

## eDimensions April/May 2014



### Dean's Welcome

I am pleased to share with you this issue of eDimensions. It reinforces two important themes that appear throughout our School's strategic plan: i) competing and succeeding at the highest levels, and ii) enabling extraordinary student success. These themes exemplify the standard of excellence that will advance engineering and technology programs at IUPUI to national and international prominence.

I know you will enjoy reading more about Steven Zusack, a senior in mechanical engineering. Earlier this spring, Steven was recognized nationally when he was selected as the American Society for Engineering Education's intern of the year. I must emphasize that this was a national award, with numerous applications from students of peer and aspirational peer institutions. Such recognition is not only a testament to Steven's abilities, but also to the productive partnerships our School has with a myriad of corporations in central Indiana and beyond. What makes this award even more impressive is that it was the second consecutive year for a student from our School to be selected for this prestigious award.

As many corporate research laboratories downsize, we reaffirm the commitment within our School of the importance to translate research into real products and innovative techniques which are commercially viable and improve the human condition. The news about Afshin Izadian's work with Single Switch Systems holds potential for such an impact.

Thanks to the generous support of our alumni and friends, our School's motorsports engineering program added to its remarkable legacy given the youth of the program. I know you will share our pride as you read more about the first all-women's team to compete in the Purdue Grand Prix.

As always, thanks for your steadfast support of our students and programs as we continue our ascent to one of America's premier urban schools of engineering and technology.

David J. Russomanno, Ph.D.



### School of Engineering and Technology Student Named Intern of the Year by Engineering Educators Group

Steven Zusack, a School of Engineering and Technology student at IUPUI, has been selected by the largest group of engineering educators in the world as its intern of the year. The award recognizes Zusack's leadership abilities, professional experiences and commitment to his engineering goals.

Zusack, who expects to graduate in December with a Bachelor of Science in mechanical engineering, received a \$500 cash award and a recognition plaque from the American Society for Engineering Education.

Since June 2013, Zusack has completed two internships, one at the German Aerospace Center in Germany and the other at the NASA Langley Research Center in Hampton, Va. Previously, he was a member of a design team and a lead payload designer for the Students for the Exploration and Development of Space Balloon Launch.

Earlier this year, Zusack was awarded the Indiana Society of Professional Engineers Scholarship for

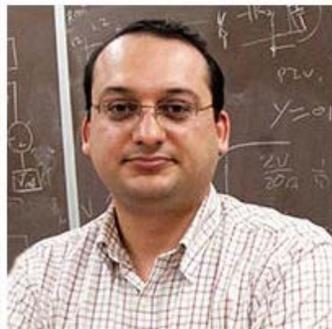
leadership and scholastic achievements. Last year he earned two awards for leadership on campus and high academic standing: the Chia Yee Ang and Mark E. Hemphill Outstanding Leader and Scholar Award as well as the International Experience Scholarship. He also has been inducted into the International Mechanical Engineering Honors Society, Pi Tau Sigma.

His work excelled at the NASA research center, where D. Laurence Thomsen, a research materials engineer, said, "I have mentored over a dozen undergraduate and graduate students over my last 10 years here, and he has excelled above all other students in pursuing independent research work associated with adhesion of metal films."

"Steve's research efforts are anticipated to produce a peer review journal article and the opportunity to present these findings at a societal conference next year. His research effort stands out from his peers because of the maturity of his laboratory notebook technical writing, his rigorous literature reviews, his methodical experimental preparations and innovative problem solving," Thomsen said.

After receiving his bachelor's degree, Zusack plans to earn an advanced degree in aerospace engineering, enabling him to pursue his plans for a career in the aerospace engineering industry.

"As a professional, I hope to go into the aerospace field to help design the next generation of spacecraft," Zusack said. "It is my belief that space travel needs to become more cost-effective and environmentally friendly. Much of the future of business, growth and expansion as a race and peace between countries will stem from the exploration and development of space."



### Company co-founded by School of Engineering and Technology faculty member and Innovate Indiana Fund competes in Clean Energy Challenge

Single Switch Systems, a company co-founded last year by a faculty member in the School of Engineering and Technology at Indiana University-Purdue University Indianapolis and the Innovate Indiana Fund, is among 16 startup companies competing April 3 in the fourth annual Clean Energy Challenge in Chicago.

The companies are vying for several prizes, including the \$100,000 Wells Fargo Grand Prize for Clean Energy Entrepreneurship.

The challenge is presented by the Clean Energy Trust, founded by prominent business and civic leaders to fuel clean energy innovation in the Midwest. The trust is supported by grants from the U.S. Department of Energy, the Small Business Administration and donations from more than 70 investors, corporations, universities, foundations and trade groups.

The Innovate Indiana Fund is a \$10 million Indianapolis-based venture capital fund that invests in growing Indiana University-affiliated startups. The fund invests in early-stage opportunities and helps its portfolio companies reach commercial success using both infusions of capital and the application of its expertise in company formation.

"Single Switch Systems is a young university start-up with limited resources. It is very important for us to become a finalist in the Clean Energy Challenge," said Afshin Izadian, an assistant professor at the Purdue School of Engineering and Technology and director of the school's Energy Systems and Power Electronics Laboratory. "This will expedite networking opportunities and industry contacts for our team, which is invaluable at this stage."

"This allows the company to develop a suitable product and identify strategic approaches to the market. As an inventor and technology developer, I am interested in knowing the needs of industry to

build unique products," Izadian said.

The company's technology was developed in Izadian's lab and the Innovate Indiana Fund is commercializing his innovate work. Single Switch Systems is currently in a research and discovery mode, with a prototype nearing completion.



### Purdue Grand Prix race featured first all-women's team for IUPUI

The annual Purdue Grand Prix was held on Saturday, April 26th on the Purdue University campus in West Lafayette, IN. IUPUI was represented by 4 teams. Drivers Matt Mote and James Schnabel were on the two Motorsports Club entries, Allison Schoch was the driver on the all-female SWE team, and James French was on a team which was independently funded.

Freshman Allison Schoch of Lawrenceburg was the women's team driver, and had six other women on her side from the IUPUI Motorsports Engineering program.

The veteran driver from IUPUI is from the independent team, Wisconsin native James French, a junior who finished second in last year's race in the 33-team field. The other IUPUI drivers include sophomore Matt Mote and sophomore James Schnabel.

The IUPUI drivers had big shoes to fill. The campus has won the race four of the last six years, all since the Motorsports Engineering program was launched in 2008. IUPUI victors include Jon Laski (2008), Justin Penix (2010 and 2011) and Blake Deister (2012).

The notion of an all-women's team grew out of a conversation between former Purdue Grand Prix driver Lynsey Tilton Liguori and Terri Talbert-Hatch, the assistant dean of student services in the Purdue School of Engineering and Technology.

"On the drive back from last year's race, Lynsey said we needed to have an all-girls team," said Talbert-Hatch. "She and her husband Joe (like Lynsey a professional race driver and the grandson of former Indianapolis 500 driver Ralph Liguori) were willing to donate a go-kart and provide engines for us to use."

They also provided working space at their Lebanon home for the team to prepare for qualifications (April 19) and race day. The room to work on the car was nice, but Talbert-Hatch chuckled when she said she believed "the team really didn't want to have the men's teams looking over their shoulders and telling them what to do."

The Motorsports program has been a unifying force through the years for IUPUI's Grand Prix participants, but "this is really a student-led deal," Talbert-Hatch said. "It's built a sense of pride and camaraderie for our students, but it takes a LOT of work."

It can pay off, though. Laski and Penix, for example, now work for Sarah Fisher Hartman Racing on the IndyCar circuit.

The IUPUI teams joined the 27 teams that qualified the week before the race. Non-qualifiers were able to still make the race by finishing either first or second in the three sprint races that precede the Grand Prix itself.

Unfortunately, three of the IUPUI karts had mechanical issues and did not complete the race. James Schnabel finished in 6th place completing the last 30+ laps with one flat tire.

“While it was not what we hoped for, the students had a great experience.” Talbert-Hatch said. It was great to see not only the team work of each individual team but to see them helping out the other teams.”

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[Registration open for IUPUI's Engineering and IT Summer Camps](#)

[Registration open for Summer Program that Engages Minority Students in Math, Science Activities](#)