

# ENGINEERING EXCELLENCE

Dean's Report 2011

SOUTHERN ILLINOIS UNIVERSITY  
**EDWARDSVILLE**  
SCHOOL OF ENGINEERING



# MESSAGE FROM THE DEAN

Hasan Sevim, Ph.D.

**The vision of the SIUE School of Engineering is to be a partnership of faculty, students, staff, alumni and other professionals who work together to provide the highest quality education and maintain innovative resources that support the technical growth and economic development of the region.**



In 2007, we decided to build an engineering community for the region centered around the SIUE School of Engineering. The impact made by this community in just five years is remarkable!

- Undergraduate enrollment and the average math and composite ACT scores of our freshman class have both reached a record high.
- We have signed 2 + 2 agreements with area community colleges to offer high-quality education and the opportunity for timely graduation.
- Our industry outreach has increased significantly which provides more collaborative opportunities for faculty and students.
- Employers consistently return to hire our highly qualified students.
- Student design team members have become articulate ambassadors of our programs.
- Our faculty is recognized nationally and internationally for their excellence in teaching, scholarship and service.

Last year, I was happy to share with you the good news that the University approved a 32,000 sq. ft. building extension. This Engineering Building Annex will help accommodate the ever-increasing enrollment to our programs and laboratory needs for our faculty and students. The enthusiasm within the School of Engineering regarding the new annex will be apparent as you read this report.

You will hear from students about the importance of scholarships and the impact they can have on a student's educational experience. Scholarships are an essential component in education, especially in this challenging economic environment. You will also hear from an alumnus and a corporate president as to why it is important to fund scholarships for the School of Engineering. We are grateful for their generosity and continued support of our students.

I am pleased to highlight some of the successes the School has achieved with limited resources. We can all be proud of our collective effort and of the accolades the School has earned. We must not stop here. In order to become the engineering school of choice, we need the active participation of our engineering community. We are a state-assisted university, and state funding continues to decrease. The School of Engineering is ready to raise the bar and we need your help in order to continue to define excellence in engineering.

Sincerely,

A handwritten signature of Hasan Sevim in black ink.

Hasan Sevim, Ph.D.  
*Dean and Professor*



*Defining Excellence*  
THE CAMPAIGN FOR SIUE

[siue.edu/definingexcellence](http://siue.edu/definingexcellence)



**"The purpose of higher education lies in the fulfillment of human potential."**

# MESSAGE FROM THE CHANCELLOR

Vaughn Vandegrift, Ph.D.



SIUE's journey to national recognition continues with unprecedented momentum through excellent programming and the development of professional and community leaders.

For the second consecutive year, *Washington Monthly* ranked SIUE among the Top 50 of the 553 master's granting universities in the nation - and 13<sup>th</sup> among public institutions on that list - for its steadfast commitment to the public good. *U.S. News & World Report's America's Best Colleges 2012* recognized SIUE as an "up-and-coming school" for the third consecutive year. The University is listed as one of seven Midwestern regional universities - one of only three public institutions - for making "innovative changes in the areas of academics, faculty, student life, campus life and facilities." In addition, *U.S. News* ranks SIUE in the best Regional Universities Midwest (master's granting) category for the 8<sup>th</sup> consecutive year and among the top 15 public universities in that category for the second consecutive year.

**Defining Excellence — The Campaign for SIUE**, a major gifts campaign launched in March 2011, is focused on propelling SIUE to a new level of prominence and performance. Private support is essential for the continued progress and expansion of SIUE.

Through the campaign, two priorities have been identified for the School of Engineering. The need for endowed scholarships is essential in guaranteeing deserving students are able to attend SIUE and achieve their full potential regardless of their personal financial status. Support for student projects ensures hands-on learning experiences and a competitive edge for students preparing to enter the engineering workforce.

In fall 2011, SIUE reached the largest overall enrollment in the history of the University with 14,235 students. With a rising number of engineering students, SIUE eagerly awaits the construction of the Engineering Building Annex to provide additional classrooms, laboratories and much needed office space. The School of Engineering is committed to excellence through the integration of research and education. Please join us as we invest in the next generation of innovators to ensure that the School of Engineering continues to offer a positive and profound impact on the Southern Illinois region and the greater public good.

A handwritten signature of Vaughn Vandegrift, Ph.D. in black ink.

Vaughn Vandegrift, Ph.D.  
SIUE Chancellor

## About SIUE

Beautifully situated on 2,660 acres, SIUE is a public university offering a broad choice of degrees and programs, ranging from liberal arts to professional studies. Undergraduate and graduate degrees are offered in the arts and sciences, business, education, engineering and nursing. Professional degrees are available in dental medicine and pharmacy. More than 14,200 students choose SIUE for its enlightening programs, engaging faculty and convenient location, just 25 minutes from St. Louis.



# ABOUT THE SCHOOL

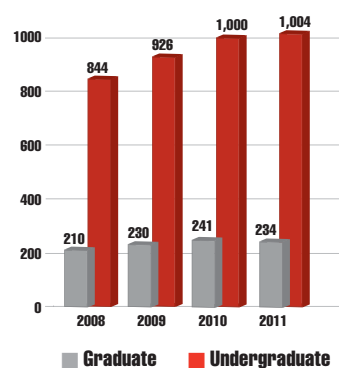
SIUE School of Engineering

The SIUE School of Engineering first reported a historic level of undergraduate enrollment in fall 2009. Since then that record has been broken twice—in fall 2010 and 2011. The School is currently educating more than 1,000 undergraduate students and is becoming the first choice of more well-prepared students. In fall 2011, the freshmen class average math and composite ACT scores reached a record high of 27.9 and 26.4, respectively.

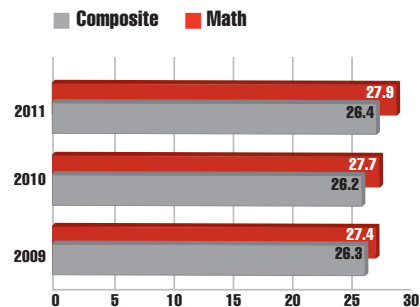
Complementing the high-quality undergraduate population is an excellent group of graduate students at a ratio of approximately one graduate student for every four undergraduate students. This is an ideal ratio where teaching and research are valued as indispensable partners enabling the School to deliver a progressive engineering education.

School of Engineering Dean Hasan Sevim believes the faculty and staff provide the highest quality education to the students and impeccable professional service to employers. “Employers come back to hire more engineering students because of the positive impression our alumni leave upon them,” Sevim said. “With one of the most comprehensive engineering programs in Illinois and the St. Louis area, and with dedicated faculty, staff, students and alumni, the School of Engineering is defining engineering excellence in the region.”

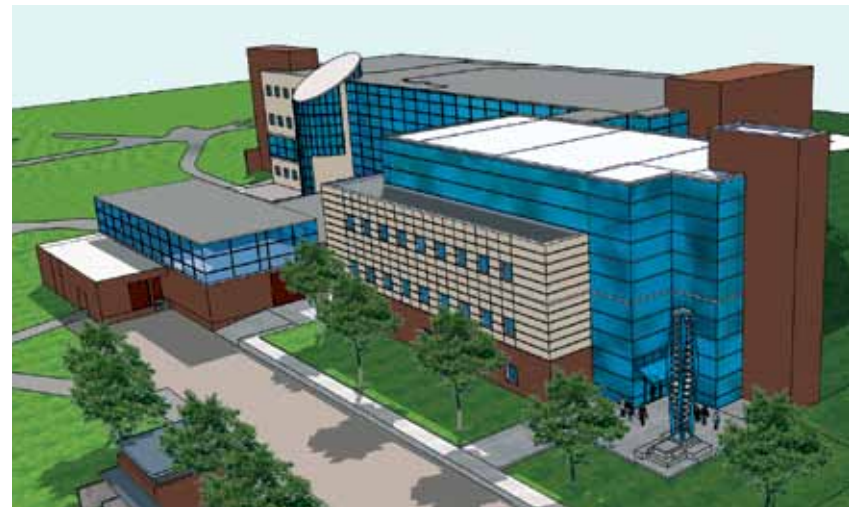
**Record Enrollment**



**Record Average ACT Scores  
First Semester Freshmen**



**“With one of the most comprehensive engineering programs in Illinois and the St. Louis area, and with dedicated faculty, staff, students and alumni, the SIUE School of Engineering is defining engineering excellence in the region.”**



The projected \$14.2 million expansion and renovation of the Engineering Building, which currently is underway, will include the construction of a new roughly 32,000-square-foot annex that will be connected to the existing building through an enclosed bridge. The annex, which is scheduled for completion as early as 2013, will provide additional classrooms and laboratories and much-needed office space.

This report focuses on the need for the annex, seen through the eyes of the School of Engineering’s dedicated faculty.

# MESSAGE FROM THE PROVOST

Ann M. Boyle, D.M.D., M.A.



Dedicated to excellence, the SIUE School of Engineering has boasted increased enrollment, rising academic qualifications of applicants and nearly 100 percent placement of graduates in the engineering industry. The strength of the School lies in the breadth of their eight undergraduate, five master and one cooperative doctoral programs, where the most innovative practices occur.

Students learn in a state-of-the-art facility from a highly qualified faculty who bring their cutting-edge research into the classroom. With opportunities to collaborate and assist on innovative research projects, our graduates are exposed to real-world problems before entering the workforce.

We stand by the quality and excellence of the School of Engineering. Your added support will help strengthen our commitment to improving people's lives and enhancing the prosperity of our region.

Ann M. Boyle, D.M.D., M.A.  
Interim Provost and Vice Chancellor  
for Academic Affairs

## ENGINEERING DEGREES

The SIUE School of Engineering offers a comprehensive collection of professionally accredited engineering programs:

**Civil Engineering – BS, MS**

**Computer Engineering – BS, Minor**

**Computer Science – BA, BS, MS, Minor**

**Construction Management – BS, Minor**

**Electrical Engineering – BS, MS, Minor**

**Industrial Engineering – BS, MS, Minor**

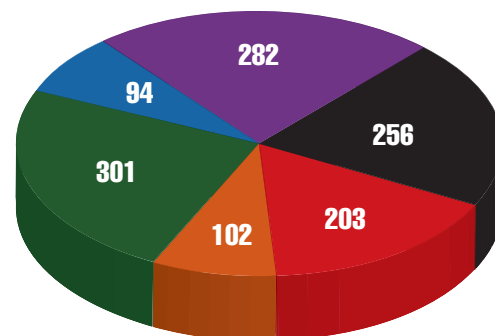
**Manufacturing Engineering – BS, Minor**

**Mechanical Engineering – BS, MS, Minor**

**Engineering Science – Ph.D.**

(collaborative program with SIU Carbondale)

2011 Total Undergraduate  
and Graduate Enrollment By Program



Department

■ Civil Engineering

■ Computer Science

■ Construction

■ Electrical and  
Computer Engineering

■ Industrial and  
Manufacturing Engineering

■ Mechanical Engineering

TOTAL ENROLLMENT

Undergraduate  
Graduate

210	46
166	37
102	
220	81
69	25
237	45
1004	234

# COMPUTER SCIENCE

Gary Mayer, Andy Stefik

**"The added space provided by the Engineering Building Annex will enable the computer science department to expand our collaborative environment, maximize our capabilities and enhance our team effectiveness."**

## A Team Sport

"Engineering is a team sport," said Dr. Gary Mayer, assistant professor of computer science with an expertise in modeling, simulation, robotics, and software engineering. "The added space provided by the Engineering Building Annex will enable the computer science department to expand our collaborative environment, maximize our capabilities and enhance our team effectiveness."

Mayer and Dr. Andreas Stefik, assistant professor of computer science with research interests in human computer interaction, accessibility, and programming languages, are committed

to creating larger and more active research groups, and enhancing their classroom teaching through applied student experiences. The annex is crucial to making those objectives a reality.

Textbooks provide a solid foundation for computer science principles, but hands-on experience and teamwork is invaluable. Stefik involves his students in all aspects of research including developing new concepts, running experiments and evaluating data using statistical methods.

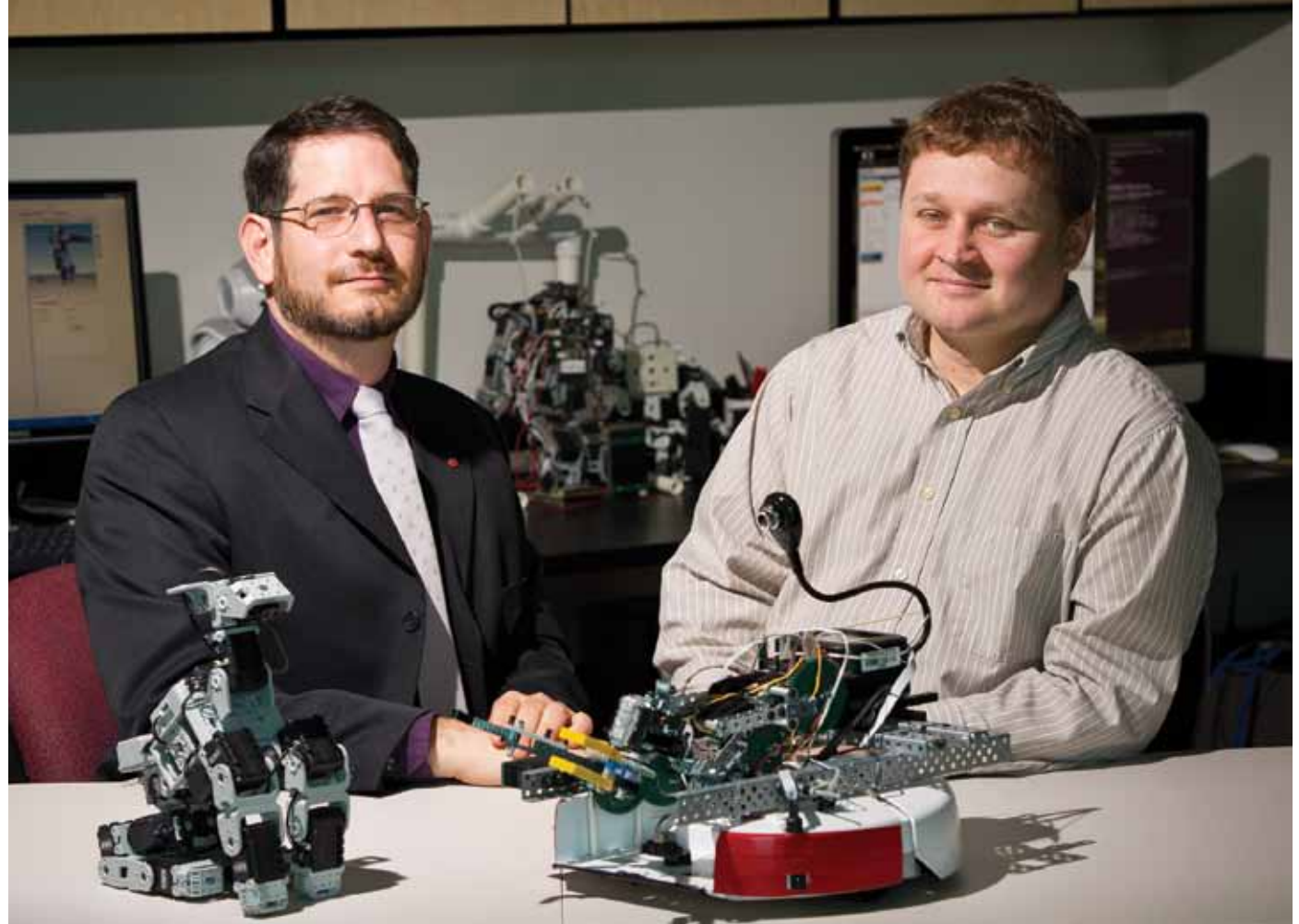
"Students provide the lifeblood for my research, often giving wacky, awesome

and outside-the-box ideas from a novel perspective," Stefik said. "Maintaining an active staff with a fresh influx of students to help with research is vital."

Stefik believes that the School of Engineering's high level of research and teaching has far outpaced the physical space currently available. Cultivating a collaborative team in computer science is the key to the creation of new ideas and sustained success. Unfortunately, collaboration is limited when laboratory space is minute or nonexistent. "We are literally bursting at the seams. This expansion is a crucial step in helping the

computer science department and the School of Engineering move forward."

In order to succeed, Mayer reaffirmed the need to cooperate, collaborate and share knowledge with all members of a team. "The laboratory space in the annex will allow for a greater number of student researchers to be involved," Mayer said. "Collaborative work spaces for student teams and instructor-student discussions will create an integrated environment for improved communication and research outcomes."

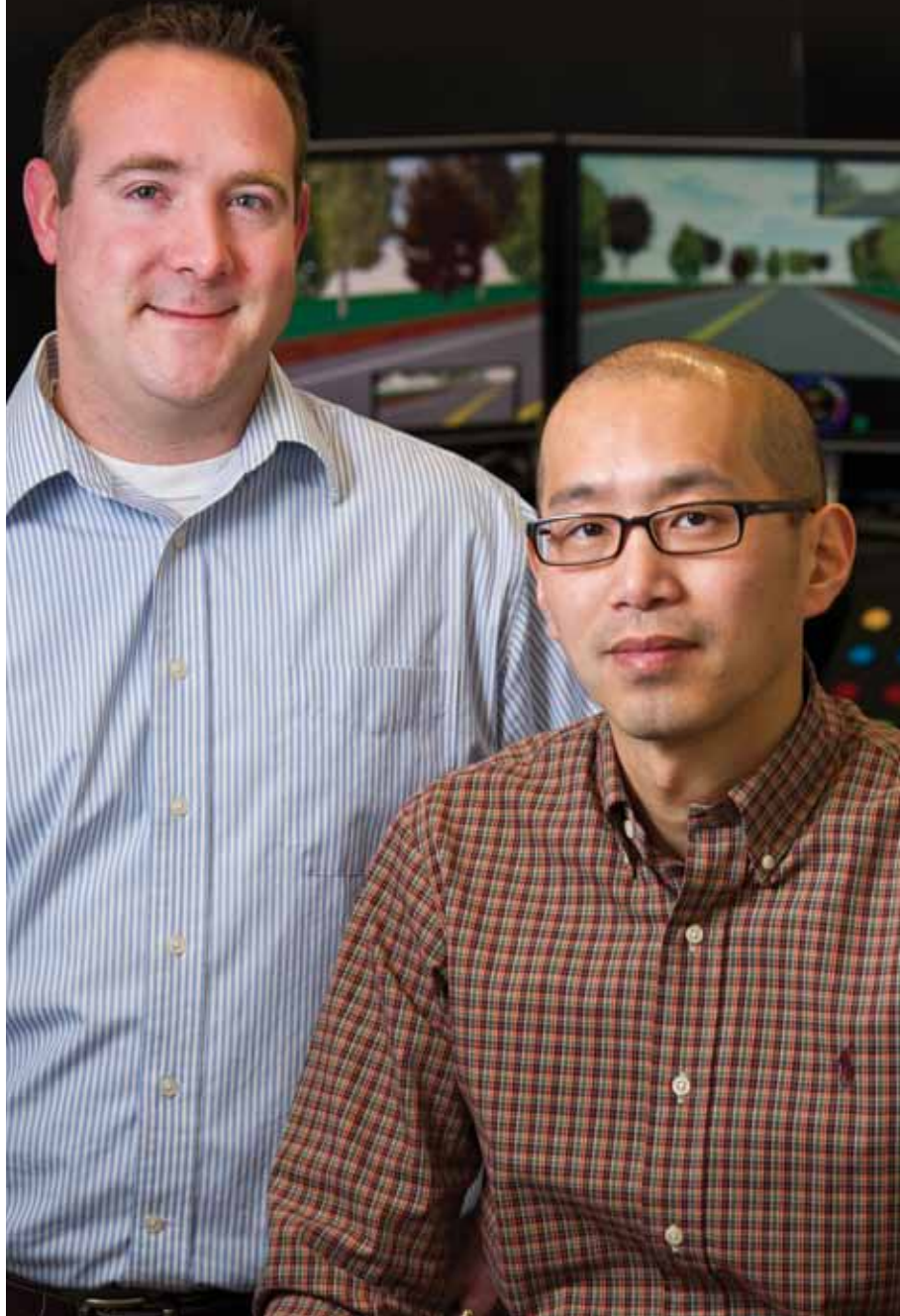




# CIVIL ENGINEERING

Ryan Fries, Huaguo Zhou

**"The annex  
means sustained  
growth for  
the School of  
Engineering."**



## Transporting to High-Fidelity

Dr. Ryan Fries and Dr. Huaguo Zhou, assistant professors of civil engineering, have taken the transportation and safety system industry in Illinois by storm. Over the past two years, the young researchers have collaborated with the Illinois Department of Transportation (IDOT) on innovative projects which will significantly improve roadway conditions.

The pair developed the first highway incident management training program for emergency responders throughout Illinois. Completed in 2011, the first phase of the project brought together state police, fire and rescue, and emergency medical personnel to streamline response mechanisms and make sure the agencies are consistently trained, ensuring smooth remediation of incidents. The project's second phase consists of adding an online component to the initial program.

Fries and Zhou have been fortunate to have undergraduate and graduate students contributing to the development of these innovative programs. However, the assistants have gone without dedicated office space and the principle researchers themselves have not had laboratories of their own for housing equipment or conducting this important research. "Space is essential for both research and teaching," said Fries.

"Currently, we move our equipment around to available locations throughout the Engineering Building."

The Engineering Building Annex will alleviate these inconveniences. The Department of Civil Engineering's transportation program will receive space of their own, including laboratories, classrooms and a state-of-the-art office for faculty and students to collaboratively work and learn.

With the current lack of space, the department's equipment has not been utilized to its fullest potential. The annex will allow the driving simulator to become high-fidelity by adding an actual vehicle shell, which will increase the realism and improve the validity of future research. The department's traffic signal system will have a space of its own, and the additional space will allow for faculty to obtain a second traffic signal system for both teaching and research opportunities.

"The annex means sustained growth for the School of Engineering," said Fries. "With more space, we open ourselves up to more educational and research opportunities, and gain the ability to compete for more research funding. The annex will allow the School to continue to be a place where students and faculty excel."

# CONSTRUCTION MANAGEMENT

Jie Gong, Mark Grinter, Anne Werner

**"The annex will allow faculty members to set up estimating and project management work spaces that replicate industry standards."**

## More Space = More Hands-On Experiences

Construction Management faculty members Dr. Jie Gong, Mark Grinter and Dr. Anne Werner eagerly await the opening of the Engineering Building Annex. To them, more space equals more hands-on experiences for students and greater opportunities for their own research.

Werner, assistant professor and authority in construction and structural materials, believes that students will receive an enhanced education with the additional space. "Students typically request more hands-on experiences in the classroom, and a dedicated laboratory for construction management will allow us to make that happen," Werner said. "When students participate in more activities it tends to create more meaningful experiences, improves their understanding and is ultimately more fun."

The annex will provide students with ample facility space to imagine, design and share ideas, while encouraging the creative, entrepreneurial and team-based aspects of construction management. Grinter, assistant professor and a licensed professional surveyor skilled in environmental aspects of construction, anticipates students being able to collaborate in simulated real-life settings. "The annex will allow faculty members to set up estimating and project

management work spaces that replicate industry standards," he said. "Being able to provide real-world experiences for students is invaluable."

The renovated space will also offer a controlled and secure environment to house innovative technology such as the excavator simulator and computers running intensive 3D modeling software, the specialty of Gong, assistant professor with a research focus in information, sensing and computing technologies.

"My research in computer-based visualization for construction applications will definitely be impacted by the annex," Gong said. "Visualization needs computing hardware, and hardware needs space. The annex will help us establish collaboration stations around high-powered computers, which my classes and my research definitely need."

By developing management skills and participating in cutting-edge research, students can position themselves to make enormous differences in for-profit, government and non-profit organizations.

"The annex means expanded opportunities for education and research," said Werner. "It means we can continue to improve and excel."





# ELECTRICAL AND COMPUTER ENGINEERING

George Engel, Andy Lozowski

**"Adding new space and technology to the School will increase opportunities for students' educational and professional development."**

## Immersed in Innovation

Growth is happening at an electrifying rate in the School of Engineering. As faculty, enrollment and workspaces expand, opportunities for innovation and research grow, too. Although the new Engineering Building Annex won't be available for use until 2013, faculty and students in the electrical and computer engineering department are immersed in research projects that will flourish in the cutting-edge space.

Dr. Andy Lozowski, associate professor with research interests in analog and digital electronics, is currently focused on a project that could greatly impact the way energy resources reach consumers.



"The existing power grid was designed to distribute power from one central plant to consumers," said Lozowski. "Now, consumers have interest in and the capability of producing their own power with solar and wind installations. In the future, these homes will have the option to sell their excess power to the power company. The micro-grid technology for feeding the "big grid" from homes is not ready, but we are trying to develop that micro-grid at SIUE."

Lozowski and his students are looking forward to using the Power Electronics laboratory that will be part of the

new annex. The lab will be furnished with 480V three-phase power, which Lozowski said is an indispensable tool when it comes to doing relevant work and remaining a leader in the field.

"Bringing these resources to campus allows us to keep our work here, as opposed to working off-campus," Lozowski said, "This is a very exciting time for engineering research at SIUE."

Professor George Engel specializes in integrated circuit (IC) design and has been involved in the research and development of products as diverse as credit card security systems and

audiometers for use in neo-natal units. Engel feels that the new space will give more students the opportunity to get involved in groundbreaking projects. "Virtually all of the graduate students who have worked with me on these projects have gone on to work for Intel, Texas Instruments or similar companies, and many have pursued doctoral degrees," said Engel. "Adding new space and technology to the School will increase opportunities for students' educational and professional development."

# MECHANICAL ENGINEERING

Ryan Krauss, Albert Luo

**"Moving forward, the SIUE School of Engineering will no doubt be considered among the more established research-oriented Schools."**

## Fostering Life-Long Learners

Mechanical engineering research projects ranging from robot design to high-speed rail technology have quickly outgrown their available workspace. Faculty members are anxious to get into the new Engineering Building Annex where they will be able to expand the scope of their projects and involve more students.

Dr. Ryan Krauss, assistant professor of mechanical engineering, says that giving students more hands-on opportunities will not only enhance their educational experience, but will boost their motivation and help them develop a

clearer vision for their professional future.

"Getting students involved in research projects helps shape their understanding of classroom concepts on a visceral level," said Krauss. "They are doing more than learning about how the models and simulations function. They are actually manipulating them."

In 2011, Krauss and his students developed a new approach for control design of robots with flexible links and also began work on a new approach to model their movement over time. Krauss credits the students for the success of

these projects and is looking forward to having the space to accommodate more student research assistants in the future.

Albert Luo, professor of mechanical engineering and author of eight monographs, anticipates a significant increase in the number and quality of students interested in the mechanical engineering program with the addition of new space and state-of-the-art technology.

"High quality engineering education and research require top-notch lab space to conduct experiments," said Luo.

"Moving forward, the SIUE School of Engineering will no doubt be considered among the more established research-oriented Schools."

Offering an interactive educational experience helps students grow as life-long learners and professionals and will allow the School to become a leader in engineering research. Krauss and Luo are confident that this exciting growth will help attract the best and brightest minds, continuing the tradition of excellence that the University so proudly upholds.





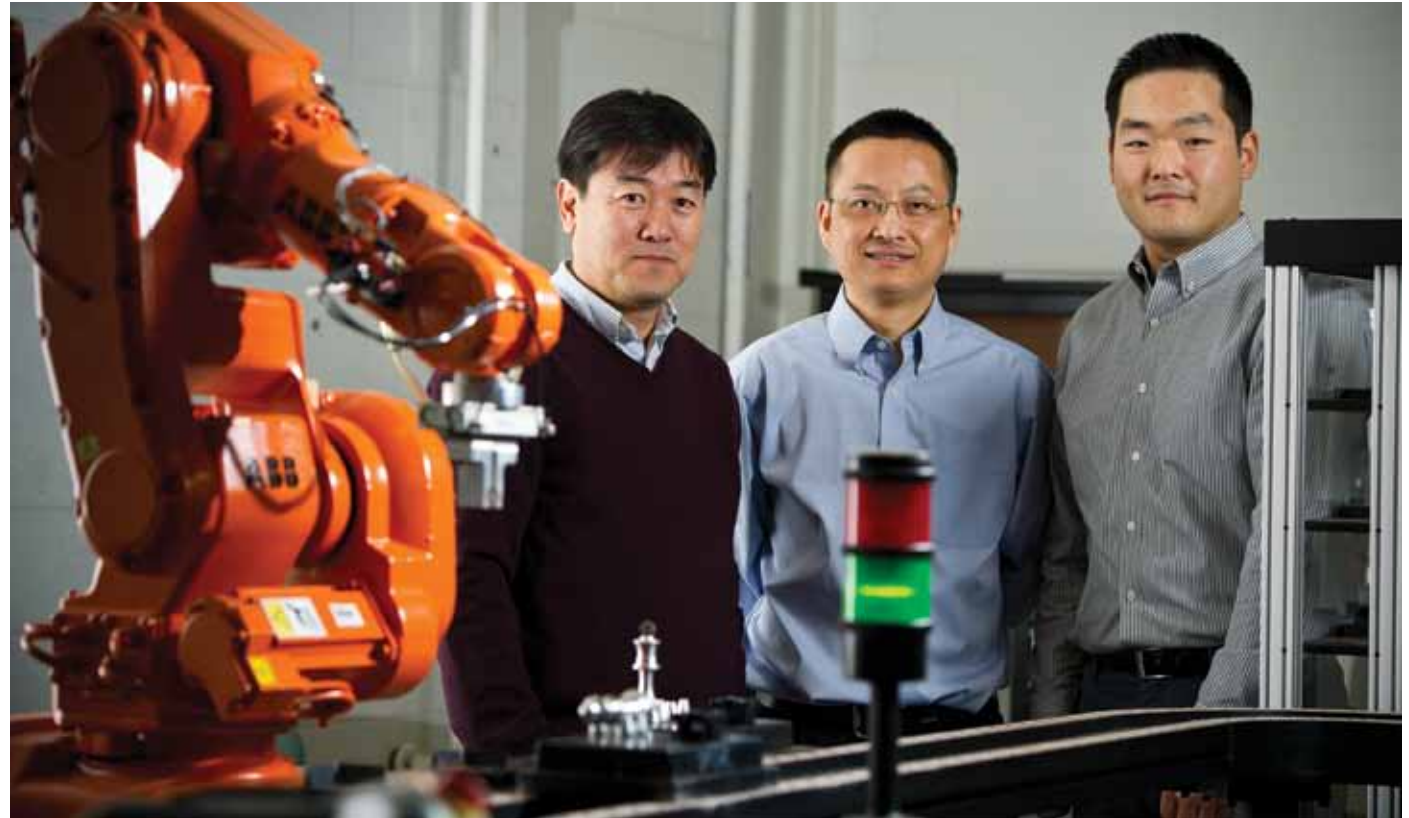
# INDUSTRIAL AND MANUFACTURING ENGINEERING

Sohyung Cho, Xin Chen, Hoo Sang Ko

**"Attracting top-notch students can only be achieved if the School continues to further integrate teaching and research. The annex will allow us to do this."**

## Enhancing Integrated Environments

Drs. Sohyung Cho, Xin Chen and Hoo Sang Ko agree that the addition of the Engineering Building Annex will enhance the scope and quality of the industrial and manufacturing engineering (IME) program at SIUE. Staying abreast of the ever-changing engineering industry through cutting-edge research activities and education programs for students and faculty alike signifies the commitment IME faculty provide to their current and future students. The annex is an example of this commitment.



Associate Professor Cho stressed that the annex will enable faculty to continue fostering overall program development in order to keep pace with enrollment growth. "We have had a problem of insufficient space for education and research, specifically laboratory and office space," said Cho. "The annex will solve this problem and our IME department will benefit from the new space."

An integrated environment for the IME program will be constructed by consolidating currently separated

laboratories into a space that will be utilized for conducting research as a team and for meeting as groups for research discussions. This environment will encourage increased interaction between students and faculty, further enhancing student learning and academic support.

The annex will not only provide relief for insufficient space, it will also allow the School to continue to compete with other engineering schools nationally and globally and attract the highest quality

students to the program. Assistant Professor Chen believes, "attracting top-notch students can only be achieved if the School continues to further integrate teaching and research. The annex will allow us to do this."

Assistant Professor Ko reiterates that the expanded award-winning Engineering Building will advance the development of the School. "I believe the annex will provide an excellent opportunity for the School to continue on the journey toward national recognition."

# STUDENT SCHOLARSHIPS

Oates Associates, Inc.



## More than Just Money

Oates Associates, Inc., a civil and structural engineering firm in Collinsville, Ill., plays a vital role in supporting the next generation of innovative engineers and helping to implement the School's vision of providing its students the best possible education experience. Senior engineering students Damien Di Vittorio and Jared Boeser (pictured at top) were the 2011 recipients of the Oates Associates Civil Engineering Scholarship. Jessica Eichhorst and Ryan Holdener (pictured at bottom), also senior engineering students, received the 2011 Oates Associates Employees' Scholarship.

Ryan, a resident of Fenton, Mo., knows firsthand the costs associated with pursuing your dream. "I am an out-of-state student paying for my own tuition, and it can be challenging at times," he said. "This scholarship helps ease my financial burden and gives me a sense of confidence in my academic performance and in my goal of joining a successful engineering firm."

Bruce Schopp, president and chief operating officer of Oates Associates, believes that scholarships offer more than just money. "It's no secret that money plays a huge role in obtaining a college degree, and financial assistance through scholarships is a critical need for both the student and the University," Schopp said. "However, a scholarship gives students a sense of ownership and personal responsibility which leads to an understanding of success and professional development that will be expected as their engineering career develops."

School of Engineering scholarships assist in developing the future engineering workforce by helping students achieve their dreams of becoming innovators in the fields of science, technology, math and engineering. "I work very hard to excel in school," Ryan said. "I am truly grateful to Oates Associates for rewarding me with such a generous gift."



*Defining Excellence*  
THE CAMPAIGN FOR SIUE

[siue.edu/definingexcellence](http://siue.edu/definingexcellence)

Many students enrolled in the School find it necessary to work in an attempt to ease their financial burdens leaving them less time to participate in student organizations and research collaborations provided by the department. Additionally, students are borrowing increasing amounts of money to guarantee the completion of their chosen degree. Endowed scholarship support will open the door for the next generation of engineers who may not otherwise be able to participate in extra-curricular activities offered or to even enroll in the program. The School seeks to offer a combination of need- and merit-based scholarships to provide opportunities to more students who can benefit from an SIUE education.



# TEACHING EXCELLENCE

Ryan Fries, Brad Noble



Like most new assistant professors, Dr. Ryan Fries, assistant professor of civil engineering, placed a great deal of effort into preparing materials for his classes when he started with the SIUE School of Engineering in the fall of 2008. This dedication to his profession and the advancement of his students led Fries to teaching excellence and multiple recognitions in 2011.

In June, Fries accepted the prestigious national ExCEED New Faculty Excellence in Teaching Award from the American Society of Civil Engineers (ASCE). ExCEED, an acronym for Excellence in Civil Engineering Education, focuses on introducing civil engineering professors to best practices for effective, student-centered instruction.

Additionally, Fries received the 2011 Central District Excellence in Teaching Award from Chi Epsilon, the National Civil Engineering Honor Society. Fries was nominated by the SIUE Chi Epsilon student chapter and was selected from the 14 chapters that comprise the Central District.

Dr. S. Cem Karacal, associate dean of the School of Engineering, praised Fries' accomplishments. "Dr. Fries exemplifies SIUE's teacher-scholar model with his outstanding scholarly activities and dedication to teaching," Karacal said. "His peers recognize and respect his scholarly activities, while students praise him as one of the best instructors they have ever had."



Dr. Brad Noble, associate professor of electrical and computer engineering, was honored with the 2011 SIUE Alumni Association Great Teacher Award. Noble was nominated by several of his students and ultimately chosen by a panel of SIUE Alumni Association Board of Directors for his continued commitment to teaching excellence and passion for making a powerful, positive impact on his students. The Great Teacher Award is accompanied by a \$1,000 cash award and a plaque which will be displayed by SIUE Alumni Affairs in the lobby of Birger Hall.

Dr. Luis Youn, professor of electrical and computer engineering and chair of that department, commended Noble's teaching

methods. "Dr. Noble excels in teaching engineering concepts to students and then collaborating with them on interesting and valuable projects," Youn said. "He relishes in seeing students grow into independent thinkers capable of making their own contributions to the field."

Noble has not only excelled in teaching, but also applied research. In cooperation with Edward Navarre, assistant professor in the SIUE chemistry department, Noble has developed a portable electro-thermal analyzer which tests for heavy metals in blood. The innovation was featured in a St. Louis Post-Dispatch article in November of 2010.

## 2011 SCHOOL OF ENGINEERING DEPARTMENT TEACHING AWARD RECIPIENTS

**Marcelo Azambuja, CONSTRUCTION MANAGEMENT**

**Serdar Celik, MECHANICAL ENGINEERING**

**Brad Cross, CIVIL ENGINEERING**

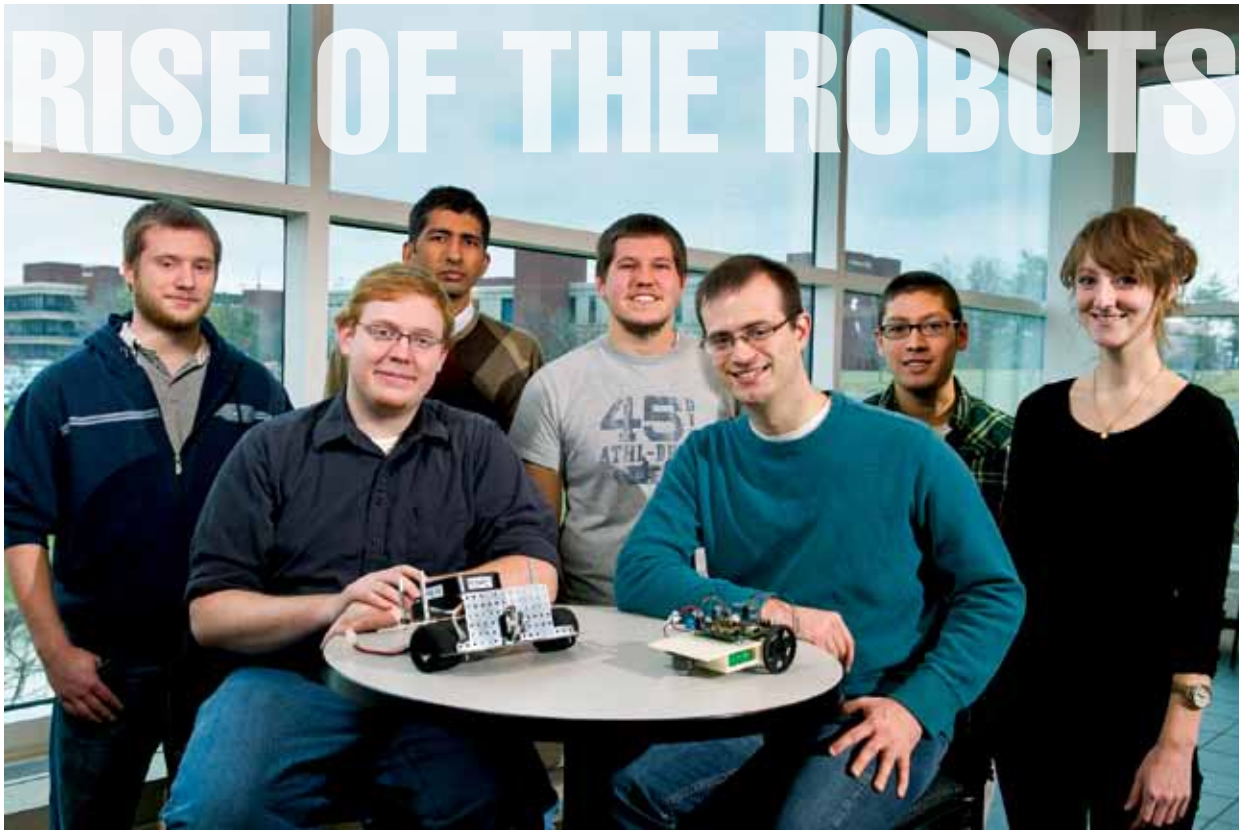
**Kevin Hubbard, INDUSTRIAL AND MANUFACTURING ENGINEERING**

**Socratis Tornaritis, COMPUTER SCIENCE**

**Scott Umbaugh, ELECTRICAL AND COMPUTER ENGINEERING**

# STUDENT COMPETITIONS

Robotics Team, Solar Car Team



## *Defining Excellence*

THE CAMPAIGN FOR SIUE

Collegiate student design competitions are invaluable resources in which students can relate classroom learning to practical applications they may experience in their future careers. With access to more than 10 student design teams in the School of Engineering, students are able to gain not only relevant technical knowledge, but also communication, team work and leadership skills. Support for student projects will provide valuable hands-on experience and empower students with even more potential to compete on national and international levels. Donor funds will enable the School to remain competitive and continue to meet the demand for engineers, which ultimately benefits the prosperity of our region and the nation.

[siue.edu/definingexcellence](http://siue.edu/definingexcellence)

The challenge at hand: Each team must harvest energy from simulated renewable energy sources, such as wind, hydroelectricity and solar energy, and deliver it via an electromechanical device used to determine the amount of energy produced. The team whose robot harvested the most energy in the five minute allotted timeframe will be named the winner.

In April 2012, two School of Engineering student design teams will be heading to Tulsa, Okla., to compete in the Institute of Electrical and Electronics Engineers Region 5 Robotics Contest, a contest to preserve the tradition of compact mobile and autonomous robots. The challenge detailed above is daunting, but the four-person interdisciplinary student teams from electrical engineering and computer science are up to the task. They feel the experience is preparing them for real-world engineering positions.

“The student design teams provide as close to real-life experience as students can get in a university environment,” said Aaron Parker, a senior computer science major from Edwardsville, Ill. “We meet with actual businesses and sponsors to design products with real-world requirements. There are several parallels between our robotics competitive design team and design teams in the industry.”

The success and recognition of SIUE competitive student design projects has been a catalyst to attracting many talented students to the School of Engineering. To continue enabling students with even more potential to compete on national and international levels, the development of funds to support student projects is essential.

“Robotics requires a fair amount of financial support due to hardware and software requirements,” Aaron said. “Equipment such as micro-controller/base platforms, sensors, high-level controllers, motors and circuits are expensive. Funding is necessary to have a successful entry into a robotics competition. These competitions bring recognition to SIUE and can only be achieved through the financial support of additional sponsors.”



# HARNESSING THE SUN



Amy Sunderlin, senior computer engineering major and native of Rockford, Ill., thrives on teamwork. Serving as the project director of the SIUE Solar Car Student Design Team, she guides the 60 member group through the proposal, construction and competition of a fully functioning solar-powered vehicle.

“The solar car student design team provides the opportunity to work with a multidisciplinary group comprised of computer science, electrical engineering and mechanical engineering students,” Amy said. “We are developing technical skills and gaining real-world experience as we work together to overcome limitations and obstacles.”

In preparation of the upcoming Formula Sun Grand Prix and The American Solar Car Challenge in July 2012, the solar car team has designed and built the aluminum chassis and will engineer all aspects of the operating system to be competitive in their races. For the first time in SIUE solar car history, the team is building the body of the car out of carbon fiber and encapsulating their own solar array.

“The team has had only one solar car in the past, which was rebuilt multiple times,” said Amy. “This is the first year we have built the car from the ground up.”

Amy gives thanks to generous donors like The Boeing Company and Evergreen Solar for their contributions of resources and for giving the team opportunities that would not have existed without their support. “By taking advantage of donated materials, our team will develop products that will be refined and reused in future years,” Amy said. “We have been able to drastically reduce costs and will be able to consistently improve the performance of our vehicle.”

Amy has been involved with the solar car design team for two years and has garnered crucial insight throughout the process. “Being a member of the solar car team has taught me valuable leadership and technical skills,” Amy said. “But the most important aspect I will take away from this experience is teamwork. The team is really what makes projects like the solar car a reality.”

## SIUE Student Competition Teams

### American Concrete Institute

2011 International FRP Composites Competition  
Team Leader: Cordt Hicke

### ACI Fall 2011 International Pervious Concrete Cylinder Competition

Team Leader: Cordt Hicke

### ACI Missouri Chapter Pervious Concrete Cylinder Competition

Team Leader: Cordt Hicke

### American Society of Civil Engineers Steel Bridge – Regional and National Competition

Team Leaders: Jack Deeken, Tyler Whitney, Evan Taylor

### Concrete Canoe - Regional and National Competition

Team Leaders: Jared Deimel and Blake Wilson

### Associated Schools of Construction Region 3 Competition Pre-Construction Services

Team Leaders: Brett Dickerson, Phillip Leatherman, Trevor Stoltz, Dustin Quattrocchi, Keith Muckensturm and Chris Huff

### Region 3 Design Build Competition

Team Leaders: Derek Keller, Dennis Moore, Ashlee Oceguera, Clayton Herring, Thomas Parker and Ryan Day

### Institute of Electrical and Electronic Engineers (IEEE) Robotics

Team One Leaders: Aaron Parker, David Lynn, Anish Abraham and John Stehman  
Team Two Leaders: Brandon Margaritas, Daniel Ahrens, Jonathan Denning and Lynn Hogan

### Society of Automotive Engineers Formula Racing Car

Team Leader: Paul Jansen

### Society of Automotive Engineers Mini Baja Racing Team

Team Leader: Ben Klene

### Society of Manufacturing Engineers Design for Direct Digital Manufacturing Competition

Team Leader: Paul Jansen

### Solar Car Team

Team Leader: Amy Sunderlin

# ADVISORY BOARD/ COUNCILS

The School of Engineering Industrial and Professional Advisory Councils and the Industrial Advisory Board support the School in several ways. They help the School meet the constantly changing landscape of engineering education, provide student-internship opportunities, help assess strengths and weaknesses of current curriculum, bring contemporary issues and directions to the attention of the administration and faculty, help students develop employment contacts and add credibility to the engineering programs.

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# ALUMNI SCHOLARSHIP DONOR

William "Hal" Gentry, Aaron Papp

**"I enjoy being able to give back to the School and to young adults looking to be a part of an industry that has been a major part of my life."**

## Turning a Hobby into a Career

For Aaron Papp, a senior from Swansea, Ill., choosing a career path was a no-brainer. Computers had been a part of his plan from an early age. "I have always been a very logical and technically-minded person," Aaron said. "This path is the perfect fit for my career."

Aaron decided to turn his computer science hobbies into a career. "In my free time, I enjoy researching computer security, exploitation and intrusion mitigation," Aaron said. "It made sense for me to choose computer science. My goal is to pursue a full-time position in information security. I'm looking forward to it."

Receiving the 2011 William H. Gentry Computer Science Scholarship was a crucial moment for Aaron. It allowed him to successfully complete all necessary credit hours for a May 2012 graduation date. "I received this scholarship at just the right time," Aaron said. "There was a summer

class that I needed to take, but didn't have the funds to make it happen. The scholarship paid for that course, which was a great help."

The William H. Gentry Computer Science Scholarship is awarded annually to a computer science student who demonstrates academic achievement and has an interest in entrepreneurship. William "Hal" Gentry, a 1982 graduate of the School of Engineering and an Advisory Board member for the School and the department of computer science, has had an impressive career in building global software start-up companies. He created this endowed scholarship as a way to give back to his alma mater.

"I have enjoyed success because of my computer science degree from the SIUE School of Engineering," Hal said. "I enjoy being able to give back to the School and to young adults looking to be a part of an industry that has been a major part of my life."



## SIUE Alumni Hall of Fame 2011 Honorees



**Edward "Ed" Grady**  
1972 BS, Civil Engineering

Edward "Ed" Grady began his impressive career with the city of East St. Louis and then held a 14-year career with Monsanto, where he moved from project engineer to vice president of worldwide sales. After leading Hoya Micro Mask and separate business units in KLA-Tencor to significant growth and profitability, Ed retired in 2000. In 2003, he became COO of Brooks Automation and retired in 2007 as President and CEO.

Ed is currently chairman and CEO of REEL Solar, a company that has developed a unique low-cost technology to produce solar panels. He serves on the boards of Advanced Energy, Evergreen Solar, Electro Scientific Industries, Molecular Imprints and Verigy, and currently serves on the Advisory Board for the SIUE School of Engineering.



**Roland "Rollie" Thouvenot, P.E.**  
1972 BS, Civil Engineering

Rollie Thouvenot has contributed nearly 40 years to the local engineering industry. He has served as president and principal owner of the civil engineering and land surveying firm Thouvenot, Wade & Moerchen Inc. since 1987. In that time, he has grown the firm from a small company primarily serving the Belleville area to the largest engineering firm in Southwest Illinois. In 2002, Rollie became president of TWM's sister company, Testing, Analysis & Control Inc.,

which operates water and wastewater treatment facilities in Illinois and Missouri.

Rollie is currently a member of the Illinois Municipal League Public Works Committee, the American Council of Engineering Companies, the Illinois Society of Professional Engineers and the Society of American Military Engineers.

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Shelley L. '96 & Gregory A. Puckett  
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