

FALL 2018 MECHANICAL ENGINEERING NEWSLETTER

MoMEntum

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From the Department Head

It has been a busy fall quarter!

We welcomed four wonderful new faculty to the department and they bring a wide variety of experiences to share with our students. This group is particularly unique because they

all joined us after teaching full-time at other schools. You can read more about them in the articles below.

Rose is piloting a new Multidisciplinary Capstone sequence with students from many departments. ME's own Jay McCormack is leading this pilot and it is off to a great start—students can take this capstone in place of the more discipline-based ME Capstone. We hope to grow this in future years since, as you are all aware, much of what students will tackle in the real world crosses the boundaries of disciplines.

Your contributions to the **"What do ME's do?"** project have made a big impact in presentations for prospective students and on the walls of the ME hallways. The wall posters were a big hit at Homecoming! We enjoyed seeing many of you at Homecoming and of course at Homecoming we had the groundbreaking for the new academic building and the ribbon cutting for the Bridge building (to replace the Rotz lab). More on that below.

Be sure to keep in touch!



Sabbatical Takes Kawano Home Again

Sabbaticals give tenure-track faculty the opportunity to take a deep dive into a topic of choice. For Daniel Kawano, associate professor of mechanical engineering, his recent sabbatical was also a homecoming.

"I got my Ph.D. (in 2011) from the University of California at Berkeley, so that's the connection," he says. Kawano spent the 2017-18 academic year in Berkeley, doing further research in his field of linear dynamical systems – specifically, decoupling.

Kawano not only continued on the topic that has defined his career; he reunited with faculty members from his time at UC Berkeley. "For a lot of the technical work on

decoupling,” he recalls, “I was working with my former research advisor.” While in California, he also attended the wedding of another former professor (with whom he continues to collaborate) and visited family and friends across the state.

Though Kawano loves teaching, the sabbatical enabled uninterrupted study and research. “You have this opportunity to focus,” he explains. “That’s why I could get a lot done. I could do it all day, every day if I wanted to.”

The time proved productive, indeed, yielding two published articles. A third article will be published in a more mathematically oriented journal. “My work has become much more mathematical in recent years,” he notes. “In addition to the theory on paper, I end up doing a lot of computational work as well – basically, verifying numerically that the process works.”

While at UC Berkeley, Kawano presented a seminar on what it’s like to work at a teaching institution like Rose-Hulman, in contrast to a more research-oriented university. In September, he gave a presentation on his sabbatical that was open to the Rose-Hulman community.

Kawano is pleased that the topic of his graduate work continues to yield opportunities for further study. “That line of research has been very fruitful,” he says. “There seem to be a lot of things we can continue to do.”

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Mechanical engineers are creating the future in hundreds of different ways.
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Welcome, New Faculty!

This academic year we welcomed four new faculty members to our department. Learn more about **Eric Constans**, **Shraddha Sangelkar**, **Amir Danesh-Yazdi** and **Ben Mertz**.



ME Prof's Greatest Influence May Be Outside Classroom

One aspiring engineering student Dr. Richard Onyancha talks enthusiastically about isn't

his student. She doesn't even attend Rose-Hulman. But she credits him with guiding the trajectory that took her to Harvard and garnered recognition from Queen Elizabeth.

Dr. Onyancha, associate professor of mechanical engineering, was a Fulbright scholar at Copperbelt University in Zambia (south-central Africa) for the 2014-2015 academic year. The U.S. embassy tapped him to speak at the university's Martin Luther King Day observance.

After the speech, Onyancha was surprised to be approached by Sela Kasepa, a teenager from the community. She said she hoped to study in the U.S., but had been turned down for scholarships at several American institutions.

"She is a brilliant girl," says Onyancha, a native of Kenya who hadn't previously visited Zambia. "She had done a lot of research on her own. We spent quite a few days putting it in language that fully captured her story in a way that admissions officers in the U.S. would respond to.'

They DID respond—in the form of full-ride offers from engineering programs at Harvard, MIT and Stanford. (Had Rose-Hulman offered full-ride scholarships, says Onyancha, she might have landed here.)

Sela is now a sophomore at Harvard, studying engineering and mentoring a Zambian robotics team in her spare time. Her achievements and contributions were recognized this year with the Queen's Young Leaders Award, bestowed in a ceremony at Buckingham Palace.

"I could see the potential," says Onyancha, "but she continues to blow my mind. She wants to give back because that's just who she is." Sela is part of a growing wave of women and girls in science and technology, including the 30% or so of current Rose-Hulman students. That's encouraging, says, Onyancha, but "We've got to encourage many more."



The Rose Show Returns to Showcase Student Ingenuity

More than 80 student projects were featured in this year's Rose Show, where representatives from industry judged each team's work and pitched possible future project ideas.

WATCH THE VIDEO AND READ MORE



New Building: Bridge Expands BIC Capabilities, Honors Rotz Legacy

21st century engineering moves fast, and Rose-Hulman moves with it. Groundbreaking for the newest campus building took place in early July. Ribbon-cutting was a highlight of Homecoming in October, and classes will be under way during winter quarter.

The Bridge is an 18,000-square-foot engineering design and laboratory building that cost \$2.2 million to build and equip. It sits next to the Branam Innovation Center (BIC), and contains updated facilities to replace those in the Rhiman A. Rotz Memorial Engine Laboratory.

The Rotz lab opened in 1967 as a state-of-the-art facility for engine research and testing. Its namesake (a 1937 graduate of Rose Polytechnic Institute and son of a 1906 graduate) had been an official with the sanctioning body for U.S. open-wheel auto racing.

Students were able to do at the Rotz lab what few institutions offered, including engine design and testing for groups such as the Rose GP team. Over the years, the Rotz also offered project space, including those of high school students in Operation Catapult.

With the 2011 opening of the Branham Innovation Center, students now had dedicated

facilities for design projects, makerspace, robotics and special-interest activities. Those successes spawned increasing demand and the need for a new building.

For Mike Moorhead, Ph.D., associate professor of mechanical engineering, the biggest benefit of the Bridge is having classroom and lab space together. "I'm incredibly excited to grab a class and say, 'Let's go take a look at what we were just talking about,'" he says.

In the Bridge, says Moorhead, students will have opportunities to work on open-ended, multi disciplinary projects. As an added benefit, students can find in one place manufacturing capabilities that currently are scattered throughout the campus, such as 3D printers, CNC lathes and water jet cutters.

Students using new facilities at the Bridge will be, quite literally, building on the legacy of the Rotz lab that was central to previous generations of students.



Rose-Hulman Tops U.S. News' Engineering List for 20th Straight Year

Rose-Hulman Institute of Technology once again leads U.S. News & World Report's Best Colleges rankings as America's top engineering school that's focused on bachelor's- and master's-level education. Four departments, including mechanical engineering, earned top marks as well.

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Multidisciplinary Capstone Offers Hard Challenges, Soft Skills

Senior teams addressing client needs learn how to plan, execute and document projects requiring skills from mechanical engineering to robotics to computer science and bioengineering.

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CLASS NOTES

Richard (Rich) C. Haut (ME, 1974) earned the Society of Petroleum Engineers' 2018 Health, Safety and Environment Award for helping develop Environmentally Friendly Drilling practices to address environmental and societal issues in onshore oil and gas operations. He retired this year from the Houston Advanced Research Center.

Stanley O. Smith (ME, 1985) retired from the U.S. Army as a colonel and in July 2018 started a new career as the director of Alabama Aviation College in Ozark, Ala. He served as executive officer for an Army aviation flight battalion and an aviation training brigade.

Timothy A. Nale (BSME, 1987/MSME, 1988) was a finalist for the Tampa Bay Business Journal's Chief Information Officer of the Year Award. He is the CIO with BIC Graphic North America, a promotional products manufacturer, after working in information technology leadership positions with Boar's Head and Michelin.

Kirk C. Dawson (ME, 1988) is being promoted to vice president and general manager of American operations for the Vehicle Service Group, based in Madison, Ind., effective Dec. 1. He has been vice president of the company's lifting equipment and heavy duty business units, after starting his career with Cummins Inc.

Kenneth W. Roberts (ME, 1988) has returned to the Delta Faucet Company team as president of the Indianapolis, Ind.-based firm. He previously was a member of the Delta team for more than 22 years before serving as president of parent Masco Corporation's Canadian operations.

Timothy J. Brewer (ME, 1990) has co-founded a new company, VillaPar, whose website (villapar.com) and social media outlets are striving to make home buying pressure-free and convenient. The system features online scheduling and negotiations.

Adam M. Gersting (ME, 1994) has joined the West Monroe Partners national business/technology consultancy as senior director of the technology team in Dallas, Texas. He previously was managing director with Slalom Consulting and a partner with Accenture.

Vincent (Vince) O. Valenzuela (ME, 1997) realized his childhood dream of being a "Jeopardy!" contestant and even had two appearances on the syndicated television game show—a unique feat given that Valenzuela didn't win in his first try, something contestants typically must do in order to return. An error on the Final Jeopardy question on the show July 11, 2018, allowed for him to come back for an episode airing Sept. 25. He finished second on that show.

Devin P. Claerbout (ME, 2007) has joined the intellectual property practice group with Taft Stettinus & Hollister's Indianapolis law office. He formerly was a project engineer with Clarke Engineering Services, while earning a law degree from Indiana University's McKinney School of Law.

Kathryn (Kate) M. Hubbard (ME/EE, 2013) is developing market analysis and strategy solutions as a systems engineer with Action Engineering, a Colorado-based company specializing in model-based engineering. She also founded mountaincravings.com, where she shares healthy comfort food recipes.

Dakota R. Jackson (ME, 2018) is continuing his motorsports dreams as a sprint car racer. He completed a successful summer on the United States Auto Club's AMSOIL Midwest racing circuit, rubbing tires with the biggest names in the sport. Find out more at dakotajacksonracing.com.

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We welcome your feedback, so please don't hesitate to **contact our faculty and staff** with questions and comments.

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"When you want to know how things really work, study them when they're coming apart."

~William Gibson