

SPRING 2012 VOL. 86 NO. 1

# MISSOURI S&T MAGAZINE

## LEARN, SUCCEED, HAVE FUN

NEW KUMMER STUDENT  
DESIGN CENTER MAKES  
A BIG DIFFERENCE

6

COURSE UNDER  
CONSTRUCTION

7

POWERED BY  
CHEMISTRY

11

CLEARING  
THE AIR



# DESIGNED TO SUCCEED

The achievements of our design teams bring honor and international recognition to Missouri S&T. Cheered on by the collective generosity of their loyal supporters, student design team members gain confidence, learn teamwork, and develop crucial project management and fundraising skills.

Help build a strong financial foundation for the success of our design teams currently and in the future. Designate a gift to the design teams.



To learn more about ways to give, or how your gifts could support the design teams and the center, contact Greg Harris at 800-392-4112, email [gfharris@mst.edu](mailto:gfharris@mst.edu) or go to [giving.mst.edu](http://giving.mst.edu).

Above: Missouri S&T's Baja Team





## ◀ ON THE COVER

Clockwise, from back right, **Tiffany Werckmann** (St. Louis, senior in computer science and computer engineering, Engineers Without Borders), **Jonathan Sanders** (Webb City, Mo., junior in mechanical and aerospace engineering, Human-Powered Vehicle), **Andi Schumann** (St. Louis, senior in civil and architectural engineering, Concrete Canoe), **Jacob Sinclair** (Savannah, Mo., junior in aerospace engineering, Advanced Aero Vehicle Group), and **Dashiell Moore** (Rolla, Mo., senior in engineering management, Human-Powered Vehicle). (Photo by Bob Phelan)

## IN YOUR WORDS

### Q & A, Letters & Tweets

Which Best Ever was the best ever?

4

## AROUND THE PUCK

### Eric Showalter:

#### course under construction

Generous donations bring iPads to the classroom

6

### Powered by chemistry

Student group finishes third in national competition

7

### The first rule of Fight Club is ...

Professor explores utopian theory and its lurking companion

9

### Farm living is the life for them

A Facebook application finds a place in the classroom

10

### Clearing the air

New mix cuts aircraft emissions

11

### Back to school, pursuing the dream

Laura Warren returns to school after accident

12

### Taylor Keal: in the game

Softball player ties record

15

## FEATURE

### Learn, succeed, have fun

A look at Missouri S&T's student design teams

16

## BEYOND THE PUCK

### Section events

List of upcoming events

31

### Hail to the (past) chiefs

A look inside the alumni presidency

32

### Class notes

Find out what your former classmates are up to

34

### Memorials

We remember our classmates and friends

45

### Donors

The Rues brothers

48

10,000

Estimated number of students taught by **Jerry Bayless**, CE'59, MS CE'62, associate professor of civil, architectural and environmental engineering. In November, Bayless received the 2011 Presidential Citation Award for outstanding alumni service from the University of Missouri Alliance of Alumni Associations and Extension.

3

Conference Coach of the Year awards for S&T during the 2011 fall season: volleyball head coach **Jason Holt**, football head coach **David Brown** and assistant football coach **Bryan Nardo**.

8,000

Expected enrollment at Sichuan Missouri University, a planned university in Chengdu, China. The university is a partnership among S&T, the University of Missouri-St. Louis and a Chinese university.

27.8

Average ACT score of S&T's 2011 freshman class. This represents the upper 10 percent in the nation.

Dollars given to S&T from alumni and friends to help fund the Kummer Student Design Center.

2,834,360

## MISSOURI S&T MAGAZINE

*Missouri S&T Magazine* is written, edited and designed by the staff of the Missouri S&T Communications Department and the Miner Alumni Association.

### INTERIM CHANCELLOR

Warren K. Wray

### VICE CHANCELLOR FOR UNIVERSITY ADVANCEMENT

Joan Nesbitt

### MINER ALUMNI ASSOCIATION PRESIDENT

Susan Hadley Rothchild, '74

### EDITORS

Megan Kean-O'Brien (Design & Production)

Mary Helen Stoltz, '95 (News & Features)

Marianne Ward (Alumni)

### ASSOCIATE NEWS EDITORS

Andrew Careaga

Linda Fulps

Mindy Limback

Lance Feyh

John Kean

Luke Rinne

### ASSOCIATE ALUMNI EDITORS

Linda Fulps

Katie Layman

Nancy Zamazanuk

### ASSOCIATE DESIGN AND PRODUCTION EDITORS

Brandon Deason

Jake Otto

### STAFF PHOTOGRAPHER

B.A. Rupert

*Missouri S&T Magazine* (USPS 323-500) (ISSN 1084-6948) is issued four times per year (March, June, September, December) in the interest of the graduates and former students of the Missouri School of Mines and Metallurgy, the University of Missouri-Rolla and Missouri University of Science and Technology. *Missouri S&T Magazine* is published by the Miner Alumni Association, Missouri S&T, 1200 N. Pine St., Rolla, MO 65409-0650. Periodicals postage paid at Rolla, Mo., and additional mailing offices.

*Missouri S&T Magazine* is printed by R.R. Donnelley, Liberty, Mo. Covers are printed on 7 pt. cover #2 Matte Sterling; interior pages are printed on 70 lb. text #2 Matte Sterling.

*Missouri S&T Magazine* is printed using soy-based ink.

**POSTMASTER:** Send address changes to *Missouri S&T Magazine*, Missouri S&T, 1200 N. Pine St., Rolla, MO 65409-0650.

### Send letters to:

Marianne Ward  
Miner Alumni Association  
Missouri S&T  
1200 N. Pine St.  
Rolla, MO 65409-0650  
Fax: 573-341-4706  
Email: alumni@mst.edu

### News & features:

Phone: 573-341-4328  
Fax: 573-341-6157  
Email: news@mst.edu

[magazine.mst.edu](http://magazine.mst.edu)

### A new look and feel

Notice anything different? Yes, this is still your alumni magazine — with a few changes. This spring, we introduce you to the updated *Missouri S&T Magazine*. The look is fresh, and so is the content. We have designed it to be more interactive and to add value that will better serve our readers.

Our new order begins with Around the Puck, a section that keeps you informed about the people and research happening at your alma mater. We move next to the feature section, which won't always have a theme. There will be a cover story, but you can expect other interesting stories to be in the mix. In the final section, we move Beyond the Puck to profile alumni, tell you about upcoming section events and give you updates about your friends in the class notes section.

For those of you who are really busy, we've pulled out a few fast facts and given you new entry points leading you into the magazine. Bigger photos and more links to the internet will give you the details when you want them, and an opportunity to move on when you don't. We think you will find the font type and size easier to read, too. Give this a couple of issues to get used to and we think you'll love the new look and feel.

### Experience that counts

The rental car's "max air" and highest fan speed could not keep pace with the sweltering heat during the last solar car race. The interior hovered around "tolerably cooler than the exterior," but never reached cool enough. Oh, how I wanted to complain, but as I exited the car onto the asphalt pavement in Topeka, Kan., I caught a glimpse of our solar car driver. He'd just endured four hours in the driver's seat with only a tiny fan to combat interior temperatures in excess of 105 degrees. And, he wasn't complaining. He was strategizing with teammates about his next run.



Why do students spend hours tweaking their design of the Formula car, testing the concrete formulas for the latest canoe, retooling the electrical systems on the solar car, recalibrating the best gear ratio for the human-powered vehicle, or making other upgrades into the wee hours of the night?

It's not the pay — they don't get any. Few even receive course credit for their countless hours. So what drives them?

I'm convinced that hands-on engineering produces a sense of pride and a buzz — a high of its own sort — through a combination of "I built this with my own hands," and the powerful bond between the machine and the teammates. When everything works (and the duct tape sticks), the air electrifies with a spirit of achievement like no other. To witness an event that is part rock concert, part first-one-across-the-finish-line, part rocket launch, come out to a student design competition and see for yourself. Inside, you'll find a handy list of section events timed to coincide with team competitions. We hope to see you there!

**Marianne Ward**  
alumni editor

## EDITOR'S TOP FIVE PICKS

- 1 } The campus is excited to welcome our new chancellor, **Cheryl B. Schrader**, to Rolla next month. Check out the back cover to learn more about the announcement.
- 2 } Cheer on the design teams and catch up with fellow alumni at several upcoming section events. Flip to pages 26, 28 and 31 for details.
- 3 } As a Rolla grad, you know what it means to have hands-on opportunities. We're proud to share three pieces that demonstrate the strength of our donors, who are helping students go beyond books and classes to gain real-world experiences. See pages 6, 28 and 48.
- 4 } The past presidents of the Miner Alumni Association are an outstanding group of leaders who have been influential in shaping both the university and the association. Turn to page 32 to read the story.
- 5 } St. Louis Cardinals fans won't soon forget the drama of last fall's World Series Game 6 and David Freese. Neither will his dad, **Guy Freese**, CE'75, as you'll find out on page 38.



Q

## Which Best Ever was the best ever?

In 1908, a tradition was born — the annual St. Pat's celebration at Missouri S&T. Each year, the celebration becomes larger than life. However, everyone seems to have a favorite, or most memorable year, for a variety of reasons.

Watch for the next question in your Miner Alumni Association eNewsletter.

A

The best ever is, by definition, the proceeding year! #bestever #n+1

**Mike Hunter**, Math'99  
submitted via Twitter (@diabolical\_mdogg)

I have some inside knowledge that this year will truly be the #bestbestever.

**Nick Baum**, CE, senior  
submitted via Twitter (@DSPcashcab)

I will say 1988, first of all, because my hubby, Smoky (**Michael Gross**, MetE'88), was St. Pat. Secondly, their court was able to convince the administration to continue on with St. Pat's despite the negative events that had happened.

**Karen Davis Gross**  
submitted via Facebook

The 100th was the Best Ever! It was *Animal House* in real life!

**Michael Wuest**, Bus'07, MBA'08  
submitted via Twitter (@MichaelWuest)

The 100th Best Ever St. Pat's was the BEST EVER. My fiancé surprised me and proposed during a Zeta Tau Alpha candlelight.

**Katie Aiken**, EE'06  
submitted via Facebook

The 103rd annual best ever St. Pat's, my court year. I haven't painted the street yet though.

**Matt Mitchell**, CSci'10, Math'11  
submitted via Twitter (@MeowMaster)

Since I'm in (heart) with St. Pat 1991, I guess I'd have to say ... 2009, when we reconnected.

**Jana Schaefer**, NDD'94  
submitted via Facebook

That's easy — St. Pat's 1993. I started dating my wife (**Rebecca Dunkmann**, CE'97) during that St. Pat's. I know what you're thinking, and the answer is yes, there was alcohol involved. We've been married for 13 years now and have two future Miners.

**Brian Repke**, GGph'96, MS GGph'98  
submitted via email

1978. Seventy years of St. Pat's. **Rusty Goldammer**, CE'78, was St. Pat. **John Eash**, AE'79, MS EMgt'90, won the novelty beard contest at Dave's Barber Shop on Pine Street. Triangle fraternity members were the "Cone Heads" as a non-float entry in the parade. Many organizations made floats and cudgels that required engineering solutions to complete. Missouri Secretary of State James Kirkpatrick took part in the celebration and then-Governor Kit Bond walked in the parade and was an Honorary Knight. We made an impact on the community by providing events that drew outside people to town so sales were boosted.

**Richard Koch**, CE'79  
submitted via email

The next Best Ever.

**Jeremy Chaney**, EE, junior  
submitted via Facebook

Email your answers to [alumni@mst.edu](mailto:alumni@mst.edu), or via Facebook or Twitter, by May 1, 2012.

As usual I enjoyed the latest issue of Missouri S&T Magazine. Item No. 125 (Ramey's) of the "140 things we love" reminded me of Bear Tracks. As I recall, it was downtown above a bowling alley. You could have your own beer stein with your name on it and it was always available from a rack of steins on the wall. You walked in, grabbed your stein, and it was filled at a discount price. I still have my stein from the place. How about doing a bit of research on Bear Tracks and include the information in a future issue of the magazine? I think us older alumni would enjoy it. (I did, on rare occasion of course, visit Ramey's.)

Keep up the good work.

**Gary W. Davis**, EE'57  
Onyx, Calif.

The list of 140 things was a welcome and inspired idea for the Fall magazine. Having attended UMR in the late '60s, I kept looking for mention of the "Green Sheet" (I think that was the name). This several-green-page publication would appear around campus about the time of St. Pat's and would be a kind of "roast" for professors, graduate assistants and others who deserved a bit of mention — mostly negative, often bawdy, mainly off-color remarks and description. No one knew where this paper originated, but I remember looking forward to it year after year. I wonder if someone has a copy tucked away in the attic somewhere.

**Lyle Hill**, ME'73  
Rhineland, Mo.

Regarding No. 129 of the 140 things we love about S&T in the Fall 2011 issue, before it was the Grotto, the Cavern, Brewster's, or the Mine Shaft, it was Hiram and Mortimers. I know; I was a bartender there in 1975, just before I graduated. That was the first that I know of that basement being a bar. It was during the foosball days. We had six foosball tables and free barrels of peanuts; eat the peanuts and throw the shells on the floor. Good times!

**Roger Keller**, MinE'75, MS MinE'82  
Las Vegas

In the Fall 2011 issue, you missed the football team's unbeaten season in 1980. You also missed the 1949 football team, which was undefeated in the MIAA Conference. They lost the first two games, both non-conference games. The 1950 football team played in tennis shoes on ice and snow. They were the MIAA Conference champions, losing one non-conference game and one conference game.

The 1914 and 1980 football teams were the only unbeaten teams, and 1949 was the only other undefeated football team in the MIAA conference.

Since the 1980 unbeaten team, Missouri S&T has changed to a weaker conference and still is unable to have a winning championship season.

I still enjoyed the Missouri S&T Magazine.

**Arthur L. Schmidt**, ChE'50  
Lake St. Louis, Mo.

Regarding the 140 things we love about S&T, No. 102 Schuman Pond? As both a townie and proud 1977 graduate, I always heard it referred to as Frisco Pond, named after the Frisco railroad. Has my memory finally gone or has the name changed? And yes, No. 126 Tim's Pizza did have the best pizza and salads in town. There was nothing wrong with the pitchers of beer, either.

I lived in Rolla from 1955, when my dad was assigned to the ROTC department after we returned from Japan, until I graduated in 1977, with time out for the Navy (1970-74). Back then, the ROTC department was in a wooden two story WWI-era building behind the gym. My dad's office was on the second floor and I remember a rifle range on the ground floor. I pretty much grew up on campus and have fond memories of both the university and Rolla.

**John Walker**, Econ'77  
La Porte, Texas

The 141st thing we love about Missouri S&T is amateur radio station W0EEE.

**Douglas Hughes**, EE'63  
Ann Arbor, Mich.



**@scottperdue**  
Scott Perdue, Engl'09

Wow, a 1-10 team beats a ranked 10-0 team// **@MissouriSandT**: S&T Miners men's basketball shocks No. 2 Southern Indiana.

**@dishiznit2012**  
Danielle Allen

7 MONTHS AND I'M HEADED TO ROLLA!!! **@MissouriSandT** .. SO EXCITED!!!

**@wcastl** Westmister WCA

Congrats to **@wcastl**'s Brandon Terlouw who received the Chancellor's Scholarship from **@MissouriSandT**

**@Fun\_Sophie**  
Sophie Russo, Psych'11

**@MissouriSandT** spelling problems? Totally an #engineeringproblem

To stay connected to your alma mater through these online social media resources, **search MissouriSandT** or follow the link through **mst.edu**.



Delicious



Facebook



Flickr



Twitter



YouTube



Subscribe



Eric Showalter's students used iPads to track construction projects in his Cost Estimating and Scheduling course.

## ERIC SHOWALTER: COURSE UNDER CONSTRUCTION

**Old class:** Eric Showalter, associate teaching professor of civil, architectural and environmental engineering, has taught a construction management course called Cost Estimating and Scheduling for more than a decade. One semester-long assignment requires students to pick a construction site and keep a diary of everything that happens — from weather conditions to which subcontractors are on site and what work is being done. It gets them in the habit of observing and writing.

**New twist:** Last fall, instead of keeping a paper diary, his students tracked their progress on iPads using an app called Construction Superintendent.

**The gift:** Robert “Bob” Brinkmann, CE’71, CEO of Brinkmann Constructors, believed that S&T students should be exposed to

new, high-tech approaches to project management. He brought together a group of alumni and corporations with construction-based interests (see list at right) to donate 30 iPads to the S&T civil, architectural and environmental engineering department.

**Up next:** Showalter is using the iPads and Construction Superintendent in his senior design course. He’s teaching 70 students, 11 of whom are on the Missouri State University campus in Springfield. Each team of students is designing a water treatment plant from the ground up.

**In his words:** “I really appreciate this donation. It has great potential. We can do some really neat things in coming semesters, as I learn more. There is so much to explore.” ■

### iPad Donors

Brinkmann Constructors  
Bradley Hornburg, CE’69  
Landmark Contract Management Inc.  
Richard “Dick” Arnoldy, CE’69  
ARCO Construction Co.  
John Mathes, CE’67, MS CE’68  
William Clarke, CE’74, MS CE’79  
Raymond Betz, CE’66

### About the App

Robert “Bob” Brinkmann, CE’71, Bob Wacker, CSci’77, and Bryan Baehr created the iPad app through their joint venture, Construction Centrics, and donated 30 apps.



# POWERED

## BY CHEMISTRY

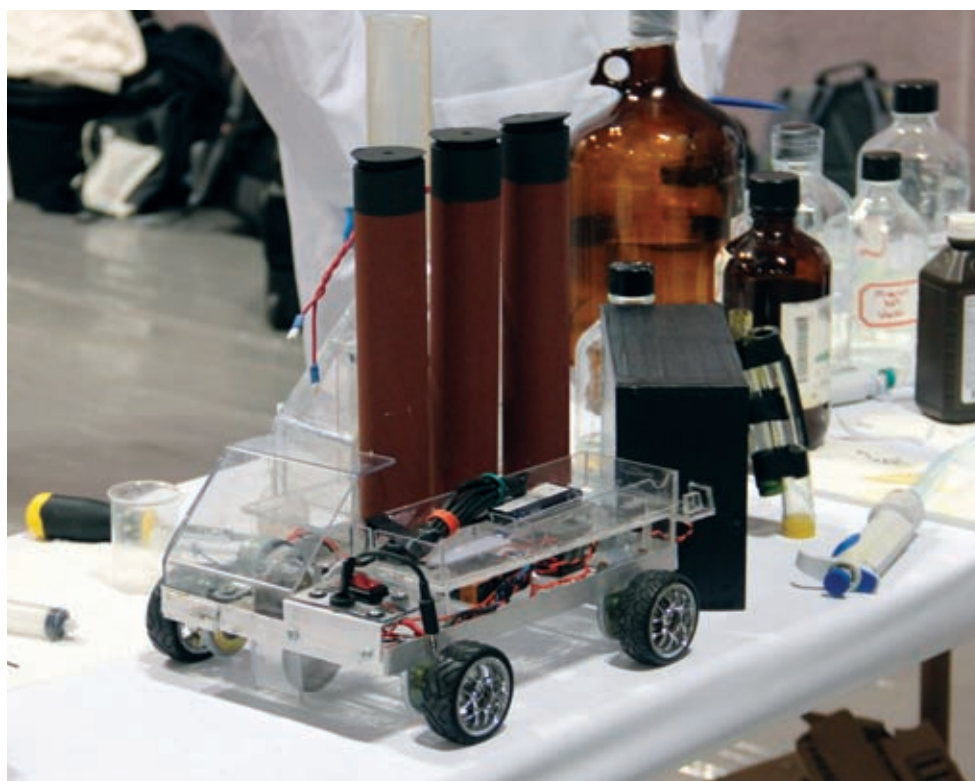
A group of chemical engineering students took third place in the nation in a competition that required them to design and construct a shoebox-sized car capable of carrying a specified load over a given distance and then stop. Sounds easy, but there's a twist.

The car — dubbed the ChemE Car — was powered, and braked, purely by chemical reactions.

Powered by a custom-built lead-acid battery, the car's braking system was controlled by an iodine clock reaction that caused a change in colors. To get the car to stop, varying amounts of sulfuric acid, potassium iodide, hydrogen peroxide and sodium thiosulfate were used with a starch solution. Changing the ratio of reactants changes the color of the solution. A fiber-optic photo sensor detects that color change, and trips a relay to cut power to the car's motor.

This year's car had to carry 350 milliliters of water a distance of 68 feet. S&T's entry stopped 5½ inches from the finish line — just behind the University of Puerto Rico Mayaguez and the University of California-Davis, says team advisor **Daniel Forciniti**, professor of chemical and biological engineering.

The competition was part of the annual meeting of the American Institute of Chemical Engineers, held in Minneapolis in October. ■



The ChemE Car placed third in a national competition for vehicles powered solely by chemical reactions.

MISSOURI  
**S&T**

*For Youth  
Grades 3 – 12*

**Aerospace Camp**

**Camp Invention**

**CyberMiner Camp**

**EcoCAR Camp**

**Explosives Camp**

**Girls Go Global**

**Girls Go Green**

**It's A Girl Thing**

**Jackling Introduction  
to Engineering**

**Leadership and  
Communication**

**Materials Camp**

**Minority Introduction  
to Technology &  
Engineering**

**Nuclear  
Engineering Camp**

**Robotics Camp**

**Summer  
Research Academy**

**Summer Solutions  
for Girls**

**Scan to learn more.**



**summer.mst.edu**

Summer  
Programs  
2012

## DYE SCHOLARS ▶

Three mining engineering students received Robert Dye (MinE 1912) Mining Engineering Scholarships.

They are (left to right): senior **Michael Allen**, junior **Joseph Cook** and senior **Joshua Cole**. Department chair **Samuel Frimpong**, the Robert H. Quenon Chair of Mining Engineering, is second from the right.

## HAPPY 140TH BIRTHDAY, S&T

On Nov. 4, faculty, staff and students of Missouri S&T joined the Miner Alumni Association in the Havener Center to celebrate Founders Day in recognition of the first day of classes held on Nov. 6, 1871. A timeline of historic S&T accomplishments as well as memorabilia were on display. Interim Chancellor **Warren K. Wray** got to cut the cake.







## THE FIRST RULE OF FIGHT CLUB IS ...

*According to Olivia Burgess, assistant teaching professor of English and technical communication, the first rule of Fight Club is that we are driven by our own personal utopian ideas, regardless if they end up creating dystopia.*

For those who are discontent, the easiest way to change reality might be to change personal appearances. Think of tattoos, hair styles and plastic surgery. That's where *Fight Club* comes in. "When you get punched in the face and you're bleeding, life gets real pretty fast," says Burgess, whose article, "Revolutionary Bodies in Chuck Palahniuk's *Fight Club*," has been accepted for publication in the journal *Utopian Studies*.

Burgess says a real or at least updated utopia isn't a "perfect" state where change is no longer possible. In many ways, if you subscribe to her theories, anarchy is the new utopia.

All of this might be part of what is driving various revolutions, including the Arab Spring, the Tea Party and the Occupy movements. Those "revolutions" might start out as utopian in theory, but dystopia is always a lurking companion, moving constantly like a shark. In the film version of the novel, the story takes a turn from the personal struggles of *Fight Club* to something called Project Mayhem, a structured attempt to destroy entire financial districts.

"We live in a world where change doesn't seem very possible," Burgess says. "A lot of people feel that frustration." ■

## IN PRINT

*Designing Texts: Teaching Visual Communication* by **Kathryn Northcut**, associate professor of English and technical communication.

*BOUND TO BELEM* by **James J. Bogan Jr.**, Curators' Teaching Professor of arts, languages and philosophy.

*New World Irish: Notes on One Hundred Years of Lives and Letters in American Culture* by **Jack Morgan**, research professor emeritus of English and technical communication.



Illustration by Brandon Deason

# FARM LIVING IS THE LIFE FOR THEM

Every day millions of Facebook users log onto their computers to plow land, plant and harvest crops, and raise livestock. Most play the farming simulation game Farmville purely for entertainment, but for a group of engineering students at S&T, it was all for a grade — and the chance to learn new approaches to solving complex engineering problems.

Students in **Ivan Guardiola's** Introduction to Operations Research course spent a week last semester playing the game. Farmville rewards players for tending to their virtual crops and cattle, but these students were also learning how to make better decisions in business and engineering. Through Guardiola's challenge, students competed to see who could earn the most money and gain the most experience.

At the start of the game, students developed plans, based on mathematical models, to achieve their goals. But many had to adjust their plans throughout the game as conditions and situations changed.

"It is up to the player to determine how much land to plow, which seeds to plant, how many seeds to plant, and when to harvest the plants," says Guardiola, an assistant professor of engineering management and systems engineering. "Decisions were completely up to the player."

Guardiola says the game helps students develop critical thinking and decision-making abilities because it forces them to deal with ambiguous situations.

"In engineering, we use data to make decisions, but that approach has limitations because situations are constantly changing," he says. "So you have to assess your situation continuously and adjust accordingly." ■

## RESEARCH ACCOLADES

Ivan Guardiola's research paper about his classroom project, "Using a Social Networking Game to Teach Operations Research and Management Science Fundamental Concepts," was named co-winner of the 2011 Best Young Faculty Paper Award in the Industrial Engineering Division of the American Society for Engineering Education. His co-authors are **Susan Murray**, professor of engineering management and systems engineering, and **Elizabeth Cudney**, PhD EMgt'06, assistant professor of engineering management and systems engineering.





Using equipment that captures and measures exhaust, the researchers tested biofuels in the same type of engine used by a Boeing 737.

## CLEARING THE AIR

*Mixing alternative fuels with conventional jet fuel can cut aircraft emissions by nearly 40 percent, says Prem Lobo, MS ChE'03, MS EMgt'05. And it doesn't affect engine performance.*

In a study published in the journal *Environmental Science and Technology*, Lobo and his fellow Missouri S&T researchers tested two types of alternative jet fuels: biofuels made from vegetable oils, and fuels made with the Fischer-Tropsch process, which creates liquid hydrocarbons from coal, natural gas or biomass. Using equipment that captures and measures exhaust, the researchers tested the fuels in the same type of engine used by a Boeing 737, measuring at different power levels to simulate an airplane's taxi, takeoff, climb and descent.

They found that the more alternative fuel they blended with the jet fuel, the lower the particulate matter emissions. But they also discovered that the only fuel that was a viable alternative was a 50-50 blend of Fischer-Tropsch fuel and jet fuel. It maintained adequate engine power for commercial or military use and it reduced particulate matter mass emissions by 39 percent.

Lobo, assistant director of the S&T Center of Excellence for Aerospace Particulate Emissions Reduction Research, was the lead author of the *Environmental Science and Technology* paper. Co-authors were **Philip Whitefield**, interim vice provost for academic affairs, professor of chemistry and director of the center, and **Donald Hagen**, professor of physics and a researcher at the center.

## PROFESSIONAL DEGREES

During commencement in December, Missouri S&T conferred professional degrees on the following alumni:

- **Nola Rebecca Johnson**, CerE'83, MS EMgt'92, PhD EMgt'99, deputy to the commanding general, Maneuver Support Center of Excellence at Fort Leonard Wood, Mo.
- **Dale M. Pitt**, AE'72, MS AE'75, Boeing Technical Fellow in the field of aeroelasticity, unsteady aerodynamics and adaptive structures
- **Gary D. Pennell**, MetE'97, chief metallurgist at Nucor-Yamato Steel Co.
- **William A. "Bill" Rehm**, GGph'51, a consultant working with the IADC to develop texts on drilling technology
- **George E. Uding**, ME'59, retired resident and chief operating officer of Medusa Corp.

## CONGRATS GRADUATES

A record number of students celebrated their graduation at the Grad Finale on Dec 8. At the event, hosted by the Miner Alumni Association, 136 grads enjoyed food, games and door prizes. **Susan Watson-Hajjar**, CSci'83, donated multiple gift cards and an LG 32-inch HDTV for the grand prize. **Michael Pendergrass**, ME'11, was the lucky winner.

## SCHOLARSHIP BANQUET

Alumni association scholarship endowment donors and their scholarship recipients will meet during the association's Scholarship Banquet on Friday, April 20. More than 400 students who receive scholarships will be honored at the banquet. Donors who provide named scholarships through the association will sit with the students who benefit directly from the donors' generosity.



## BACK TO SCHOOL, PURSUING A **DREAM**

“THEY KNEW GOING  
BACK TO SCHOOL  
WAS IMPORTANT  
TO ME ...”

— Laura Warren

In 2005, metallurgical engineering major **Laura Warren** was riding in a vehicle that got hit by a train. The driver, her friend's father, was killed in the accident.

Warren spent two years in hospitals with life-threatening injuries, then underwent years of intense physical and speech therapy. This fall, she walked back into the classroom to achieve her goal — earning a degree from S&T.

Warren was a senior when the accident happened. She had already completed an internship with U.S. Steel and was looking forward to graduating and landing a job. It took a while, but now she's back in class and expects to graduate soon. She says her mom and dad were her biggest supporters during her recovery.

“They knew going back to school was important to me and wanted me to be happy and to follow my dreams,” Warren says. ■





## ◀ WELCOME, MR. PRESIDENT

Former computer software executive and University of Missouri-Columbia graduate **Tim Wolfe** was named the 23rd president of the University of Missouri System on Tuesday, Dec. 13, 2011. He began his duties in February. He succeeds **Gary Forsee**, CE'72. For more information about Wolfe, visit [umsystem.edu/president](http://umsystem.edu/president). (Photo courtesy of University of Missouri System)

## FALL 2011 CAREER FAIR

Career opportunities and employer relations hosted the Fall Career Fair on Sept. 27 with 210 employers and about 135 alumni returning to recruit graduates of their alma mater. Prior to the career fair, the Miner Alumni Association, along with Students Today, Alumni Tomorrow (STAT) and Engineers Without Borders, hosted a continental breakfast for the recruiters. For a list of alumni in attendance, visit [magazine.mst.edu](http://magazine.mst.edu).



## SPORTS BY THE NUMBERS

Final career point total for women's soccer player **Melissa Young**, the eighth player in school history to reach that milestone.

50

141.2

Per-game rushing yardage by the Miner football team in 2011, the highest by an S&T team since 2008.

7

Highest ranking in the history of the men's soccer program; reached by the Miners on Sept. 26 after beating No. 1-ranked Northern Kentucky.

11 & 8

Longest winning streaks in the five-year history of the Lady Miner volleyball program that were recorded during the season; the team had never won more than three straight matches prior to 2011.

Miner football players who earned all-conference honors from the Great Lakes Football Conference.

18

5

Finish by S&T senior cross country runner **Colleen Conrad** at the Great Lakes Valley Conference Championships to earn all-league honors.

School-record wins by the Lady Miner volleyball team in its historic 2011 season that ended at the NCAA Midwest Regional.

24





TAYLOR KEAL:

# IN THE GAME

*Taylor Keal has been a softball pitcher since she was 10 years old. But she cannot remember being a part of anything like what she experienced on April 10, 2011.*



On that day, she was a part of the longest home game in Missouri S&T history as the Lady Miners defeated Quincy 4-3 in 17 innings in the second game of a doubleheader. The game was also the second-longest in school history, and Keal tied the record for most innings pitched in a single contest with 13.

Keal shut down the Hawks and their three-time All-American Torie Bunzell in the first game that day, winning 3-0 behind a pair of home runs by **Maggie Schroeder**. During the second game she was sitting on the bench watching as the game was tied 1-1 headed into the fourth.

"I started getting the sense I was going to be needed, judging by the way the game was going," she says. "Coach (**Don Kennedy**) came up to me and asked if I had anything left and I said I had about two or three innings in me. I didn't dream of pitching 13 innings but the adrenaline took over and I kept putting up zeroes. The only pitches I had command of were my fastball and changeup."

In the top of the 17th Quincy scored a pair of runs to take a 3-1 lead, but S&T scored three in the bottom half to win the game.

"I was happy we won the game. I don't know if I ever pitched that many innings in a day and I once played five games in a day," she says. "It's something I'll never forget and it was neat to be part of a game like that." ■

◀ When she is not on the field, Keal, a native of Blue Springs, Mo., is preparing for a career as a lawyer. She is currently a junior majoring in business.



# LEARN,

SUCCEED, HAVE FUN

No 1

TITLE:

*Lance Feyh*

*Bob Phelan*

WRITTEN BY:

PHOTOGRAPHS BY:

**NEW KUMMER STUDENT DESIGN CENTER  
MAKES A BIG DIFFERENCE**

The previous student design facility, located on campus between the Havener Center and the Campus Support Facility, was cramped and lacked essential equipment. Students had to cross a busy highway just to use the bathroom.







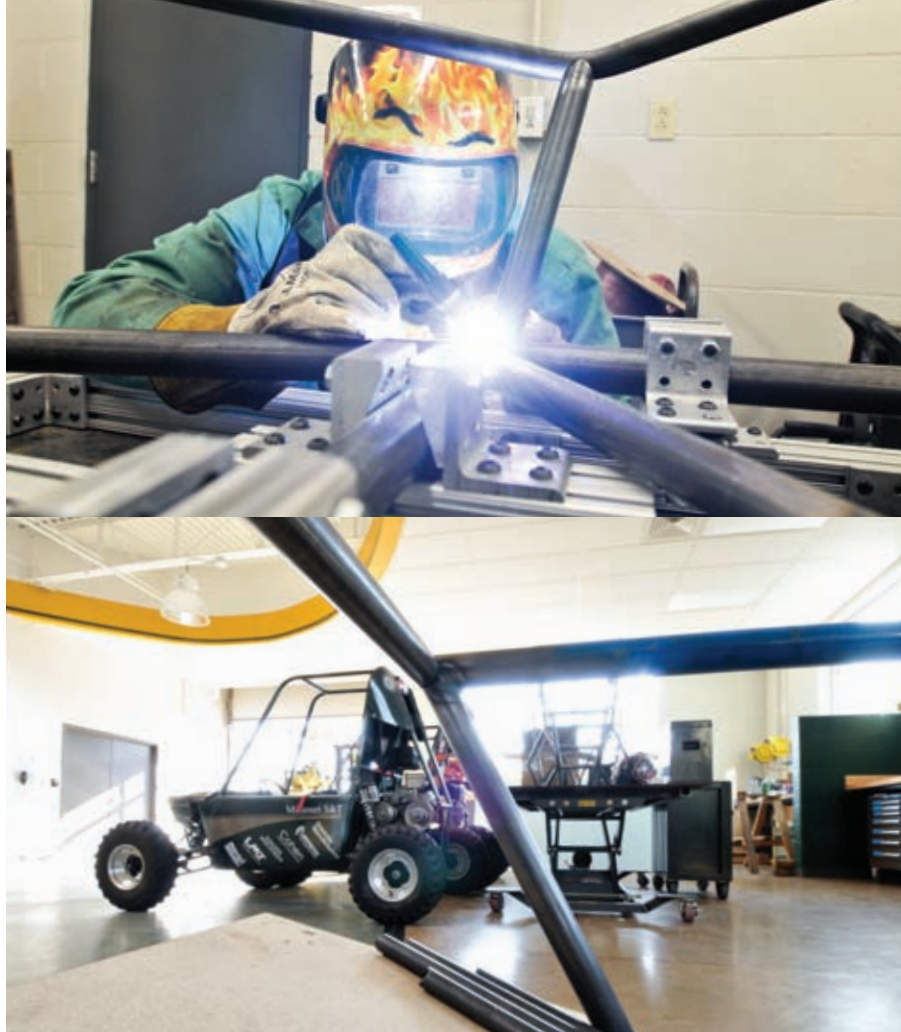
Opened in spring 2011, the Kummer Student Design Center is a 21,400-square-foot facility with retail space and room for most of the university's design teams.

**IN THE PREFABRICATED METAL STRUCTURE THAT USED TO HOUSE S&T'S DESIGN TEAMS, SPACE HEATERS KEPT THINGS RELATIVELY WARM IN THE WINTER. BIG FANS HELPED VENTILATE IT IN THE SUMMER. THE PLACE FAMOUSLY HAD NO RESTROOM FACILITIES.**

Huge model airplanes hung from the rafters. A sense of claustrophobia was pervasive. During any given part of the year, the Solar Car Team was working on an electrical problem, the Human-Powered Vehicle Team was having design issues with its windshield and the Steel Bridge Team was welding beams.

"The steel bridge guys would be welding and we'd have to dodge these molten blobs to keep from getting burned," says **Ross Jensen**, a junior in mechanical engineering on the Human-Powered Vehicle Team.

The teams, of course, made the most of what they had. National championships



from the Solar Car Team and the Human-Powered Vehicle Team have been well documented, and the Formula Car Team has been very competitive at the international level. But in recent years, some of the successes — at least as defined by performance in competitions — began to diminish as the teams outgrew their main working facility.

Last year, for instance, the Human-Powered Vehicle Team finished second in both of its competitions. That is impressive — except for the fact that they were used to winning. "Our vehicle was light years ahead of the others in 2011, but we didn't finish it until eight hours before the competition," says Jensen. Competing with other teams on campus for space and time in the crowded facility meant fewer opportunities to test vehicles before a competition.

Meanwhile, the Advanced Aero Vehicle Group crashed its plane and the concrete canoe cracked. Lots of duct tape was used. Most team leaders agree that the amount of time spent on testing S&T's various design team contraptions correlates directly with the chances of performing well in a competition — and there wasn't enough time for some of the teams. Or enough space.

This year things are different. Very different. A sparkling 21,400-square-foot facility is now home to S&T's student design teams. The Kummer Student Design Center has offices, meeting rooms for all the teams and staff, lots of technology and equipment, and, of course, clean restrooms, as well as modern heating and cooling systems. There's even space for retail businesses — including a Jimmy John's and a Spoon Me yogurt shop — in the front of the facility, which is located where the old Holsum Bread Bakery and then the Student Rec Center used to be. In the main part of the building, there are plenty of spacious, well-lit areas for the students to work. **(continued on page 21)**





## ADVANCED AERO VEHICLE GROUP

№ 1

DESIGN TEAM

- After last year's plane crashed, the team used Popsicle sticks to temporarily bolster the landing gear.
- AAVG also designs and builds high-powered rockets.  
[To watch the practice launch, scan the QR code above with your smart phone or visit \[magazine.mst.edu\]\(http://magazine.mst.edu\).](#) (Wait for it. It's about 30 seconds in).
- The team must notify the FAA before launches.



## BAJA SAE

№ 2

DESIGN TEAM

- One year, the team built a vehicle that could go more than 40 mph in addition to handling rugged terrestrial landscapes.
- Back in the UMR days, the team built a vehicle that could drive on water. Watch it plunge into Little Prairie Lake and then across it.  
[To see the video, scan the QR code above with your smart phone or visit \[magazine.mst.edu\]\(http://magazine.mst.edu\).](#)





## CONCRETE CANOE

№ 3

DESIGN TEAM

- For normal construction, concrete weighs about 150 pounds per cubic foot. But to float these boats, lighter aggregate mixtures of concrete are used.
- To qualify for competitions, the canoe has to pass a swamp test every year; it is submerged in water and, if seaworthy, floats back to the surface.
- If you're one of the team's paddlers, expect to get wet on occasion.



## ENGINEERS WITHOUT BORDERS

№ 4

DESIGN TEAM

- S&T has one of the largest student EWB chapters in the U.S.
- More than 330 of our EWB students have traveled to Bolivia, Guatemala, Haiti and Honduras, so far.
- S&T helped start the EWB chapter at the University of Kansas.

To see videos about EWB, scan the QR code above with your smart phone or visit [magazine.mst.edu](http://magazine.mst.edu).







Suddenly, the teams are rejuvenated. The Concrete Canoe Team, for example, was two months ahead of last year's pace at the time of this writing.

S&T's student design teams were officially organized in April of 2000 after some of the teams had already built strong programs. Recognizing the need to help, a group of graduates led by **Richard "Dick" Arnoldy**, CE'69, **Robert "Bob" Brinkmann**, CE'71, and **Barry Koenemann**, CE'70, started raising money for a new facility. **Fred**, CE'55, and **June Kummer** made a naming gift that made it possible to go ahead with the \$2.5 million renovation of the building on the corner of Bishop Avenue (U.S. Highway 63) and 10th Street. The new facility was dedicated on May 20, 2011.

"With the new facility, we've been able to acquire equipment we never had space for," says **Paul Hirtz**, EMgt'95, MS EMgt'97, PhD EMgt'02, associate director of the center.

A tall rocket, two human-powered vehicles and two dune buggies belonging to the Baja Team stand in one of the main working areas of the Kummer Student Design Center, along with other projects in the works. Yet there's plenty of room to move around.

Of course, there are still costly logistical challenges. The Baja Team, for instance, is traveling to competitions in Oregon, Wisconsin and Alabama this spring. And the only place the Formula Car Team could find that is big enough and accessible enough to test their vehicle is the parking lot of the Hearn Center in Columbia Mo., an hour and a half away.

But for most of the students, who also have a lot of class work, all of the time and effort on design team projects pay off.

## 12 DESIGN TEAMS

AN EVEN DOZEN

The Hydrogen Design Solutions (**H2**) and International Genetically Engineered Machines (**iGEM**) teams are the latest to join the Kummer Student Design Center, bringing the total number of groups to 12.

***H2 studies challenges facing the hydrogen community, such as how local resources could be used to make biogas for power generation on campus.***

***iGEM designs synthetic biological systems that can operate in living cells. Their latest project used segments of DNA embedded in bacteria to detect glucose.***



Design center students work with high-tech equipment and computer models. But they are also familiar with some of the more conventional trade tools and other stuff associated with making machines. These are just some of the items we found scattered about. Note that it's nearly impossible to find a full roll of duct tape ...

"Take out sleep and you're good to go," says mechanical engineering senior **Miriah Anderson**, a member of the Robotics Team who has already landed a job with National Instruments in Austin, Texas, even though she won't graduate until May.

According to Jensen, students who don't join design teams are missing out on opportunities to demonstrate the viability of new technologies by "learning how to manufacture what they design."

Students on design teams learn leadership and problem-solving skills "on the job" as they plan, finance, design and implement real-world projects. In addition to competing against their peers from universities across the nation, design team members gain technical expertise and learn critical business skills.

The students who participate also learn valuable lessons associated with teamwork. "With a test in class, it's your responsibility," says **David Conradi**, a senior on the Formula Car Team. "When working with a design team, if you fail, you are letting others down."

(continued on page 25)











## FORMULA CAR TEAM

№ 5

### DESIGN TEAM

- The Indy-style Formula cars go from 0 to 60 mph in about 3 seconds.
- The team is competing in Germany this summer. No word on whether they'll hit the autobahn.
- The team sold the 2002 vehicle on eBay.

To see a video, scan the QR code above with your smart phone or visit [magazine.mst.edu](http://magazine.mst.edu).



## HUMAN-POWERED VEHICLE TEAM

№ 6

### DESIGN TEAM

- The team previously won six straight championships.
- In 2007, **Jerrod Bouchard**, EMgt'08, ME'08, became the second-fastest college student to ever be propelled by his own power. He was encased in the "bullet bike," which was engineered by S&T students. To see a video, scan the QR code above with your smart phone or visit [magazine.mst.edu](http://magazine.mst.edu).
- **Whitney Joseph**, EMgt'08, and **Whittney Metcalf**, PetE'11, were both female champions in human-powered vehicle racing.







- Students in Missouri S&T's Engineers Without Borders chapter work on sustainable engineering projects like helping bring fresh water to small communities in developing nations.

Two of the teams that officially belong to the center conduct their business off-site (three if you count the Formula Car Team, which usually works on its vehicle elsewhere). The Solar House Team, of course, needs open space to build its homes. S&T's Solar Village is located on land just west of the new Kummer Student Design Center. And then there's the S&T chapter of Engineers Without Borders (EWB), the largest group and the only team in the center that isn't involved in any kind of formal competition. EWB students travel to countries in Central and South America to assist with water problems.

**Grace Harper**, a senior in geological engineering, has been to Honduras twice with EWB, and she wants to go again. "It becomes more about the personal connections — the people — than the project," she says.

While most of the students on design teams concentrate on learning and trying to make the world a better place in some way, it's important to have fun as well. "We could build the thing out of hemp or something, but it's nice to just be able to make a car that goes fast," says **Thomas Fears**, senior in mechanical engineering, of the Baja Team.

That sentiment fits the motto of the center's director, **Roger LaBoube**, CE'70, MS CE'73, PhD CE'77: "Learn, succeed, have fun."

And the enhanced ability for many students to learn, succeed and have fun in a positive environment was largely made possible by the Kummers.

"Missouri S&T's student design teams have an incredible record of success, and our students deserve to work and conduct business in a facility that provides the best laboratory and work space possible," says Fred Kummer. "June and I are very pleased to be able to provide this support for such a world-class student operation." ■

**"WE COULD BUILD THE THING  
OUT OF HEMP OR SOMETHING,  
BUT IT'S NICE TO JUST BE ABLE  
TO MAKE A CAR THAT GOES FAST"**

Thomas Fears  
Baja SAE

*Mingle with fellow alumni and cheer on the design teams as they face-off against tough rivals. See pages 26-28 for a complete list of upcoming competitions to find out when we'll be in your area. Please visit competition websites for the most current information on page 28.*

# 2012 STUDENT DESIGN TEAM COMPETITIONS AND ALUMNI EVENTS

Race times are subject to change. Please visit competition websites for the most current information. All times ending with “\*” are approximate.

## MIDWEST

### REGION

- ▶ **BAJA SAE**  
*Baja SAE at Wisconsin*  
**June 7-10**  
  
Madison, Wis.  
**June 10**  
Miner Alumni Association will provide a continental breakfast for alumni, students and guests: 8-10 a.m.  
Race: 10 a.m.-2 p.m.\*  
Awards: 3:15-4 p.m.\*
- ▶ **CONCRETE CANOE**  
*Regionals at Nebraska*  
**April 19-21**  
  
University of Nebraska-Lincoln  
1400 R St.  
Lincoln, Neb.  
**NE-IA Section**  
**April 20**  
Miner Alumni Association will provide a continental breakfast for alumni, students and guests: 8-9 a.m.  
Race: 9 a.m.-noon\*
- ▶ **FORMULA SAE**  
*Formula SAE at Michigan*  
**May 9-12**  
  
Michigan International Speedway  
12626 U.S. Highway 12  
Brooklyn, Mich.  
**Motor City Section**  
**May 10**  
Race: 8 a.m.-5 p.m.  
Semi-finalists announced: 6 p.m.  
Dinner for alumni, students and guests: 7-9 p.m.  
*Carlyle Grill*  
3660 Jackson Road  
Ann Arbor, Mich.  
734-213-9800  
carlylegrill.com  
**May 11**  
Acceleration and Skidpad Events: 9 a.m.-12:30 p.m.  
Autocross Open Event: 2-5 p.m.  
Friday Awards Ceremony: 7 p.m.\*  
**May 12**  
Endurance Competition (Group 1): 9-11:30 a.m.  
Endurance Competition (Group 2): 1:45 p.m.\*  
Design Finals: 6 p.m.\*  
Final Awards Ceremony: 8 p.m.\*

## ▶ FORMULA SAE

*Formula SAE at Nebraska*  
**June 20-23**

Lincoln Airpark  
3401 W. Luke  
Lincoln, Neb.

### NE-IA Section

#### June 21

Design Judging: 8:30 a.m.-5:30 p.m.

#### June 22

Miner Alumni Association will provide a continental breakfast for alumni, students and guests: 8-9 a.m.

Acceleration and Skidpad Events:  
8:30-11:30 a.m.

Autocross Event: 1:30-4:30 p.m.

#### June 23

Endurance/Fuel Economy  
Competition: 8:30 a.m.-4 p.m.  
Awards Ceremony: 6:30 p.m.\*

## ▶ ROBOTICS

*Intelligent Ground Vehicle  
Competition at Michigan*  
**June 8-11**

Oakland University  
2200 N. Squirrel Road  
Rochester, Mich.

### Motor City Section

#### June 10

Obstacle Course Competition:  
8 a.m.-5 p.m.\*

Dinner for alumni, students  
and guests: 6-9 p.m.

*Red Ox Tavern*  
3773 E. Walton  
Auburn Hills, Mich.  
248-340-7070  
redoxtavern.com

## ▶ STEEL BRIDGE

*Regionals at Nebraska*  
**April 19-21**

University of Nebraska-Lincoln  
1400 R St.  
Lincoln, Neb.

### NE-IA Section

#### April 20

Miner Alumni Association will provide a continental breakfast for alumni, students and guests: 8-9 a.m.

Competition: 9 a.m.-1 p.m.\*

## NORTHEAST

### REGION

- ▶ **HUMAN-POWERED VEHICLE**  
*HPVC East at Pennsylvania*  
**April 27-29**  
  
Grove City College  
100 Campus Drive  
Grove City, Pa.  
**April 28**  
Sprint and Drag Race: 8 a.m.-noon\*  
Endurance Race: 1-5 p.m.\*  
Dinner for alumni, students  
and guests: 5:30 p.m.  
*Hoss's*  
1948 Leesburg - Grove City Road  
Grove City, Pa.  
724-748-4099  
hoss.com  
**April 29**  
Awards: Time TBD
- ▶ **SOLAR CAR**  
*Look in the next issue of the magazine  
for a complete list of section events  
during the Solar Car Race from  
Rochester, N.Y., to Minneapolis, Minn.*

## NORTHWEST

### REGION

- ▶ **BAJA SAE**  
*Baja SAE at Oregon*  
**May 2-5**  
  
**Portland Section**  
**May 2-3**  
Static Event: Time TBD  
*Portland Metropolitan Expo Center*  
2060 North Marine Drive  
Portland, Ore.  
expocenter.org  
**May 4-5**  
Dynamic Event: Time TBD  
*Washougal MX Park*  
40205 NE Borin Road  
Washougal, Washington  
washougalmxpk.com  
**May 5**  
Race: 10 a.m.-2 p.m.\*  
Awards: 3:15-4 p.m.\*  
Dinner for alumni, students  
and guests: 5:30-7 p.m.  
  
*Ristorante Roma*  
622 S.W. 12th Ave.  
Portland, Ore.  
503-241-2692  
ristoranteromaportland.com



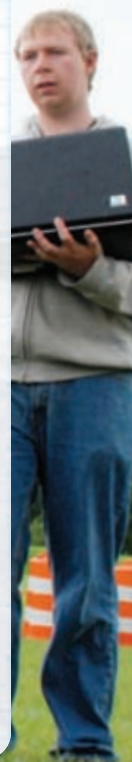


## ROBOTICS TEAM

No 7

DESIGN TEAM

- The team makes robots that autonomously navigate an obstacle course.
- Often overheard at robotics competitions: "Well, the thing worked last night."



## SOLAR CAR TEAM

No 8

DESIGN TEAM

- Winner of two national solar racing championships.
- *Solar Miner VI* traveled from Dallas to Calgary on zero gallons of gas.
- Every solar car is emblazoned with the No. 42 — which, if you believe author Douglas Adams, is the answer to everything.

## 2012 STUDENT DESIGN TEAM COMPETITIONS AND ALUMNI EVENTS

Race times are subject to change. Please visit competition websites for the most current information. All times ending with “\*” are approximate.

### SOUTHEAST

REGION

#### ▶ ADVANCED AERO VEHICLE GROUP University Student Launch Initiative at Alabama April 19-21

Bragg Farm  
1180 Grimwood Road  
Toney, Ala.

##### Northern Alabama Section

April 19

Dinner for alumni, students and guests: 7 p.m.

*Rosie's Mexican Cantina*  
6196 University Drive  
Huntsville, Ala.  
256-922-1001  
[rosiesmexicancantina.com](http://rosiesmexicancantina.com)

April 21

Launch Day: 10 a.m.-5 p.m.\*

#### ▶ ADVANCED AERO VEHICLE GROUP SAE Aero Design East at Georgia April 27-29

GMA Airfield  
8250 Federal Road Ball Ground  
Marietta, Ga.

##### Georgia Section

April 27

Flights: 8 a.m.-5 p.m.\*  
Dinner for alumni, students and guests: 5:30 p.m.

Hearth Pizza Tavern  
5992 Roswell Road, NE  
Sandy Springs, Ga.  
404-252-5378  
[hearthpizzatavern.com](http://hearthpizzatavern.com)

April 28

Flights: 8 a.m.-5 p.m.\*

April 29

Flights: 8 a.m.-noon\*  
Awards after final flight: 2 p.m.\*

#### ▶ BAJA SAE Baja SAE Auburn at Alabama April 19-22

National Center for Asphalt Technology  
1600 Lee County Road 151  
Opelika, Ala.

April 22

Miner Alumni Association will provide a continental breakfast for alumni, students and guests: 8-10 a.m.  
Race: 10 a.m.-2 p.m.\*  
Awards: 3:15-4 p.m.\*

#### ▶ STEEL BRIDGE Nationals at South Carolina May 25-27

Clemson University  
109 Riggs Hall  
Clemson, S.C.

Participation in nationals is based on qualification at regionals.  
Upon qualification, Miner Alumni Association will provide a continental breakfast. Date to be determined.

### WEST

REGION

#### ▶ HUMAN-POWERED VEHICLE Human-Powered Vehicle Competition at Utah May 6

##### Salt Lake City Section

Miller Motorsports Park  
2901 N. Sheep Lane  
Tooele, UT  
[millermotorsportspark.com](http://millermotorsportspark.com)  
435-277-8000

May 6

Dinner for alumni, students and guests: 5 p.m.

*Home of Richard "Dick" '69 and Nancy Arnoldy*  
8088 White Pine Canyon Rd.  
Park City, UT

*To RSVP for any of the student design team alumni events and receptions, visit [mineralumni.com](http://mineralumni.com) to register. You can also see a list of other attendees in the online community.*

Advanced Aero Vehicle Group, Baja SAE, Formula SAE: [students.sae.org](http://students.sae.org)

Human-Powered Vehicle: [asme.org/events/competitions](http://asme.org/events/competitions)

Robotics: [igvc.org](http://igvc.org)

Concrete Canoe, Steel Bridge: [design.mst.edu](http://design.mst.edu)



The Kummer Student Design Center was dedicated on May 20, 2011.

*The members of the Missouri S&T family extend their deepest gratitude to:*

**Fred, CE'55, and June Kummer**

*whose gift named the*

**Kummer Student Design Center**

and

**Richard "Dick," CE'69, and Nancy Arnoldy**

**Robert "Bob," CE'71, and Kim Brinkmann**

**Michael, ME'68, and Joyce Bytnar**

**Kenneth and Marian Clark**

**Billy Gerhart, EE'61**

**Barry, CE'70, and Deborah Koenemann**

**Jerry L. Rich, EE'74**

*whose gifts named the facility's labs and offices*

and

**Caterpillar Foundation**

**ConocoPhillips**

**Roger, ME'65, and Sandra Dorf**

**Douglas, ME'87, and Pamela Duchardt**

**David, EE'90, and Lisa Enke**

**Gerald, ME'65, and Miriam Kettler**

**The late Vernon McGhee, PetE'42**

**John Thomas Modlin, ME'85**

**Robert, ME'55, and Tommie Oetting**

**David and Ruth Robertson**

**The late Dr. Robert Russell**

**Paul, ME'71, and Nancy Scherrer**

**The Sunderland Foundation**

*whose gifts helped us reach our goal to make this dream a reality.*





## SOLAR HOUSE TEAM

№ 9

### DESIGN TEAM

- **Anna Osborne**, CE'11, spent her last semester at S&T living in one of the 800-square-foot houses in the Solar Village. She traveled to Bolivia three times with EWB as an undergraduate.
- **Dan Oerther**, the **John and Susan Mathes** Chair of Environmental Engineering, has been living in one of the other houses with his family.
- During the summer, S&T sells power generated from the village back to the utility company.



## STEEL BRIDGE TEAM

№ 10

### DESIGN TEAM

- **Cautionary tale:** During one past competition, another team was putting the final piece of its bridge in place, using a rubber mallet, when the structure collapsed.
- Teams are judged on how efficiently their bridges are constructed.
- The bridges are approximately  $\frac{1}{10}$  the size of a real bridge.

## MISSION, GOALS AND BENEFITS

### MISSION

The association proactively strives to create an environment — embodying communication with and participation by Miner alumni and friends — to foster strong loyalty to the university and growth of the association. The association increases its financial strength and provides aid and support to deserving students, faculty and alumni.

### GOALS

- Increase alumni pride in their association with Missouri S&T and the Miner Alumni Association
- Increase alumni involvement, especially that of young alumni
- Increase alumni contributions, both in the number of alumni making a financial commitment and in the dollars raised to benefit Missouri S&T and the Miner Alumni Association
- Strengthen relationships with faculty, staff and students on behalf of the alumni association.

The officers and other members of the association's board of directors provide leadership and personal participation to achieve these goals and fulfill this mission. For their efforts to be a success, they need YOUR active participation as well, in whatever alumni activities you choose.

### BENEFITS

#### CAREER ASSISTANCE

Missouri S&T's career opportunities and employer relations will help you in your job search. For information, call 573-341-4343.

#### SERVICES

##### Online Community

including searchable directory at mineralumni.com

##### Access to alumni office

via email (alumni@mst.edu)

##### Address update service

so you don't miss your Missouri S&T mail

##### Insurance discounts

##### Travel opportunities

#### MINER MERCHANDISE

Chairs, lamps, watches, pendants, Joe Miner credit card, license plates for Missouri residents and the official Missouri S&T ring.

## POLICY FOR SUBMISSIONS

- We are happy to announce weddings, births and promotions, after they have occurred
- We will mention a spouse's name if it is specifically mentioned in the information provided by the alumnus/alumna
- We will print addresses if specifically requested to do so by the alumnus/alumna submitting the note
- We reserve the right to edit alumni notes to meet space requirements
- We will use submitted photos as space permits
- Due to the production time required for each issue, submissions may take up to six months to appear.

Your patience is appreciated.

## MINER ALUMNI ASSOCIATION

REPRESENTING MORE THAN 50,000 ALUMNI WORLDWIDE



### PRESIDENT

**SUSAN HADLEY ROTHSCILD '74**  
St. Louis  
(srothsch@swbell.net)

### PRESIDENT-ELECT

**JOHN F. EASH '79** Weldon Spring, Mo.  
(johnneash@miner.mst.edu)

### VICE PRESIDENTS

**ERNEST K. BANKS '81** St. Louis  
(ernie.banks@bjc.org)

**RANDALL G. DREILING '81**  
St. Louis  
(dreiling@miner.mst.edu)

**RICHARD W. EIMER JR. '71** Spring, Texas  
(cocoabea77@comcast.net)

**JOHN R. FRERKING '87** Kansas City, Mo.  
(jfrerki@burnsmcd.com)

**STEPHEN W. RECTOR '72**  
Greenwood Village, Colo.  
(swr@rimop.com)

**ROBERT J. SCANLON '73**  
Brookville, Md.  
(rjscanlon@comcast.net)

### TREASURER

**JERRY R. BAYLESS '59** Rolla, Mo.  
(jerryb@mst.edu)

### ASSISTANT TREASURER

**RICHARD L. ELGIN '74** Rolla, Mo.  
(elgin@rollanet.org)

### SECRETARY

**W. KEITH WEDGE '70** Rolla, Mo.  
(keith.wedge@advancia.com)

### ASSISTANT SECRETARY

**CHRIS RAMSAY '83** Rolla, Mo.  
(cramsay@mst.edu)

### DIRECTORS-AT-LARGE

**BILL BRUNE '75** Houston, Texas  
(tallbill@bruneweb.com)

**DENNIS LEITTEMAN '76**  
Sunnyvale, Calif.  
(dennis\_leitteman@yahoo.com)

**MIKE MCEVILLY '80 '81** Spring, Texas  
(michaeljmcevilly@comcast.net)

**JON SCHNEIDER '87** Huntsville, Ala.  
(jon.c.schneider@boeing.com)

**GREGORY SKANNAL '85**  
Houston, Texas  
(gregoryskannal@hydroenergy.com)

**DALE A. SPENCE '97** St. Louis  
(dale.spence@miner.mst.edu)

### AREA DIRECTORS

Area 1: **DOUGLAS MARQUART '82**  
Beverly, Mass.  
(dwmarquart@yahoo.com)

Area 2: **CHRISTOPHER MAYBERRY '98**  
Alexandria, Va.  
(cmmayberry@yahoo.com)

Area 3: **BRIAN TENHOLDER '97**  
Charlotte, N.C.  
(bten1189@carolina.rr.com)

Area 4: **JOHN KEATING '73**  
Lakeland, Fla.  
(jmkeating@aol.com)

Area 5: **DAWN STUFFT '99**  
North Baltimore, Ohio  
(dmstufft@marathonpetroleum.com)

Area 6: **ART GIESLER '77**  
Colleyville, Texas  
(art.giesler@att.net)

Area 7: **GREGORY K. ARDREY '89**  
Janesville, Wis.  
(gregardrey@alliantenergy.com)

Area 8: **TOM FEGER '69** Springfield, Ill.  
(tfeger@hanson-inc.com)

Area 9: **NATHAN RUES '02** Fischers, Ind.  
(NRues@hotmail.com)

Areas 10-18: **DAN BAILEY '03, '05**  
Kansas City, Mo.  
(daniel.jaye.bailey@gmail.com)

Areas 10-18: **MICHAEL BUSBY '78**  
Swansee, Ill.  
(mbusby@mcsworldwide.com)

Areas 10-18: **SHAWNNA L. ERTER '00**  
St. Charles, Mo.  
(serter@miner.mst.edu)

Areas 10-18: **RHONDA GALASKE '79**  
Collinsville, Ill.  
(rhondagalaske43@gmail.com)

Areas 10-18: **RUSSELL GOLDAMMER '78**  
Chesterfield, Mo.  
(russell\_goldammer@ctsinc.biz)

Areas 10-18: **JARROD R. GRANT '98**  
O'Fallon, Mo.  
(jarrod.r.grant@boeing.com)

Areas 10-18: **POLLY HENDREN '73**  
Columbia, Mo.  
(phendren@oceanside-tower.com)

Areas 10-18: **CHRIS RAMSAY '83**  
Rolla, Mo.  
(cramsay@mst.edu)

Areas 10-18: **BRECK WASHAM '90**  
Ballwin, Mo.  
(bwasham@burnsmcd.com)

Area 19: **JASON BRIDGES '00**  
Lenexa, Kan.  
(jdb@miner.mst.edu)

Area 20: **DELORES J. HINKLE '75**  
Sugar Land, Texas  
(djhinkle@marathonoil.com)

Area 21: **DANIEL JACKSON '90**  
San Diego, Calif.  
(djack1003@cox.net)

Area 22: **DAVID BUFALO '66**  
Denver, Colo.  
(djbufalo@msn.com)

Area 23: **TOM HARRISON '74**  
Danville, Calif.  
(drig1@aol.com)

Area 24: **M. THERESA WILLIAMS '88**  
Anchorage, Alaska  
(theresa.williams@pxd.com)

### STUDENT REPRESENTATIVES

**SELIN ACAR**  
Student Council President  
(sa8h9@mst.edu)

**MUHAMMAD AZEEM RAZA**  
Graduate Student President  
(marn87@mst.edu)

**KURTIS KAMINSKI**  
Student Union Board President  
(kurtis.kaminski@mail.mst.edu)

### COMMITTEE CHAIRS

**RONALD W. JAGELS '86** St. Louis  
(ronjagels@gmail.com)

**ED MIDDEN III '69** Springfield, Ill.  
(ed@mansfield-electric.com)

**HELENE HARDY PIERCE '83** Sparta, N.J.  
(hpierce@gaf.com)

### PAST PRESIDENTS

**ARTHUR G. BAEBLER '55** St. Louis  
(ivybaeb@att.net)

**ROBERT D. BAY '49** Chesterfield, Mo.  
(rdbay673@yahoo.com)

**ROBERT T. BERRY '72** St. Louis  
(rberrytwin@aol.com)

**JAMES E. BERTELSMEYER '66**  
Tulsa, Okla.  
(pinnacleinvestmentsllc@gmail.com)

**ROBERT M. BRACKBILL '42** Dallas, Texas  
(rbrackbill@hotmail.com)

**MATTEO A. COCO '66** Affton, Mo.  
(cocohm@sbcglobal.net)

**LARRY L. HENDREN '73** Columbia, Mo.  
(lhendren@ess-inc.com)

**ZEBULUN NASH '72** Houston, Texas  
(zebnash@sbcglobal.net)

**JAMES R. PATTERSON '54** Sikeston, Mo.  
(jprat@charter.net)

**DARLENE (MELOY) RAMSAY '84**  
Rolla, Mo.  
(ramsayd@mst.edu)

**PERRIN R. ROLLER '80** Spring, Texas  
(roller@miner.mst.edu)

**GERALD L. STEVENSON '59**  
Highland City, Fla.  
(stevenson63@verizon.net)

**JOHN B. TOOMEY '49** Vero Beach, Fla.  
(starrmgmt@aol.com)

### STAFF

**KATIE LAYMAN**  
Manager of External Relations  
(laymank@mst.edu)

**NANCY SIMPSON**  
Administrative Assistant  
(simpsonnj@mst.edu)

**RENEE D. STONE**  
Accountant (renees@mst.edu)

**MARIANNE WARD**  
Executive Vice President,  
Miner Alumni Association  
(mward@mst.edu)

**NANCY ZAMAZANUK**  
Manager of Internal Relations  
(nancyz@mst.edu)



## UPCOMING EVENTS IN TEXAS: MEET THE CHANCELLOR

Don't miss the opportunity to meet Missouri S&T's new chancellor, Cheryl B. Schrader. She will meet with the following sections: **Houston** on May 17 and **Austin-San Antonio** on May 19.

For more information on these and other upcoming events, visit [mineralumni.com](http://mineralumni.com) or call the Miner Alumni Association at 573-341-4145.

## UPCOMING SECTION EVENTS

### Austin-San Antonio

*New Chancellor Introduction*  
**Saturday, May 19**  
*Time TBD*

Home of Roger, ME'65,  
and Sandy Dorf  
13226 Shore Vista Drive  
Austin, Texas

### Cincinnati-Dayton

*St. Pat's Party*  
**2-5 p.m., Sunday, March 25**

Trinity Pub  
8953 Princeton-Glendale Road  
West Chester Township, Ohio

### Falls of the Ohio

*St. Pat's Party*  
**6 p.m., Friday, March 23**

Patrick O'Shea's  
956 Baxter Ave.  
Louisville, Ky.  
502-589-7373  
[osheaslouisville.net](http://osheaslouisville.net)

### Georgia

*St. Pat's Party*  
**5 p.m., Saturday, March 24**

Johnnie MacCracken's Irish Pub  
15 Atlanta St. SE  
Marietta, Ga.  
678-290-6641  
[johnniemaccrackens.com](http://johnniemaccrackens.com)

*Advanced Aero Vehicle  
Group Competition*  
*(See story page 26)*

### Houston

*New Chancellor Introduction*  
**Thursday, May 17**  
**6-8 p.m.**

H.E.S.S. Club  
Houston Engineering &  
Scientific Society  
San Jacinto Room  
5430 Westheimer Road  
Houston, Texas  
713-627-2283

### Indianapolis

*St. Pat's Party*  
**6-9 p.m., Saturday, March 22**

Claddagh Irish Pub  
3835 E. 96th St.  
Indianapolis, Ind.  
317-569-3663

### Las Vegas

*St. Pat's Party*  
**6 p.m., Friday, March 23**

Landry's Seafood House  
2610 W. Sahara Ave.  
702-251-0101  
[landrysrestaurants.com](http://landrysrestaurants.com)

### Lincolnland

*Annual Golf Tournament*  
**Tuesday, May 22**

**11:15 a.m. Registration**  
**11:30 a.m. Tee time**  
**5 p.m. Social hour**  
**6 p.m. Dinner**

Piper Glen Golf Course  
7112 Piper Glen Drive  
Springfield, Ill.  
217-483-6537  
[piperglen.com](http://piperglen.com)

### Madison, Wis., Area

*Baja SAE Competition*  
*(See story page 26)*

### Mid-South Tennessee

*St. Pat's Party*  
**6-8 p.m., Thursday, March 22**

The Brass Door  
152 Madison Ave.  
Memphis, Tenn.  
901-572-1813  
[thebrassdoor.com](http://thebrassdoor.com)

### Mid-Tennessee

*St. Pat's Party*  
**6-8 p.m., Friday, March 23**

Blackstone  
Restaurant & Brewery  
1918 West End Ave.  
Nashville, Tenn.  
615-327-9969  
[blackstonebrewery.com](http://blackstonebrewery.com)

### Motor City

*Formula SAE Competition*  
*(See story page 26)*

*Robotics Competition*  
*(See story page 26)*

### NE-IA

*Concrete Canoe Competition*  
*(See story page 26)*

*Steel Bridge Competition*  
*(See story page 26)*

### Northern Alabama

*Advanced Aero Vehicle  
Group Competition*  
*(See story page 26)*

*Baja SAE Competition*  
*(See story page 28)*

### Pennsylvania

*Human-Powered Vehicle Competition*  
*(See story page 26)*

### Portland

*Baja SAE Competition*  
*(See story page 26)*

### Salt Lake City

*Human-Powered Vehicle Competition*  
*(See story page 31)*

### St. Louis

*Annual Golf Tournament*  
**Time TBD, Saturday, June 23**

Wolf Hollow Golf Club  
4504 Mo. Highway 100  
Labadie, Mo.  
636-390-8100

## ROCKY MOUNTAIN SECTION: RACING IN THE MOUNTAINS



Inside the 60,000-square-foot climate-controlled Speed Raceway in Englewood, Colo., Rocky Mountain Section alumni felt the wind in their hair and the thrill of flying past fellow alumni for the title of "King/Queen of the Road."

During the Oct. 29 event, alumni raced electric carts around the track, flew into walls and came out to compare their statistics from the state-of-the-art timing system. This family-friendly event encouraged dad, mom and the kids to race, watch in suspense, and play pool or arcade games. During one race, a daughter was heard yelling, "Come on Dad, you can go faster than that!"

"It was a great opportunity to have a friendly race and see a little competition among the 'Rolla' gang," says Kurt Haslag, CE'07, president of the Rocky Mountain Section.

## SEE WHO ELSE IS COMING

Want to know who else is planning to attend a section event in your area? Just click on the link at **[mineralumni.com](http://mineralumni.com)** and register online to see a list of other attendees in the online community. The attendee list is also available by clicking on the events tab.

## HAIL TO THE (PAST) CHIEFS

*It's pretty easy to pick out the past presidents at any meeting of the Miner Alumni Association board of directors. They're the ones seated together in the back corner of the Havener Center meeting room, where the directors gather for their spring and fall meetings.*





That ritual dates back to the mid-1970s, says **Robert M. Brackbill**, MinE'42, who served as association president from 1974 to 1976. During his tenure only two former presidents — **James J. Murphy**, CE'35, and **Peter F. Mattei**, CE'37 — routinely attended the meetings. But they made their presence known.

“Those two guys sat back there and kibitzed me all the time,” Brackbill says. “Back in those days, we would listen to them. These days, the board couldn’t care less about our opinions, and I don’t blame them, for we elderly Miners have a habit of embellishing the good old days.”

Brackbill is exaggerating, of course. The collective voice of the association’s past presidents remains influential, and their advice is welcomed. “The institutional knowledge the past presidents bring is very helpful to the board and executive committee,” says **Larry L. Hendren**, MinE'73, who was association president from 2004 to 2006.

Current president **Susan Hadley Rothschild**, CSci'74, agrees. “There are no other people who care more about the Miner Alumni Association and S&T than the past presidents,” she says. “They are an inspiration to me, and I hope to others on the board.”

Like the association itself, the role of past president has changed through the years. No longer mere “kibitzers,” former presidents remain active on alumni board committees and as advocates for Missouri S&T. Many have also served on the S&T Board of Trustees, which advises the chancellor on university matters.

“The past presidents are here to help the current board and to give advice in the proper way to the new crop of officers,” says **Gerald L. Stevenson**, ChE'59, who served the association as president from 1994 to 1996. Even more important, he says, is their role as ambassadors for the university. “We should also promote the very good things that the university is doing” to those outside the campus, Stevenson says.

Under Brackbill’s leadership, the alumni association evolved into a more professional organization with an expanded purpose. Newer leaders, like Stevenson and Hendren, took on new challenges to help the university thrive and keep alumni connected. Under Stevenson’s leadership, the association developed its mission and vision statement as part of a quality improvement process he helped initiate. Hendren focused on improving legislative relations during a time when state funding for higher education was declining. He also served on the search committee that brought former Chancellor John F. Carney III to campus.

What keeps the circle of past leaders connected to the alumni association through the years? Brackbill, now the elder statesman of the group, sums it up in one word: friendship.

“Friends have made my life beautiful,” he says. “A lot of those friendships were made in college, and I made a lot of friends through my alumni work.”

Hendren agrees. “We enjoy the interaction” with newer board members, he says. “We just have a passion for the institution and the alumni association.”

For Stevenson, the greatest satisfaction comes from getting younger alumni involved in leadership positions. “It’s one of the very best things that has happened to me in my life,” he says. “I’m very pleased to have helped in some small way by serving as president, and involving other alumni in the organization.” ■

“WE JUST HAVE  
A PASSION  
FOR THE  
INSTITUTION  
AND THE ALUMNI  
ASSOCIATION.”

— **Larry L. Hendren**, MinE'73

◀ From left are Art Baebler, ME'55; Matteo Coco, CE'66; current President Susan Hadley Rothschild, CSci'74; Gerald L. Stevenson, ChE'59, MS ChE'63; Perrin Roller, GeoE'80; Darlene (Meloy) Ramsay, MetE'84; Larry L. Hendren, MinE'73; Robert T. Berry, CE'72; Robert M. Brackbill, MinE'42; Zebulun “Zeb” Nash, ChE'72; Marianne Ward, executive vice president of the Miner Alumni Association; and James E. Bertelsmeyer, ChE'66. Not pictured: Robert Bay, CE'49; James R. Patterson, CE'54; and John B. Toomey, ME'49, MS ME'51. (Photo by B.A. Rupert)

# SOLID CONNECTIONS



Nathan (left) and Aaron Rues. (Photo by S.B. Atkins Photography)

**Why support S&T?:** “I got a lot out of being on the Solar Car Team, including two trips to Australia, so I want to repay some of it,” says **Nathan Rues**, ME’02. His brother, **Aaron Rues**, EE’01, agrees. “I can’t tell you how many weekends I spent at the design center working on the solar car. I give back to stay connected to S&T.”

**Growing the team:** The first to join the team in 1997, Nathan recruited Aaron and many of his own Phi Kappa Theta fraternity brothers in 1998. Both remained on the team until graduation.

**Is this corner taken?:** “It was more difficult back then for design teams, there was no space for us,” says Nathan. “I remember pushing the 1995 and 1997 vehicles from the old bread company (now the Kummer Student Design Center) to a corner of a room in the Bureau of Mines Building to claim the space. Before this, we had a mish-mash of stuff all over campus.” By the time Aaron joined the team, they had moved to the metal garage that was home until the new facility opened in 2011.

**Life lessons:** “We dealt a lot with worn out components on the road and spent a lot of time inspecting the vehicle,” says Aaron, now an engineer with Allison Transmission Inc. in Indianapolis. “I learned the importance of making things durable. Now I make reliable products, not throwaway components.”

“It’s not always the best design that wins — but the design that is known best,” says Nathan, now a hybrid/electric powertrain engineer with General Motors, also in Indianapolis. “Through testing, we knew exactly what our cars could do on the race ... and did it.”

**Why students should join design teams:** “Engineering studies only take you so far; everyone else is taking the same courses,” says Aaron. “On a design team, you learn to apply knowledge to real-world problems.”

“The competitions offer real-world restraints with high pressure — you learn to think fast. Many problems are too big for you to fix on your own, so you learn to work with others,” says Nathan. “These conditions are hard to simulate outside of a competition.” ■



► GREEN DAY

St. Pat's Parade revelry  
(Photo by B.A. Rupert)





Miner Alumni Association  
1200 N. Pine St.  
Rolla, MO 65409-0650

A PUBLICATION OF THE MINER ALUMNI  
ASSOCIATION REPRESENTING AND  
SERVING ALUMNI OF MSM, UMR AND  
MISSOURI S&T

**LEARN, SUCCEED, HAVE FUN**  
SPRING 2012 VOL. 86 NO. 1  
**MAGAZINE.MST.EDU**

**ADDRESS SERVICE REQUESTED**  
*Parents: If this issue of Missouri S&T Magazine is  
addressed to your son or daughter who has established  
a separate permanent address, please notify us of the  
new address: 573-341-4145 or alumni@mst.edu.*



INTRODUCING  
**CHERYL B. SCHRADER**  
MISSOURI S&T'S NEXT CHANCELLOR

Following a national search, Cheryl B. Schrader becomes Missouri S&T's chancellor on April 2. Introduced to the campus in January, Schrader is one of few female engineers to ascend to a top leadership position of a U.S. college or university. Previously, Schrader held positions with Boise State University as associate vice president for strategic research initiatives and dean of the university's College of Engineering.

Learn more about Schrader in upcoming issues of the magazine.

