



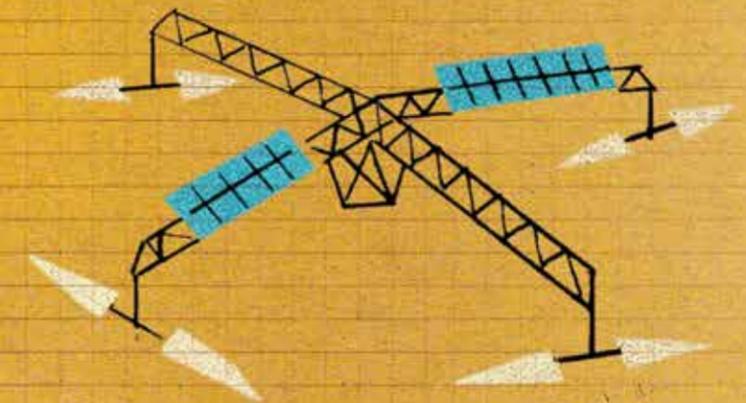
# BUILD TO COMPETE

**Clark School Student Teams Develop Tomorrow's Winning Solutions**



Winning isn't everything. But competing to win just might be.

Contests and competitions are a pillar of the exceptional education provided by the University of Maryland's A. James Clark School of Engineering. For mechanical engineering student Paige Andros, one competition did more than change her student experience; it changed her life. "I was a makeup artist and hairstylist, but it wasn't stimulating for me," says the lifelong car lover with a knack for math. In 2011, while between salon jobs, Andros visited the U.S. Department of Energy (DOE) Solar Decathlon on the National Mall in Washington, D.C., spoke with the UMD team, and was inspired to return to school and pursue an engineering education.



# "NOTHING SPURS CREATIVITY AND INNOVATION MORE

Six years later, Andros served as student project manager of UMD's entry into the 2017 Solar Decathlon. The collegiate DOE competition challenges interdisciplinary student teams to design and build full-sized, solar-powered houses. For Andros, the competition experience required a great deal of organization, coordination, and hands-on problem-solving long before the demanding 10-day event in Denver. "Working with multiple teams—and finishing on time—was challenging. We were very pleased with our U.S. win."

In 2017, the Solar Decathlon awarded cash prizes—totaling \$2 million—for the first time, spurring innovation by the next generation of energy experts. UMD's team received a \$225,000 prize for their second-place overall finish (see related story, page 13).

Andros reflects on the competition's impact on her student experience: "When University President Wallace Loh visited our team, he asked us, 'How many of you would say this is the most impactful educational experience you've had at the University of Maryland?' Every one of us raised our hands."

The Clark School emphasizes the importance of student achievement in national and international student contests with good reason. "Nothing spurs creativity and innovation more than a combination of incentive and challenge: a reward for achievement, combined with the urgency of a dare to succeed and

the reality that we must race against others," says Darryll Pines, dean and Nariman Farvardin professor of aerospace engineering at the Clark School. "We are at our best when we compete."

For example, the dean cites the Clark School's Gamera student team, which set the world record in 2012 for the longest human-powered helicopter flight. "The \$250,000 American Helicopter Society's Sikorsky Prize fueled the team's drive for success," he says.

Team Gamera reinvented itself as Solar Gamera in 2014 to test the feasibility of applying solar power in achieving human helicopter flight. Two years later, the team made two successful (unofficial) flights, flying for nine seconds and gaining more than a foot in height. Altogether, nearly 150 students from across the Clark School have worked on Gamera. Distinguished University Professor and Gamera faculty advisor Inderjit Chopra said of the project's hands-on opportunities: "This is about inspiring and educating students; that's our product here."

The aerospace industry provides a compelling case for collegiate contests—as a way to improve students' competitiveness, but also to boost the competitiveness of the nation as a whole. Aerospace prizes and competitions are key catalysts for innovations that have historically kept the U.S. at the forefront of aerospace technology advances and helped create offshoot industries, such as the commercial transport of people and cargo, unmanned aerial systems for civilian and military missions, and commercial space travel.

Other industries have likewise been influenced by collegiate competitions. Since the first Solar Decathlon in 2002, more than 18,000 students have participated—approximately 1,200 from UMD alone—with many going on to work in businesses that bring transformative technologies, including but not limited to solar photovoltaics, to consumers.

With their benefits to students, communities, and industry in our state and beyond, student competitions underscore *Fearless Ideas: The Campaign for Maryland*, launching this spring. This comprehensive and ambitious fundraising effort will endeavor to expand our mission of service, enhance our academic distinction, and elevate our leading-edge research enterprise, enabling us to solve the biggest problems facing our world.



UMD STUDENTS WORK ON SOLAR GAMERA.

PHOTO: JOHN T. CONSOLI



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THE UMD SOLAR DECATHLON TEAM WITH UMD PRESIDENT WALLACE LOH, NEAR CENTER.

# THAN A COMBINATION OF INCENTIVE AND CHALLENGE."