, we will be accelerating our

Continued on page 17



## ROSE-HULMAN TO PLAY ROLE IN NATIONAL SCIENCE FOUNDATION'S "SMART LIGHTING" INITIATIVE

**Cutting Edge Technology:** Rose-Hulman Institute of Technology faculty members and students will be part of multidisciplinary teams that will focus on developing novel materials, device technology, and systems applications to further the understanding and proliferation of "smart lighting" technologies.

Rose-Hulman Institute of Technology is among six U.S. colleges that will play a role in developing next-generation lighting under an \$18.5 million grant from the National Science Foundation which supports a "Smart Lighting" initiative to supplant the common light bulb with devices that are smarter, greener and ripe for innovation.

The Engineering Research Center (ERC) for Smart Lighting will be led by Rensselaer Polytechnic Institute (N.Y.) with partners at Boston University and the University of New Mexico.

*Rose-Hulman's Department of Electrical and Computer Engineering is to develop course materials to teach students about light-emitting diode (LED) technologies that could one day change the way the world is illuminated.*

As an outreach partner, Rose-Hulman's Department of Electrical and Computer Engineering will receive approximately \$500,000 over a five-year period to develop course materials to teach students about light-emitting diode (LED) technologies that could one day change the way the world is

illuminated. Rose-Hulman will also support implementation of courses that could open doors to a diverse spectrum of new applications impacting everything from biotechnology and transportation to computer networking and displays.

Joining Rose-Hulman as outreach partners are Howard University (Washington, D.C.) and Morgan State University (Baltimore, Md.). Additionally, Chonbuk National University in Korea; National Chiao Tung University in Taiwan; Taiwan National University; and Vilnius University in Lithuania will support the Smart Lighting ERC with expertise and international perspectives.

"Rose-Hulman is honored to participate alongside some of the world's most elite schools on this project to advance 'Smart Lighting.' Creating energy-saving technologies fits perfectly

with our ambition to do more in the areas of sustainability and energy," states Rose-Hulman President Gerald S. Jakubowski. "It is especially gratifying to see student activity focused on a project that will have an enduring impact on future generations.

"Sustainability, energy and the

environment are among the Grand Challenges presented earlier this year by the National Academy of Engineers. They are key elements in Rose-Hulman's academic master plan as well. 'Smart Lighting' is a terrific example of academic expertise working to address real human needs. We look forward to a productive partnership," the president said.

At the heart of "Smart Lighting" are powerful techniques to control the basic properties of light. Recent breakthroughs have allowed researchers to better control almost every aspect of light, opening doors to a diverse spectrum of new applications impacting everything from biotechnology and transportation to computer networking and displays.

Rose-Hulman faculty members and students will be part of multidisciplinary teams that will focus on developing novel materials, device technology, and systems applications to further the understanding and proliferation of smart lighting technologies, according to Fred Berry, head of Rose-Hulman's Department of Electrical and Computer Engineering.

Along with broadening the knowledge base of "Smart Lighting," the ERC will serve as a hub for commercializing related technology, where students and academic researchers work side-by-side with companies—large and small—to test, validate and bring new products to the marketplace. ■



## APRIL SIMMA HEADS ANNUAL FUND OPERATIONS

Rose-Hulman Institute of Technology has announced that April Simma has joined the Department of Institutional Advancement as director of annual giving. Simma comes to Rose-Hulman with three successful years experience as Saint Mary-of-the-Woods College's

director of annual giving. She has extensive experience in the development and external relations fields. Simma received her BA degree in digital media communications in 2003 from Saint Mary-of-the-Woods College and is a

graduate of Terre Haute South High School.

Under Simma's leadership at SMWC, their annual giving program surpassed increased goals and their recent annual fund drive showed a 13.8 percent increase over the previous year.

The department of Institutional Advancement is looking forward to working with Simma, Rose-Hulman's Executive Director of Alumni Affairs, Brian Dyer said. "Alumni are excited to have April at Rose and she will provide a strong link between them and their alma mater," Dyer said. Some of the programs Simma will be working on, along with the annual fund, include the class agent program, phonathon, and faculty/staff giving. ■

*Continued from page 15*

work in cross function disciplines in our six key academic initiatives; Energy and Environment; Biomedical Engineering; Information, Computation and Communication; Health and Safety; Transportation; Materials. We must incorporate globalization and diversity into the curriculum and the campus conversations.

If you want to feel more confident about Rose, about the importance of our mission and our ability to make a positive contribution to the biggest challenges we face – then please stop by the campus for a visit or visit the Rose-Hulman website ([www.Rose-Hulman.edu](http://www.Rose-Hulman.edu)).

Our relentless commitment to engineering education is evident in all that we do. We promise that once you have observed our students and our faculty you will come away inspired by their commitment and their passion. You will feel better about our future, better about our ability to lead the way in addressing the planet's biggest problems, and better about how your support makes a difference at Rose.

We certainly need your continued time, attention, energy and financial support to accomplish what lies in front of us. Together we have an extraordinary opportunity to establish a lasting legacy of excellence, impact and leadership. ■

*Continued from page 13*

At Rose-Hulman, Breedlove has served as co-director for the Alpha Chi Sigma chemistry honor society's popular Chemistry On Wheels educational program and served as secretary for the Student Government Association.

Regarding the future, Breedlove hopes to be studying next year at Oxford or Cambridge in England through a National Institutes of Health fellowship program in the growing field of biomechanics. If not accepted, there is a long line of graduate and medical school options to study for a doctorate degree.

Breedlove was one of 321 Goldwater Scholar selected this year from more than 1,035 candidates. ■

## BAILEY CHALLENGE Solvers of the last issue problems are:

*Continued from page 8*

**ALUMNI:** W. Barrick, 1941; J. Hurt, 1948; P. Gottfried, 1949; C. Strickland, 1950; B. Rinker, 1951; J. Lambermont, 1951; C. Hirschfield, 1954; H. Smith, 1955; C. Cooper, 1956; A. Sutton, 1956; C. Corbin, 1957; J. Briggs, 1957; B. Waggner, 1957; H. Brown, 1957; H. Payne, 1957; P. Cella, 1958; D. Bailey, 1959; J. Tindall, 1961; C. McCoy, 1962; D. Todd, 1962; N. Hannum, 1962; J. Collins, 1969; J. Born, 1970; S. Jordan, 1970; D. Willman, 1972; D. Pate, 1973; J. Schroeder, 1976; M. Clouser, 1979; J. Farrell, 1981; B. Wade, 1983; M. Talley, 1985; L. Cramer, 1986; D. Johnson, 1987; M. Lancaster, 1987; M. Nigrovic, 1987; T. Doerr, 1988; P. Marken, 1989; S. Bowling, 1989; C. Abdnour, 1989; S. Barndt, 1990; B. Burger, 1991; M. Didat, 1992; D. Hector, 1992; M. Ley, 1997; M. Pilcher, 1998; B. Creel, 2000; A. Primozich, 2000; C. Cole, 2001; M. Roesle, 2001; C. Hayden, 2001; L. Gaintner, 2004; B. Ross, 2004; J. Przybylinski, 2006; I. Brown, 2006; T. Wojtysiak, 2006; J. Nicol, 2012; S. Gossert, 2015?

**FRIENDS:** J. Marks, P. Hines, D. Fevert, R. Schoumacher, J. Ley, J. Durlacher, R. Llewellyn, J. Parks, A. Cutaia, D. Templeton, R. Schoumacher, M. Rosene



# WHAT'S THE FUTURE OF ENGINEERING EDUCATION?

by Dale Long

The wheel, printing press, mechanical clock, steam engine, airplane and computers are inventions that transformed human interaction and communication, and brought together people from throughout the world—driven by engineering innovation. Now, the next century poses challenges as formidable as any from millennia past, through issues of population growth, sustaining civilization's continuing advancement, improving the quality of life, addressing new threats to personal and public health, and enhancing the joy of living.

Earlier this year, a diverse committee of experts from around the world, some of the most accomplished engineers and scientists of their generations, proposed 14 challenges outlined in the National Academy of Engineering's Grand Challenges For Engineering [www.engineeringchallenges.org](http://www.engineeringchallenges.org). Four areas of emphasis for the future, identified in the study, were:

- Energy, environment, global warming and sustainability—emphasizing making solar energy economical,

- providing energy from fusion, developing carbon sequestration methods, managing the nitrogen cycle and providing access to clean water.
- Improving medicine and health care delivery—emphasizing engineering better medicines and advancing health informatics.
- Reducing vulnerability to human and natural threats—emphasizing securing cyberspace, preventing nuclear terror, and restoring and improving urban infrastructure.
- Expanding and enhancing human capability and joy—emphasizing reserve engineering of the brain, enhancement of virtual reality, advancing personalized learning and engineering the tools of scientific discovery.

The NAE study points out that many of engineering's gifts to civilization are distributed unevenly. For instance, at least a billion people do not have access to adequate supplies of clean water.

Countless millions have virtually no medical care available. Sustainable supplies of food, water, and energy; protection from human violence, natural disaster, and disease; full access to the joys of learning, exploration, communication, and entertainment—these should be the goals for all of the world's people.

“Through the engineering accomplishments of the past, the world has become smaller, more inclusive, and more connected,” states the study's final report. “The challenges facing engineering today are not those of isolated locales, but of the planet as a whole and all the planet's people. Meeting all those challenges must make the world not only a more technologically advanced and connected place, but also a more sustainable, safe, healthy, and joyous—in other words, better—place.”

These new innovation and enterprise models, new engineering frontiers and new synergies will influence an era of great change in engineering education. How Rose-Hulman bridges these areas

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

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

will be key to the Institute's future, according to Rose-Hulman President Gerald S. Jakubowski.

Charles Vest, former president of Massachusetts Institute of Technology and now NAE president, asserts that making universities and engineering schools exciting, creative, adventurous, rigorous, demanding and empowering environments is more important than specifying curricular details. And, innovation in engineering education needs to be assessed and propagated to wider audiences.

To meet these challenges, Vest states, public and policy makers need to understand what engineers do and can do; realize that most take a global approach; and realize why young women and men choose not to study engineering: They would rather go into a field where they can help people and make the world better.

Vest contends that science and engineering are merging at a rapid pace.

Those American engineering educational institutions that prosper will benefit from bridging the frontiers between fields involving biology, information technology and nanotechnology alongside the fields of macrotechnology, energy, environment, health care, manufacturing, communications and logistics. The science/engineering melding area will include such areas as bio-based materials, biomimetics, personalized and predictive medicine, synthetic biology and biofuels.

"Engineering will be enormously exciting, and increasingly rich and complex in its context and importance," Vest stated in a guest editorial published a special issue of the American Society of Engineering Education's Journal of Engineering Education (July, 2008). "As we think about the challenges ahead, it is important to remember that students are driven by passion, curiosity, engagement, and dreams . . . Despite our best efforts to plan their education, however, to a large extent we simply wind them up, step back, and watch the amazing things they do."

Norman Fortenberry of NAE's Center for the Advancement of Scholarship on Engineering Education, believes engineering education must prepare students to lead technically, entrepreneurially, managerially, as non-technical professionals, and politically and socially in a technological society.

Fortenberry made the keynote address at Rose-Hulman's 2008 Opening of School Educational Symposium on the topic, "Engineering Education: Research, Innovation, and Practice."

In a guest editorial, "On Becoming a 21st Century Engineer,"

Sheri Sheppard of Stanford University, James Pellegrino of the University of Chicago and Barbara Olds of Colorado School of Mines state: "U.S. engineering education must not only prepare graduates to work in this rapidly changing world, but also engage students in disciplines beyond engineering to make them better engineers and more informed human beings and citizens."

Jakubowski, former ASEE national president and immediate past chair of the Engineering Accreditation Commission of ABET, admits there is increasing pressure on educational institutions to better prepare students to excel in this increasingly complex environment.

"We must encourage students to pursue the difficult and complex transdisciplinary problems facing humankind using whatever set of intellectual tools that may be required," the president addressed in a speech on "Future Trends in Engineering and Engineering Education" at the 2007 Central Indiana Indiana Section meeting of the Institute of Electrical and Electronics Engineers. "The future will be exciting as well as challenging. However, we must be willing to break away from our conservative, traditional ways of thinking about engineering. Those who can think outside the box will be successful whether it is with the practice of engineering or in the education of engineers."

Fortunately, Jakubowski points out, Rose-Hulman's future strategic plan takes into account new and expanding emphasis in these academic areas.

"Rose-Hulman has had a reputation of being a leader in engineering education innovation. We need to know that our strategic plan has us moving in the right direction," Jakubowski stated. ■





Elizabeth Hagerman,  
Bill McKenna, Dan Hohne  
and Nellie Hohne

## ROSE-HULMAN'S 2008 DISTINGUISHED YOUNG ALUMNI

Recipients of the Honor Alumni Award are selected based on their (a) loyal, unselfish and meritorious service in furthering the interests of Rose-Hulman, (b) contributing to the national interest of our country, (c) professional

achievement. Rose-Hulman honors four alumni with this honor each year. Recipients are recognized during Homecoming.

### DAN HOHNE

A 1999 chemical engineering graduate, Dan Hohne left Rose-Hulman with more than a degree. For Rose-Hulman is where he met his wife Nellie. (See accompanying article)

Dan's first position out of college was as an assistant program manager with Chrysan Industries in Detroit. He later went to work for General Motors, receiving a master's degree in chemical engineering from the University of Michigan in 2005. He earned his Ph.D. in chemical engineering during this past summer.

Dan has taken his degree to work for Bristol Myers-Squibb as a technical operations associate in the technical operations management program in New Brunswick, New Jersey.

In 2007, Dan became a father with the birth of Jaclyn. In the area of service, Dan has served as an 8th grade catechist at St. James Catholic Church. He recently served as the nominations chair for the National Student Constituent Committee for the American Society for Engineering Education.

Dan's Rose-Hulman service remains strong, having served as co-chair of the Awards and Honors Committee for 2004-06, annual fund chair with wife Nellie in 2005, class agent and a member of RARE, which stands for Rose-Hulman Alumni Recruiting Engineers.

**NELLIE HOHNE**

Nellie Hohne was a member of the first group of Rose-Hulman female students who matriculated upon the Institute going coed. A 1999 mechanical engineering graduate, Nellie found a key part of her college experience was meeting the man who would eventually become her husband, Dan Hohne.

Nellie has had an accomplished career with GM, ending up as a powertrain noise and vibration engineer. Her work included being responsible for noise and vibration integration for North American 4-cylinder applications. She helped launch the Pontiac G6, Saturn Aura and the Chevrolet Malibu. The Malibu recently was awarded J.D. Powers' best-

in-segment for quality and was recognized for its superior noise and vibration performance.

Nellie has embarked on a new and equally as challenging career as a stay-at-home mom taking care of daughter Jaclyn who was born last year.

Alumni involvement for Nellie has included serving as chair of the nominations committee Young Alumni Association and president of that group in 2006-07. She also served as co-chair of the annual fund in 2005, a class agent and RARE. She also has helped recruit students in the Detroit area and represented GM at several Rose-Hulman career fairs.

**ELIZABETH HAGERMAN**

Born in Indianapolis, high school in Missouri and college at Rose-Hulman Institute of Technology. Elizabeth Hagerman definitely has strong Midwestern roots. But she has added a global perspective to that foundation through her work as manager of technical assessment and scientific initiatives for Baxter Healthcare in Westlake Village, Calif.

After receiving her bachelor's in chemical engineering in 2000, she went to UCLA for a master's degree in biomedical engineering in 2002 and a Ph.D. in biomedical engineering with a focus on tissue engineering in 2007.

Her path has taken her to Vienna and Rome along with

Egypt where she inspected the "tomb of the engineer" and the pyramids.

In her present position with Baxter, Elizabeth is involved in global R&D for regenerative medicine, technical evaluation of international business development targets, marketing teams to advance product development, academic research coordination with the company, and technical support for sales teams working with surgeons and researchers. She has several publications to her credit along with two patents and a college teaching resume.

**WILLIAM "BILL" MCKENNA**

William "Bill" McKenna, a 2002 graduate, took his double degree in computer science and mathematics, to Indiana University Law school where he was on the dean's list 4 of 6 semesters. While in law school, he was the Technology Editor of the Federal Communications Law Journal as well as an active participant in the American Intellectual Property Lawyers Association.

Currently he is a patent lawyer for Woodard, Emhardt, Moriarty, McNett & Henry in Indianapolis. He has evaluated patent positions for several large companies, enforcing their patents in Federal Court and he has counseled small startups as well, include those started by Rose-Hulman alumni and friends.

In his community he has contributed his time and talent to Clairan Health, the Indianapolis Junior League, the Indianapolis Zoo and the Central Indiana Wellness Community.

Bill's commitment to Rose-Hulman remains strong as he counsels current students through the College and Life Skills program, Countdown to Commencement, and the Rose-Hulman entrepreneurial network. He routinely meets with students who are interested in pursuing a career in law. He and his wife, Krista, a 2002 chemical engineering graduate, live in Fishers, Indiana. ■



Joe Witulski,  
Jerry Matthews,  
Jim Benzing and  
Baron Gemmer

## ROSE-HULMAN'S 2008 HONOR ALUMNI

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interest of our country, (c) professional achievement. Rose-Hulman honors four alumni with this honor each year. Recipients are recognized during Homecoming.

### JIM BENZING

Jim Benzing has been with Goodyear Tire & Rubber since his graduation from Rose-Hulman with a mechanical engineering degree in 1977. Currently he is principal engineer in the Advanced Product & Processes Technology division of the company.

His career at Goodyear includes more than 25 patents and his current project with NASA designing and building the tires/wheels for the next generation of lunar rover vehicles. On the personal side of life, Jim and his wife Donna have two children – Laura 10 and Ryan 7. They also have fostered five children. One of the highlights of Jim's life was spending two

years on his honeymoon bicycling around the world with Donna.

The family remains active, recently having bicycled across the state of Ohio, and Jim recently participated in the Ironman Triathlon in Hawaii. When not pushing his body to the limits, Jim enjoys quiet time in the family vineyard, and coordinating the Christmas gift drive for underprivileged children at Hope House Mission.

His tinkering ways do not end on the job front. He has completed the experimentation, submitted patents and started building a 200-mile-per-gallon family automobile in his garage.

## BARON GEMMER

Baron Gemmer's trip to Rose-Hulman began in the Hoosier Heartland in Indianapolis. Upon graduation from Indianapolis North Central, Baron entered Rose-Hulman Institute of Technology where he embarked upon a two-degree course of study in electrical engineering/computer science and mathematics.

After graduating from Rose-Hulman in 1985, Baron went to work for Arthur Andersen & Company, as a senior consultant in the technical services organization. His career next moved to the Pennsylvania Manufacturers Association where he worked until 1997 when he founded Innovative Corporate Solutions, based in Wayne, Pennsylvania.

His consulting firm offers specialty services in imaging systems, insurance systems, strategic planning, vendor

negotiation and management coaching. Selected clients include Physicians Insurance a Mutual Company, Perdue Farms Incorporated and Media Zeus.

While committed to his work, Baron maintains an active life away from the office. He and his wife Lydia Sykes Gemmer are active cat parents and assist in various animal welfare causes. He also is president of the Rose-Hulman Alumni Club in Philadelphia.

An avid runner and marathoner, Barron is committed to physical fitness and he encourages others to become involved. He enjoys the physical benefits of running as well as the discipline, goal-setting and sense of accomplishment running offers.

## JERRY MATTHEWS

Jerry Matthews graduated magna cum laude in 1977 with a degree in mechanical engineering. He took his degree into the world and went to work for Procter and Gamble Paper in Green Bay, Wisconsin from 1977 to 1984. In 1984, he joined Frito-Lay, a division of PepsiCo where has served in a series of operations management roles. Currently, he is region vice president of Southern California Operations, based in Bakersfield. He is responsible for two plants, 16 distributions centers and 1,600 people supporting a wholesale business of approximately \$800,000,000. His region has been recognized as Frito-Lay's top performing

region during the past seven years.

Jerry has been married to his wife, Sandy, for 31 years. They have three sons, Jason, Sean and Eric. Through the years, Jerry has been active in their lives as a youth baseball coach.

Matthews has maintained close connections with his alma mater. He has two decades of service as a class agent, and he has worked hard to recruit Rose-Hulman graduates into his industry, bringing about 20 Rose-Hulman alumni into Frito-Lay during the last several years. He also has worked at recruiting prospective students.

## JOE WITULSKI

A 1988 mathematics graduate, Joe Witulski is a staff engineer for ITT Corp. in the Fort Wayne, Indiana, area. He started his career as a software engineer with Logikos and eventually joined ITT Corp.

Family is a big part of Joe Witulski's life. He and Sharon, his wife of 17 years, have four children. He has been involved with coaching his daughters' softball teams for five years, and he is part of the Carroll High School baseball program lending his dulcet tones as public address announcer for the past eight years. He is active with the St. Vincent's parish in Fort Wayne, helping his wife teach religious educations, and

he is part of a men's group called Rekindle the Fire. That group sponsors parish retreats and church service projects. Joe also has participated with the group in the Relay for Life walk for cancer the last two years.

Of course, Joe has not forgotten his alma mater. He has been a loyal alumnus, organizing Rose-Hulman events in the Fort Wayne area for several years. His work for Dear Old Rose has included organization plant tours, lunches, dinner presentations, and family events that include Fort Wayne Komet hockey or Wizards baseball outings. ■

## NATHAN WRIGHT, FINDING THE BETTER MOUSETRAP

If there is a better mouse trap, Nathan Wright will find it.

As a principal partner in TPG Capital (formerly the Texas Pacific Group), a leading global private investment firm, the 1988 mechanical engineering graduate excels at finding business and technology strategies to transform acquired portfolio companies into profitable enterprises. He does this through modifying the manufacturing process, improving customer service and streamlining employee productivity—in a quiet, modest and unassuming style.

For the American media company Metro-Goldwyn-Mayer Inc., Wright established distribution channels for home entertainment and television content.

At Hotwire.com, Wright developed call center strategies to help customers get low prices on airline tickets, hotel reservations, car rentals and vacation packages.

And, for Altivity Packaging, Wright utilized Lean Manufacturing principles to improve operations for the Chicago-based company.

Wright has also lent assistance to Houston-based Kraton Polymers, Alltel Wireless and ON Semiconductor — encountering fellow Career Achievement Award recipient Andy Williams. Wright has left each company better managed and more profitable.

These successes led Wright to become the first member of the operations group to be elected TPG partner in 2007. His primary responsibility is planning and execution of major operational transformation programs within acquired portfolio



companies.

"I like to accelerate the pace of change, and fight those methodologies and strategies that other people have done," Wright says. "If there's a better way to do something, I'm going to find it."

Wright's business and technical expertise have come from working for Andersen Consulting (1988-91), starting his own IT systems engineering company, earning an MBA (1994) from Dartmouth College, and returning to the consulting world at Bain & Company's Australia and South Africa offices (1994-2000) before joining TPC, a firm with over \$50 billion of capital under management.

"Because of my Rose-Hulman experience, I have always migrated toward firms that value working hard, getting results and recognizing good work," states the California resident. "I really didn't know I was moving away from engineering. I'm still a problem solver." ■

## ANDY WILLIAMS, VISION PACKAGED WITH ANTICIPATION

Andy Williams can't skate like Wayne Gretsky, but he can think like the former hockey superstar.

Gretsky's special "gift", Williams contends, is that the National Hockey League's all-time scoring leader could anticipate where the puck was going to be on the ice before all of the other players. Therefore, Gretsky reaped the benefits of being one step ahead of the competition.

That visionary approach may be the secret to Williams' success at ON Semiconductor.

As senior vice president, the 1988 electrical



engineering alumnus has helped the electronics company take advantage of an expansive portfolio of power semiconductor devices and a strong global logistics network to become a preferred supplier of efficient power solutions in the power supply, computer, consumer, portable/wireless, automotive and industrial markets.

Since 2006 Williams has led ON Semiconductor's Automotive and Power Regulation Group which includes over 280 employees in over six countries producing ac-dc, dc-dc, and automotive power management components. His business unit responsibilities exceed \$435 million per year.

Under Williams' leadership, ON Semiconductor has introduced 11 GreenPoint open reference designs in a number of growing market areas such as notebook computers, digital satellite boxes, digital-to-analog TV converters and LCD televisions. Each GreenPoint reference design exceeds Energy

Star power saving requirements for these products. Recently, Williams' business unit developed a LED desk light which consumes one-eighth the power of its halogen predecessor with 15 percent more light output. These designs exemplify the company's commitment to assisting customers by streamlining their design cycles to meet a variety of global energy efficiency standards and deliver greener power technology solutions.

Earlier, Williams served as director and then vice president of ON Semiconductor's Power Conversion Products Division (2001 through 2006) growing his direct business unit responsibilities from \$1.5 million to over \$200 million per year. Prior to this Andy managed new product technology introduction for ON Semiconductor's Analog Products Group.

Williams began his career at Motorola, serving as an optoelectronics product engineer and analog test engineer. ■

## DOUG ANKNEY, GLOBAL DEDICATION TO EXCELLENCE

Doug Ankney has dedicated his career to Milliken and Co. Since graduating in 1988 with a mechanical engineering degree, Doug has moved through various positions in the Milliken organization to his current position as global director of manufacturing for the company's floor covering division.

Ankney leads operations for the commercial, hospitality, residential and walk-off mat businesses. The work projects in which he has been involved have received several prestigious awards, including the Malcolm Baldrige Quality Excellence Award. He noted he is proud to work for a company listed as one of the "World's Most Ethical Companies" by Ethisphere Magazine.

When assessing his career, Ankney cites his Rose-Hulman experience where he received strong academic preparation and leadership opportunities. "The nature of the curriculum forces hard work, discipline and time management," he noted. "These qualities are essential in the workplace." He found leadership opportunities playing football on winning teams and serving as president of Sigma Nu fraternity where he received his "first taste" of management.

"One of the most important aspects of any institution is the ability to make people better in all areas of their lives," Ankney



said. "Rose-Hulman has a great ability for everyone to be involved in something outside the classroom. All faculty members know that academics are important, but also understand that a well-rounded student provides a more productive young man or woman entering the workforce." Family is a large part of Ankney's life. He resides in Newnan, Ga., with his wife, Cara, and their four children, Conner, Carson, Christian and Cooper. He also thanked his family for leading him to and through Rose-Hulman, include brothers Steve (Class of '83) and Greg (Class of '87), sister Jana and parents Marily and Glen Ankney. ■

## ALUMNI | ROSE-HULMAN'S LEGACIES



From Left: Zach Blankebaker, Jeffrey Withem (1984, uncle), Stuart Nash, Laura Nash (2005, sister), Jason Goble, Leon Goble (1971, father), Benjamin Riggles, Chris Phillips (1992, uncle), Meghan Ulery, Gerry Matten (1958, grandfather) and Andrea Bollinger (uncles Fred and Kenneth Rashe not pictured).



From left: Edward Baker (1963, father), Daniel Baker, Walter Daugherty (1970, father), Josey Daugherty, Rich Daugherty (1963, uncle), Tom Daugherty (1966, uncle), and Jesse Daugherty (1968, uncle). Not pictured Steve Daugherty (1966, uncle).



From left: Jonathan Meyer, Doug Meyer (1973, father), Jesse Randolph, Steve Randolph (1971, uncle), Brent Witten, Jeff Witten (1971, father), Ryan Jackson and Timothy Jackson (1979, father).

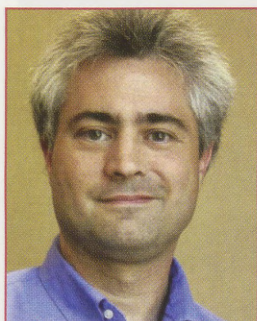
## UPDATE FROM THE ASSOCIATION PRESIDENT:

Congratulations to the alumni and members of the campus community for making another wonderful homecoming a reality in 2008. Special thanks go to Greg Holler and Tracey Lockhart of the Alumni Homecoming Committee as well as Brian Dyer and Jessica Callahan of the Alumni Office. I encourage more alumni to take part in Homecoming 2009 as well as the many campus events throughout the year. Please regularly check the events calendar on our new alumni home page as well as the main Rose-Hulman page for events that will allow you to reconnect with Rose.

Your Alumni Association had an unusually large number of active members whose terms on the alumni board came to an end at Homecoming. If you or someone you know have a desire to serve on the alumni board, please let Brian Dyer or me know right away.

Rose-Hulman continues to win national recognition and provide outstanding opportunities for our students and graduates under President Jakubowski's leadership. Each time we provide an experience or opportunity for a fellow alum, we make our own degrees that much more valuable.

Please feel free to contact me at any time with your ideas for how your alumni association can serve our alumni and students. I can be reached any time at [jeffpapa@yahoo.com](mailto:jeffpapa@yahoo.com) or 317-503-1626.



Jeff Papa  
Alumni Association President

## BINGLE PROMOTED TO TREASURER OF FERRO CORPORATION

Rose-Hulman alumnus John Bingle has been promoted to treasurer of Ferro Corporation, a leading global supplier of technology-based performance materials for manufacturers.

**Bingle (M.E., '84)** will have overall responsibilities for cash management, capital structure management, credit, pensions, and risk management. He joined Ferro in 2004 and had served as director of the treasury division before getting this promotion.

"John is a consistently strong contributor to the finance function at Ferro," stated Sallie Bailey, vice president and chief financial officer, in a company news release. "He brings excellent insight and leadership ability to his new role."

Before joining Ferro, Bingle worked at Steris Corporation, Invacare Corporation and B.F. Goodrich Company.

His career has included roles in treasury, business development, business analysis, investor relations, and accounting and control



functions. Besides his Rose-Hulman degree, Bingle holds an MBA in finance from Carnegie Mellon University.

Ferro materials enhance the performance of products in a variety of end markets, including electronics, solar energy, telecommunications, pharmaceuticals, building and renovation, appliances, automotive, household furnishings, and industrial products. Headquartered in Cleveland, Ohio, the company has approximately 6,300 employees globally and reported sales of \$2.2 billion in 2007. ■



John Bingle

## ALUMNI CLASS NOTES

**1967**

**Bill Holmes (M.E.)** a sculptor since 2002, has been successful in three juried art competitions entered last year. He won the Best of Show in the 2008 Art Festival at the Southern Indiana Center for the Arts in June and was accepted into two prestigious regional shows later in the year. His piece "Hermese" was one of 56 works accepted from 364 entries in the 54th Mid-States Art Exhibition at the Evansville Museum of Arts, History & Science, and "Searching" was one of 64 works accepted from 360 entries at the 64th Annual Wabash Valley Juried Exhibition at the Swope Art Museum in Terre Haute. Bill has started busts of Herman Moench, the late engineering education legend at Rose-Hulman, and Sam Hulbert, president emeritus, with the hope of finding support to eventually place bronzes of both on the Rose-Hulman Campus. He did a bust of Former Indiana Governor Edgar Whitcomb for

his 90th birthday in 2007. His sculpture can be viewed at [www.billholmessculpture.com](http://www.billholmessculpture.com).

**1974**

**Michael R. Goler (BIO)** provides an update of a recent move from Savannah, Ga., to become the chief medical office and vice president for Cleveland County Healthcare System just west of Charlotte, N.C. In 2003, he retired from the U.S. Naval Reserve, and he is board certified in pediatrics and sports medicine. He is a fellow of the American Board of Pediatrics, the American College of Healthcare Executives, the American College of Physician Executives and the American College of Medical Practice Executives.

**1986**

**David S. Price (E.E.)** has initiated and is leading the Global Engineering Retention Council (to ensure Honeywell retains the best talent globally) and the Global Technical Mentoring Program (to help

facilitate technical knowledge transfer to and from all global locations). He is the Global Site Lead for all Honeywell Aerospace Engineering & Technology activities in Russia and Europe.

**2000**

**Peter Haugen (E.E.)** received, along with his group at Lawrence Livermore National Laboratory, an R&D 100 Award for 2008. This national award is given to an organization in recognition for the most technologically significant products introduced into the marketplace each year. They are being acknowledged for their work on "Secure Box: National Security Through Secure Cargo."

**2001**

**Jon Walls (C.E.)** took a position at Rogers-O'Brien Construction in Dallas, Texas, where he will be a mechanical, electrical, plumbing consultant in the health care division.

**2002**

**Ryan M. Gleitz (E.E.)** has joined the Brinks Hofer Gilson & Lione law firm. He is based in the firm's Chicago office. Brinks Hofer Gilson & Lione is one of the largest intellectual law firms in the U.S.

**2005**

**Michale D. Radigan (M.E.)** received his wings as a Naval Aviator July 25. He will be stationed in San Diego and fly Cobras. ■

Send Class Notes to  
Bryan Talyor at  
[bryan.taylor@rose-hulman.edu](mailto:bryan.taylor@rose-hulman.edu) or call  
him at 812-877-8258.



Bob Pease

### ALUMNUS BOB PEASE NAMED PRESIDENT AND CEO OF MOTIVA

# MOTIVA

Rose-Hulman alumnus Bob Pease has been named president and chief executive officer of Motiva Enterprises LLC, a refining and marketing joint venture owned by affiliates of Shell and Saudi Aramco.

Since 2004, **Pease (Chem. Eng., '80)** has been president of Shell Trading

Company, one of the world's largest energy trading companies, buying and selling more than six million barrels of hydrocarbons each day. He was responsible for Shell's oil trading business in the United States, as well as a majority of Shell's worldwide trading operations in both oil and gas.

With almost 30 years in the industry, Pease's experience encompasses all facets of the U.S. downstream business, and he offers a global perspective from his years in supply and trading and his involvement in three joint venture companies, according to a Motiva press release.

Headquartered in Houston, Motiva Enterprises LLC is a refining and marketing joint venture owned by affiliates of Shell and Saudi Aramco. Motiva's marketing operations support a network of more than 8,000 Shell-branded gasoline stations in the eastern and southern United States. Company assets include three refineries located in Norco, La.; Convent, La.; and Port Arthur, Texas, and ownership or partial interests in 41 product terminals. ■

## Rosebuds

1998

**Michael Holm (C.E.)** and wife, Mary Holm, announce the birth of their first child, Christopher Michael Holm, born on Jan. 9. The Holm Family resides in Jacksonville, Fla.

1999

**David Warmuth (M.E.)** and his wife, Sara, announce the birth of Amelia Rose, who was born Oct. 2 and joins big sister Meghan.

2000

**Chris Phillips (E.E.)** and wife, Kacey, announce the birth of their first child, Nolan Isaiah Phillips, born July 11.



Nolan Phillips

2001

**Travis Holler (Ch.E.)** and his wife, Jennifer, welcomed son Lincoln on July 23. Lincoln is the grandson of Greg (1979) and Elaine Holler.



Lincoln Holler

2003

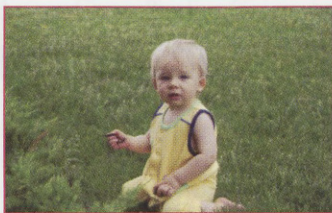
**John Rykowski (Ch.E.)** and wife Angela announced the birth of their daughter, Marygrace Lucia in March.

2003

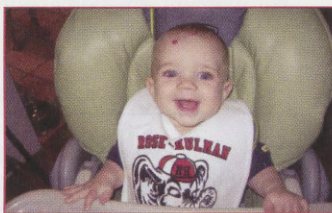
**Daniel Jones (E.E.)** and wife Melissa announced the arrival of daughter Olivia Reese born in March. She joins big brother Aidan. Daniel also recently received his master's degree from Washington University in St. Louis.

2004

**Allison Hintz (Burkey) (E.E.)** updates Rose-Hulman that son Cameron was born in 2007 and celebrated his first birthday this year.



Cameron Burkey



Cooper Olecki

2005

**Dave Olecki (M.E.)** and **Jill Olecki (Kurdys) (M.E., '04)** would like to announce the birth of their first child, Cooper Aloysius, on March 5, 2008. ■

## Marriages

1997

**Michael Bickel (C.E.)** married Sarah Trahey last year. They have two children, Isaac and Anaiah.

1999

**David J. King (M.E.)** and Candice J. Segulin were married at Fairview Presbyterian Church, Indianapolis, Ind., on Sept. 6. David is employed at Liberty Works as a mechanical design engineer.



Candice and David King

2000

**Rob Hodge (Ch.E.)** announces his marriage to Rebecca Robinson on Oct. 11, 2008.



Rebecca and Rob Hodge

2002

**William Joseph O'Brian (E.E.)** married Michelle Lynn Houck last spring.

2004

**Kyle Gossman (C.S.)** exchanged vows with Stephanie Mizzell last July. ■

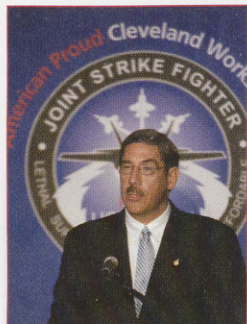
ALUMNUS NAMED  
"VENTURE IDOL"

New data storage technology developed by a company led by Rose-Hulman Institute of Technology alumnus **Jeff Ready** earned the top prize in the 2008 Indiana Venture Idol competition as part of the state's celebration of Entrepreneur Week.

Scale Computing edged out 20 challengers in the competition that put executives through a series of company presentations and questions in front of a live audience of more than 200 investors and business owners that voted to select this year's winner. The company received the \$10,000 first place prize.

Ready is chief executive officer of Scale Computing, which is based in Greenwood, Ind. He is a 1996 Rose-Hulman computer science graduate and joined and other alumni to multiple California start-ups, most recently Corvigo. The anti-spam hardware company sold for about \$41.5 million in 2004.

"This recognition is a big deal for us because it validates our efforts in developing this technology," said Ready in a news release from the Indiana Economic Development Corporation (IEDC). "We are hoping to do here what we could not do on the West Coast. Indiana is a logistical hub with a business-friendly climate and the manufacturing expertise we need to succeed." ■



## HANIFORD HELPS UNIT WIN ALCOA GLOBAL LEADERSHIP AWARD

Alcoa Forged and Cast Products, led by Rose-Hulman alumnus Joseph Haniford, has received the international company's Global Leadership Award for being the top performing division in 2007.

**Haniford (M.E. '80)** is vice president and general manager of Alcoa Forged and Cast Products. Alcoa is the world's leading producer and manager of primary aluminum, fabricated aluminum and alumina facilities.

In 2007, Haniford's division won the Joint Strike Fighter (JSF) contract for Lockheed Martin. Alcoa Forged and Cast Products leveraged a strong customer-focused value proposition that

included 36 new forging designs—the most complex in the aerospace industry—along with concurrent engineering and manufacturing capability, and the Al 7085 proprietary alloy. The result was a 400-pound weight reduction on the aircraft and a \$360 million contract for supply of aluminum forgings.

The Global Leadership Award recognizes outstanding performance by Alcoa business and resource units. The selection of the award is based on a standard set of criteria and metrics to identify the year's top performers from across the diverse company.

Haniford is responsible for overall manufacturing operations in Cleveland; the forging operations at Samara and Belaya Kalitva, Russia; and the casting operations in Laval and Georgetown, Canada, and Evron, France. ■

## Obituaries

### ACCIDENTS CLAIM FOUR STUDENTS AND RECENT GRAD IN 2008

Five separate traffic accidents claimed the lives of four students and a recent graduate in 2008. The following people lost their lives in the accidents:

- Nicholas Lee, a junior biomedical engineering major from Bryan, Texas, April 5;
- Brandon Couch, a November 2007 mechanical engineering graduate, April 8;
- Cory Salem, a senior biomedical engineering student from

Akron, Ohio, Sept. 3;

- Fatih Ilhan, an international exchange student from Istanbul, Turkey, Dec. 1; and
- James "JJ" W. Boyce Jr., a freshman civil engineering student from Collins, Ohio, Dec. 26.

For more information about each of these losses, visit the Rose-Hulman web site at [www.rose-hulman.edu](http://www.rose-hulman.edu). ■

#### 1932

**Dr. C. Chester Stock (Ch.E.)**, age 98, died at his summer home on Crystal Lake near Frankfort, MI, on August 27, 2008. He received his PhD in Biochemistry from Johns Hopkins University. During his 34-year career at Memorial Sloan-Kettering Cancer Center in New York City, Dr. Stock was a science director, vice president and pioneer in cancer chemotherapy. He was the recipient of the Army-Navy

Certificate of Merit, the 1965 Alfred P. Sloan Award in cancer research and in 1980 the Memorial Sloan-Kettering C. Chester Stock Award Lectureship was created in his honor.

#### 1938

**Charles E. Cantwell (M.E.)**, died August 24, 2008 in La Jolla, California. He started his career with the Federal Aviation Agency. Charlie was a pioneer in the aerospace industry, and plant manager of the Ford Aircraft

Engine Division company plant located in Chicago, Illinois in the early 50's. In 1958 he joined Rohr Aircraft where he held several positions. He then served as Vice President, Operations, of Solar Division of International Harvester in San Diego. Survivors include his wife, Eileen, son Charles David, and daughter Debra.

**John Frederick Weinbrecht (M.E.)** died Oct. 18, 2008 at the age of 91. John served in

active duty in the Army Corps of Engineers from 1941 to 1952, including 3.5 years in the Pacific conflict during WWII. He ultimately attained the rank of Colonel and served in the Army Reserve until 1967. He joined Los Alamos National Laboratory in 1953 and worked on several innovative nuclear and laser programs until retirement in 1983. He is survived by his wife, Nancy; sons John Jr. and Ed and five grandchildren.

**1939**

**Robert 'Bob' W. Underwood (M.E.)** passed away on August 25, 2008 in Chargin Falls, Ohio. Bob was retired from VL Towners Co. as special consultant. Survivors include daughters, Linda Underwood and Mary Ann Underwood.

**1941**

**John F. Carroll, Sr. (M.E.)** died Aug. 24 in Louisville, Ky. He was a 40-year employee of the General Electric Company before retiring in 1982. Survivors include his children, John F. Carroll, Jr., Ann Carroll, Kathryn Carroll, Joan Hunt and eight grandchildren

**1942**

**George Henry Kesler (Ch.E.)**, 87 of West Terre Haute, passed away Oct. 26, 2008. He retired as a research scientist after many years of service with McDonald Aviation. He worked as a research scientist on the early development of lasers and had also been involved with research on the Gemini and also worked to determine the tensile strength of the line used to stop aircraft landing on aircraft carriers. Survivors include his wife Wilma G. Roush Kesler and a daughter, Jean Hodge.

**1944**

**James H. Hanes (Ch.E.)** passed away June 28, 2008 in Midland, Mich. He retired from Dow Chemical as vice president and general counsel.

**1946**

**Theodore W. Blickwedel (Ch.E.)** died June 3, 2008 in Rosemont, Pa. He was a retired consultant. Survivors include his wife, Joanne; and children Theodore II, Roy and Dana.

**1947**

**Robert L. "Bob" Voges (E.E.)** passed away Oct. 10, 2008 in Ormond Beach, Fla. Bob received an honorary degree from Rose-Hulman in 1997 and he was an emeritus member of the Rose-Hulman Board of Trustees. Bob was a retired President for Florida Coca-Cola Bottling Co. He served on several boards including YMCA and Ormond Memorial Hospital. Survivors include his wife, Rosemary, daughters; Susan Bacon, Carol Letchworth, Dede Hippler; sons Bill Voges and B Jay Voges; grandchildren and great grandchildren.

**Charles G. Weibel (C.E./M.E.)**

passed away July 25, 2008 in Evanston, Ill. He retired from Amoco Corp., Pipeline Co, as the Director of Joint Ventures. Previous positions with Amoco included project engineer, district engineer, division engineer, and district superintendent in Minneapolis. He then moved to Baltimore in 1960 as distribution division manager. In 1963 he was coordinator of the terminal division in Chicago. He is survived by his wife, Evelyn.

**James T. Rogers (M.E.)** died on March 17, 2008 in Marmora, N.J. He was retired from Arco. He is survived by his wife, Mary Margaret.

**1948**

**James F. Stieff (M.E.)** died at age 84 in Gulf Shores, Ala. He was retired from Detroit Diesel Allison division of General Motors for 31 years; his last position was senior development engineer. He is survived by his wife, Carolyn; sons, Preston, John, Paul, Michael, Quintin;

daughters, Marianne Carlson, Belinda Kiko; stepson, Jeffrey Betsch; stepdaughters, Jamie McGaughey, Jodi Smith; sister Mary Arline Cohoat; 24 grandchildren and three great grandchildren.

**1949**

**S. Don Shimazu (C.E.)** died May 15, 2008 at the age of 84 in Honolulu, Ha. He was retired as president of SSFM Engineers, Inc. Survivors include his wife, Chiyoko; sons, Wesley Shimazu and Mark Odani; and daughters, Sharon Toyomura, Patrica Lau, Donna Shimazu, Ester Shimazu and Rachel Moriyama

**Gilbert J. Hilt (M.E.)** died March 30, 2008 in Columbus, Ind. at the age of 87. He was plant manager with Chambers Corp. for 15 years and plant manager for Bohn Aluminum and Brass in Greensburg for 20 years, retiring in 1984. Survivors include his sons, Christopher, Eric and Jonathan.

**1950**

**JoDean Morrow (C.E.)** an emeritus professor at the University of Illinois, died March 25, 2008 in Ajo, Ariz., at 78 years of age. After completing his doctoral work in 1957 at the University of Illinois, he worked in mechanical behavior of materials in the TAM Department of the University, where he became a full professor in 1964. He retired in 1984 after 30 years of service to the university. He is survived by his wife, Sally; sons, Daniel and Teddy; and daughter, Linda.

**1952**

**Robert J. Waldbeiser (C.E.)** passed away on June 9, 2008. After graduation from Rose-Hulman, Robert served in the U. S. Army. In 1973 he moved to Florida where he owned and operated the Kissimmee Dairy Queen for 25 years. He was also an elder of the First Presbyterian Church. He is survived by his wife, Carolyn; children, Jim, Paula Matthews, Diane Baldwin and John.

**Robert C. Miller (C.E.)** died Sept. 26, 2008 at age 79 in Winston-Salem, N.C. His work as a civil engineer with Kaiser Engineers of Oakland, Calif., took his family to Australia, Greece, Iran, Hong Kong, Saudi Arabia and Ghana. He also worked for the State Department in Poland, Somalia and Russia. He is survived by his wife, Kathleen; daughters, Joan (John) Arroyo, Susan Miller and Lori Christenson; and son, Michael Miller.

**1954**

**Ronald E. Smith (Ch.E.)** passed away Sept. 24, 2007, at the age of 75 in Albuquerque, N.M. He was a retired commander and aviator with the United States Navy. He is survived by his wife, Cathy.

**Owen Hill Meharg (Ch.E.)** died April 9 in Indianapolis, Ind. at the age of 77. He was employed by Eli Lilly for 33 years. He was appointed the position of Director of Administration in the first UniGov cabinet under then Mayor Richard G. Lugar. Recently he enjoyed helping people with their taxes as a Tax Specialist for H&R Block. He was long active in the Alumni

Association, serving as president in 2003. He also was an alumni representative to the Board of Trustees from 1982-86, and he received the Honor Alumni Award in 1977. He is survived by his wife, Myra Jo; son, Michael R.; and daughters, Ellen S. Albrecht and Mary Kay Krambeer.

## 1955

**Samuel W. Hart (M.E.)** died July 12 in Sarasota, Fla. at the age of 76. Survivors include his wife, Myrna; son, Jim; and daughters, Jennifer Hannan and Linda Felix. Sam joined Cummins Engine Company in 1962. He held various positions with Cummins and was the Vice President of TQS Management when he retired. Sam served as a member of the Rose-Hulman Board of Trustees for 20 years.

## 1956

**Richard "Dick" A. Weatherford (M.E.)** died in Beech Grove, Ind. on July 10 at the age of 78. Dick was a veteran of the U.S. Air Force and was chief draftsman for Link-Belt Corp. He is survived by his wife, Florence; sons, David and Donald; and stepdaughters Karen and Kathy.

## 1957

**Charles J. Schukai (E.E.)** Died October 20, 2008 in Webster Groves, Mo. at the age of 74. He was a retired senior vice president of Ameren Corporation and civic leader. He is survived by his wife, Mary Ellen Schabel; daughters, Ann Schulte, Cynthia Bambini, and Jean M. Barnard; and a brother, Robert J. Schukai (Class of 1960).

## 1958

**Kenneth P. Duncan, Sr. (M.E.)** passed away April 14 in Crawfordsville, Indiana at age 73. He retired from R. R. Donnelley as the engineering supervisor and was a lifetime member of the NRA. Survivors include a son, Kenneth P. Duncan, Jr. and a daughter, Barbara Jean Webster.

## 1960

**Gerald D. (Jerry) Waltz (E.E.)** died on Wednesday, July 16. Jerry began his career at IPL in 1960. The last position he held was senior vice president, electric delivery.

## 1962

**James R. Myers (E.E.)** passed away on July 10 at the age of 77 in Villas, N.J. He retired from United Engineers in 1994 as a Professional Engineer. He also worked as an inspector for Walker, Previti and Associates. He is survived by wife, Mary; sons, Ron and Clay; and daughter, Sara Bailey.

## 1966

**Neil M. Matsumoto (M.E.)** passed away February 5, 2008 in Seattle, Wash., at age 63.

## 1967

**Paul E. Newton (Math., M.S.B.E.)** passed away October 23 in Kalamazoo, Mich. He took great pride in being a diplomat of the American Board of Toxicology and was most recently employed by MPI Research in Mattawan. He is survived by his wife, Julie; three daughters Jennifer Colatruglio, Kathryn Newton, and Laura Grabovac.

## 1969

**Larry J. Gray (M.E.)** died July 12 in Lafayette, Ind. He formerly was an engineer at Big

Wheels in Paxton and Trailmobile of Charleston. At the time of his death, he was employed as an engineer by Wabash national in Lafayette. Survivors include his wife, Donna.

**Larry Keith Rust (C.E.)** died Sept. 18 in Zionsville, Indiana at the age of 61. Larry was a civil engineer in INDOT for 39 years, and a member of Zionsville Fire Department. Survivors include his wife, Linda; and children, Kristin Bachman, Jennifer Rust and Joseph Rust.

**Kent W. Keys (Ch.E.)** died June 30 in LaGrange, Ky. at age 61. He was a retired chemical engineer for Sud Chemie, and an army veteran. He was a former member of Oldham County Singers and volunteer for Oldham County historical Society. Survivors include his wife, Timothee Maloy Keys; and daughters, Kathleen Karol Taylor and Kerin Ann Hart.

## 1976

**Charles W. Pearson** died during September in Indianapolis. He was employed as an electrical engineer by the General Electric Company, followed by the United States Naval Ordinance Plant. He is survived by his children Richard Pearson and Karen Fader.

## 1977

**Alan H. Bailey (C.S./E.E.)** passed away May 28 at the age of 52 at Miami Valley South Health Center. He was the owner of the Computer Zoo in Miami Township, Bellbrook, Ohio. Alan was a member of the Far Hills Community Church and business Network International. He is survived by his wife, Ellen; daughter, Megan

Lynn Bailey; and son, Aaron Patrick Bailey.

## 1978

**Arthur H. Gemmer (E.E.)** died Feb. 24 at the age of 51 in Cedar Rapids, Iowa. Art worked for Rockwell Collins for 27 years, first in software development in the HF product group and then in the process training group teaching risk management, his area of expertise. In 2006 he started his own consulting firm, The Art of Risk, and was working on a book of the same name. He is survived by a daughter, Melissa Gemmer; his mother, Janet Cassimatis; two brothers, Greg Gemmer (Class of 1980) and Baron Gemmer (Class of 1985); a sister, Gretchen Schuster; and Melissa's mother, Kathy Gemmer.

## 1982

**Mark James Bates (E.E.)** died Sept. 1 at Riverview Hospital in Noblesville, Indiana at age 48. Mark first worked at Caterpillar Tractor Co. in Lafayette, Indiana, then for EDS in Indianapolis. He was the chief financial officer at Indiana Automation/Integrator.com, a division of Best/Stanley Works in Noblesville, at the time of his death. He is survived by his wife, Lori; two sons, Matthew Bates and John Mark Bates; and a daughter, Annie Bates.

## 1983

**Brian K. Fabel (M.E.)** passed away on June 29 in Cincinnati, Ohio. Brian was the Director of National Accounts, Orr Protection Systems, Inc., and he was a member of the Alumni Association Board at the time of his death. He is survived by his wife, Patrice. ■

# Rose-Hulman Homecoming

2008

A LOOK BACK:



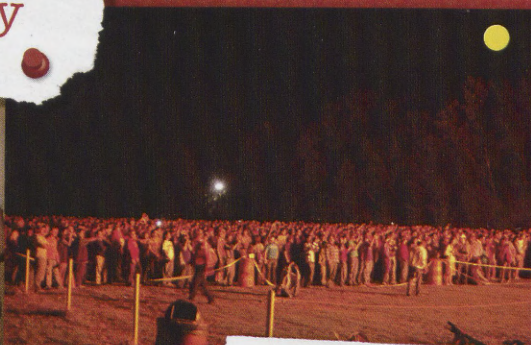
Alumni Party



Pep Rally & Bonfire



Alumni Awards



Football Game



KidZone





## PARTING SHOT

### Restore and Beautify

More than 100 Lambda Chi Alpha alumni and current members returned to campus last summer to complete the third phase of a house restoration and beautification project. They came from Cincinnati, Seattle, Baton Rouge, Spain and places in between. They are engineers, plant managers, salesmen, business owners and lawyers, but became bricklayers, painters and carpenters for their return to campus.

**Echoes**  
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