



## Dean's Welcome

We had a remarkable year in 2014. As we look back on the year, I can't help but smile and take great pride in the tremendous accomplishments of our students, faculty, and staff within the School of Engineering and Technology. Working together, we set several all-time records, including the number of students pursuing degree programs in engineering and technology. Given that many of our graduates remain in state, the prospects bode well for our School's continued and expanded contribution to the economic development needs of Indiana.

This issue of *eDimensions* provides three brief examples of our School continuing to compete and succeed at the highest levels, while enhancing our image and reputation across the globe as one of America's premier metropolitan schools of engineering and technology.

Our students continue to excel in national competitions. For example, mechanical engineering student Ricardo Ortiz, formed a multidisciplinary team with student colleagues from the University of Illinois and the University of Houston, and won the Nissan Design Competition at the national conference of the Society of Hispanic Professional Engineers. Empowered with the knowledge and abilities to provide engineering solutions in a global, economic, environmental, and societal context, the team focused on fresh water scarcity and the limited access that many people have to fresh water around the world.

As our School continues to move up in rankings, such as U.S. News and World Report, it is critical that our faculty receive the national and international recognition they deserve. Ed Berbari, chair and professor of biomedical engineering, was recently selected as a fellow of the American Association for the Advancement of Science for his renowned work in cardiac electrophysiology. Ed has brought distinction to the School and furthered the excellence in its undertakings. I'm sure that recognition is not Ed's motivation for the things he does, but it is certainly his due.

Finally, late last year, faculty members from our School's music and arts technology department visited Sun Yat-sen University, IUPUI's strategic partner in Asia. The group performed a diverse collection of music including Big Robot. I know you will enjoy reading more about it.

As always, thanks for your steadfast support of our students and programs. Your continued support and engagement with us is absolutely vital to maintain our momentum.

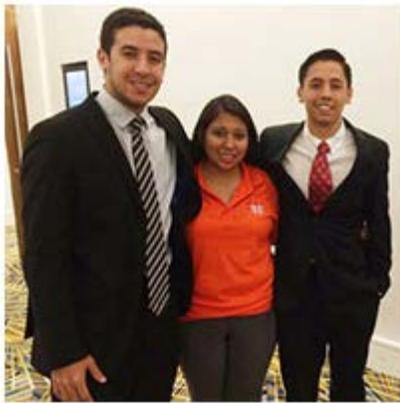
David J. Russomanno, Ph.D.

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## Ortiz, teammates take first prize in national competition

Mechanical engineering major Ricardo Ortiz of the School of Engineering and Technology made the most of a unique opportunity this fall, helping his design team claim first prize in the Nissan Design Competition at the national conference of the Society of Hispanic Professional Engineers in Detroit in November.

The IUPUI junior was one of the 24 students selected to compete in a process that



challenged applicants to a solution to what each of them thought was the greatest issue facing mankind throughout the 21st century.

Ortiz's team included Ana Artiaga, an agricultural engineering major from the University of Illinois at Urbana-Champaign, and Nelson Grajales, an electrical engineering major from the University of Houston. The three tackled the issue of fresh water scarcity and the poor access that many people have to fresh water around the world.

The team's solution they proposed earned the three-member group the \$10,000 top prize.

"We looked at the issue with a focus on agriculture," Ortiz said. "According to our research, 70 percent of the world's fresh water supply is used in agriculture, and 60 percent of that water is wasted due to inefficiencies in current irrigation methods," based upon factors such as runoff and evaporation during the irrigation process.

Their solution impressed the judges.

"While researching, we found that there was a method more efficient than the rest: drip irrigation," Ortiz said. "Drip irrigation performs at an efficiency of over 90 percent, because it drips water straight to the plant's roots. The main reason this method is not used more widely is due to costs of the materials."

The team's cost-effective solution to this method? Use cardboard piping and a biodegradable hydrophobic coating called Green Coat.

"Cardboard has many benefits," Ortiz said. "It is cheap, biodegradable and helps fight against weeds when it is in the ground."

The competition ran for 72 hours and required teams to submit technical papers, research and presentations.

"Our solution got us to the top of the design competition," Ortiz noted. "We got some pretty cool competition gear to distinguish us from the other conference goers and a \$10,000 dollar check split evenly by the team. We were very proud of our accomplishments and glad that our hard work paid off."

### **IUPUI faculty member named fellow of AAAS**

IUPUI faculty member Edward J. Berbari has been named a fellow of the American Association for the Advancement of Science, a distinction that recognizes outstanding contributions to the progress of science and research.



Berbari is a Chancellor's Professor and chair of the biomedical engineering department at IUPUI. His election this year, along with Thomas Sterling and P. Sarita Soni of IU Bloomington, brings the number of AAAS fellows affiliated with Indiana University to 89.

"These three outstanding scholars have advanced science through important and original work in fields ranging from high-resolution electrocardiography to correction of vision problems to extreme-scale computing," IU President Michael A. McRobbie said. "They are highly deserving of this tremendous honor, which also brings great credit to Indiana University."

Berbari was formally announced in the AAAS News & Notes section of the Nov. 28 issue of the journal *Science*.

Election as a fellow is an honor bestowed upon association members by their peers. The AAAS citations of merit for Berbari reads as follows: "For distinguished contributions to the field of cardiac electrophysiology and in particular sudden cardiac death and to bioengineering education."

Berbari chairs the biomedical engineering department in the Purdue School of Engineering and Technology at IUPUI. He has conducted research in cardiac electrophysiology for over 40 years, with special interests in high-resolution electrocardiography, cardiac mapping and biophysical modeling. He served on the Whitaker Foundation Fellowship Award Committee for six years and the National Institutes of Health Surgery and Bioengineering Study Section for five years.

Berbari is among 401 AAAS members who were awarded the honor because of their efforts to advance science or its applications. New fellows will be recognized Feb. 14 during the 2015 AAAS Annual Meeting in San Jose, Calif.

The tradition of AAAS fellows began in 1874. Members may be nominated for the honor by the steering groups of the association's 24 sections, by any three fellows who are current AAAS members or by the AAAS chief executive officer.



### Cultural exchange builds bridges

Seven musicians and faculty members from the School of Engineering and Technology were a cultural hit in Guangzhou, China, during a series of concerts and cultural exchange events at Sun Yat-sen University.

The IUPUI representatives are part of the school's Music and Arts Technology Department, and form two ensembles that performed during four concerts for 3,500 students and faculty at Sun Yat-sen campuses in Guangzhou and Zhuhai, both cities

located in the Guangdong province in South China.

During the trip, the IUPUI guests enjoyed VIP status at the 90th anniversary concert for Sun Yat-sen University. The event featured student-faculty orchestra and choirs who performed compositions by past students of the university.

The troupe also met with Sun Yat-sen Vice President Xiping Zhu, and had meetings with their Chinese university counterparts throughout the week. The IUPUI group also experienced a visitor's view of Guangzhou, checking out restaurants and tourist sites throughout the city.

During the trip, the IUPUI musicians presented a diverse collection of music including:

- Traditional jazz, performed by noted Indiana-based jazz pianist Steve Allee.
- Classical guitar solos from John Alvarado.
- High-tech electro-acoustic music of Big Robot, the IUPUI group featuring Scott Deal, Michael Drews and Jordan Munson.

IUPUI's Big Robot is a computer-acoustic trio that creates live media-enriched art and music that interweaves aesthetic expression with computer interactivity and networked technology. The group has presented concerts and residencies throughout the world since 2009.

The IUPUI entourage also featured musicians who perform with Allee, including Prof. Robin Cox on violin/electronics, Sandy Williams on bass guitar and Deal on drums.

Allee was nominated for a Grammy award for his big band CD "Downtown Blues" and has performed with a host of music, film and stage stars, including: Buddy Rich, Bob Hope, Joan Rivers, Red Skelton, Slide Hampton, James Moody and Benny Golson. He also has opened for Grammy winning singer Tony Bennett.