

GRADUATE AG RESEARCH SPOTLIGHT



Ashley Busquets

"There are not a lot of people who have the in-depth knowledge of fluid power that we gain at the Maha lab. It is important to bring this knowledge to industry, and I am motivated to do so."

Ashley Busquets, PhD candidate, Agricultural & Biological Engineering

THE STUDENT: Ashley Busquets credits her early interest in engineering to an "awesome" high school math teacher in her hometown of Tustin, Michigan, who promoted the field, and to her professors at Saginaw Valley State University who reinforced the career opportunities that engineering offers. She was influenced to pursue her graduate degree by the scientists she worked with as an undergraduate co-op at Dow Chemical Company in Midland, Michigan. One of her professors recommended Purdue, and a visit to the Maha Fluid Power Research Center confirmed Busquets' choice. "I didn't know anything about fluid power, but the people and the atmosphere of the lab were amazing," she recalls. She completed her master's degree at Purdue in December 2014 and is working toward finishing her doctorate by the end of this year.

THE RESEARCH: Busquets' research seeks to bring innovation to the design of the piston-cylinder interface of axial piston machines, which has remained much the same over decades. Engineers haven't targeted it for improvement, not because it wouldn't benefit from a new approach, but largely because most wouldn't know where to begin, she says. "This is a very specific area that not too many people study, so it is difficult to change if you don't understand the complexity of how it works." She hopes her own research will contribute to a more

efficient design that would have applicability not only on equipment in agriculture, but also from construction equipment to robotics and throughout the industry. "Of course, if we can improve reliability as well, we don't have to keep replacing costly components," she adds.

STARTING FROM SCRATCH: Busquets' advisor is Monika Ivantysynova, Maha Professor of Fluid Power Systems and director of the research center, which she established in 2004. Like many of the graduate students who work under Ivantysynova, Busquets arrived at Purdue knowing little about fluid power. "She's really willing to help us and get us to understand," Busquets says. "She's passionate about teaching us the ins and outs of it." Busquets also appreciates the many conferences and other opportunities that Purdue has provided to meet people and make connections in industry.

FUTURE PLANS: Outside of the lab, Busquets enjoys spending her time outdoors, which she attributes to growing up in a rural area. Her husband Enrique, a fellow ABE graduate whom she met in the lab, has completed his PhD and moved to work in South Carolina, so she will join him there once she finishes her own program. The couple loves traveling and recently enjoyed kayaking in the South Carolina mountains.