



THE OHIO STATE UNIVERSITY  
COLLEGE OF ENGINEERING

2017

# EXCHANGE

ALUMNI NEWS Department of Mechanical and Aerospace Engineering



Students race to  
new heights  
*MAE students excel in  
and out of the classroom*

3

Alumni celebrated  
for lasting impact  
*MAE graduates honored  
for service and innovation*

9

COVER STORY  
*Ohio State research  
team sets drone world  
speed record*

17

New faculty  
bring expertise  
*This fall, eight new  
faculty joined MAE*

18



# Connecting research to passion

This year, our faculty, staff, students and alumni have gone above and beyond to develop new technologies that directly impact our nation’s most vulnerable populations.

From increasing community safety through a partnership with Columbus’ police force to using smart mobility to eliminate public transportation challenges, our engineers in the Department of Mechanical and Aerospace Engineering (MAE) are taking our department from excellence to eminence.

Helping others is woven into the very fabric of our department. Since our humble beginnings in the west basement of University Hall, our MAE scholars have developed solutions to the most pressing challenges facing our society.

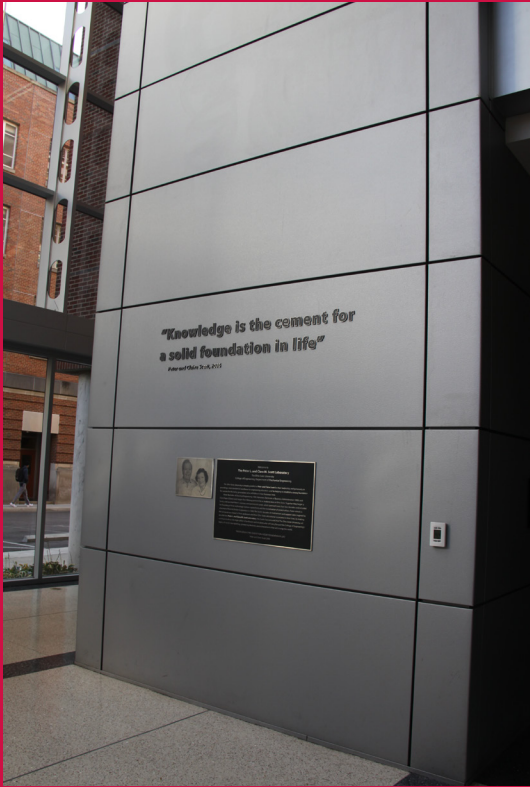
Our outstanding work has not gone unnoticed. Members of our MAE community have been honored with fellowships from academic societies, received international, university- and college-wide awards, and even brought home a world speed record. MAE alumnus Dan Kimmet, for example, was named the 2017 recipient of the university’s Ralph Davenport Mershon Award while Professor Ahmet Selamet’s significant contributions earned him the Society of Automotive Engineers’ Ralph K. Hillquist NVH Lifetime Achievement Award. Our students raced to the top in multiple competitions, including the Spaceport America Cup, the Pikes Peak International Hill Climb and NASA’s inaugural University Student Design Challenge. Our scholars take the knowledge that they gain in their MAE courses far beyond the walls of our great university.

Recently, President Michael V. Drake quoted a special line from generous donors Peter and Clara Scott: “Knowledge is the cement for a solid foundation in life.” This message (which is displayed in our Scott Lab atrium) rings as true today as it did when the couple first stated it. In our classrooms, MAE faculty give our students the real-world, hands-on experience they need to jump-start their careers and to re-envision the future of aerospace, mechanical and nuclear engineering.

Please join me in reading about just a few, of the many, exciting developments coming out of the Department of Mechanical and Aerospace Engineering at The Ohio State University.

## Vish Subramaniam

Professor and Chair  
Department of Mechanical and Aerospace Engineering  
The Ohio State University



# Pay it forward by mentoring MAE capstone teams

Industry partnerships give Buckeye engineers real-world experience

This spring, **Maddie Elias** learned the true meaning of experiential learning. She and her capstone team fixed a critical defect facing the Columbus Division of Police and their 26,550-square-foot shooting range. The student team’s design, which incorporated fabricating and installing new system components, empowered the division to dedicate more time to caring for the safety and well-being of the Columbus community.

“Thanks to this collaboration, I’ll be able to take this real-world experience with me into my new career,” Elias (’17 BS, Mechanical Engineering) shared. *Read more about her story on p. 5.*

## Bringing MAE students to your company

The city’s police force isn’t the only organization that can benefit from our department’s undergraduate student scholars. We are currently looking for alumni and industry partners who want to work with our MAE Capstone Design Program. As alumni, you have the expertise, experience, connections and resources that can greatly benefit our students. With your help, we can truly enhance our students’ understanding of modern engineering design.

There are powerful opportunities for you to get involved by sponsoring capstone projects for our student teams. These teams can work to solve your organization’s engineering challenges, such as cost reduction, performance improvement, and even the development of new products for new markets.

Engagement and sponsorship opportunities are available at both the team and multi-team levels. Our MAE student teams can provide you and your company with a unique solution to your specific engineering-related challenge.

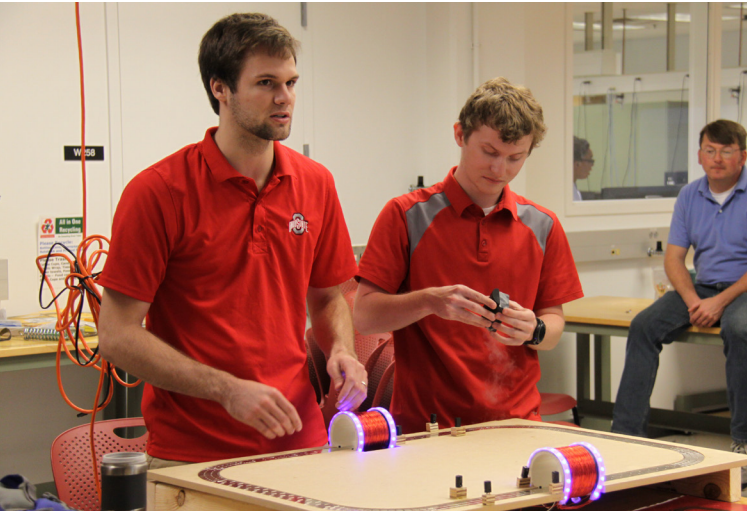
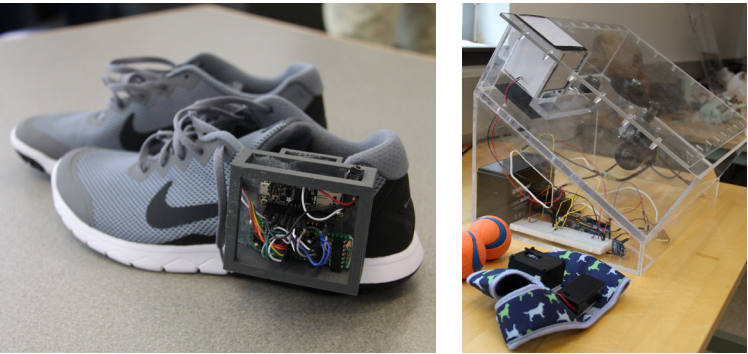
## Other opportunities to pay it forward

- Judging capstone competitions and assessing students’ work at design reviews and mid-semester presentations
- Functioning as a technical expert or advisor for a capstone project
- Donating funds and/or equipment
- Serving as a company or individual sponsor for a specific industrial capstone project

To get involved, contact faculty **Russell Marzette, Jr.** ([marzette.1@osu.edu](mailto:marzette.1@osu.edu)) for mechanical engineering projects or **Cliff Whitfield** ([whitfield.22@osu.edu](mailto:whitfield.22@osu.edu)) for aerospace engineering projects.



During her real-world capstone experience, Maddie Elias and her student team developed a well-crafted system redesign for the Columbus Division of Police’s shooting range. **BELOW:** Multiple examples of MAE capstone projects.





# Buckeyes land first place in rocket competition

*BSLI team earned top honors in the Spaceport America Cup*

This June, the **Buckeye Space Launch Initiative (BSLI)** soared to first place at the Spaceport America Cup in New Mexico.

The annual competition challenges teams of college students to design, build and launch solid-, liquid- or hybrid-fuel rockets to a targeted altitude. The five-day event attracted more than 100 teams from around the world.

The team of 21 Ohio State students earned top honors in the 30,000-foot Student Designed (SRAD) solid-fuel rocket category. Their nine-foot rocket, named Brutus II, soared to an altitude of 23,224 feet with a full 3U payload – the largest of any other rocket competing in the 30K field. Of the 10 other teams in the same category, only five actually launched, and just three had successful flights.

“It’s very difficult to get to that height as it turns out,” said **Nic Flesher**, a senior aerospace engineering student and project manager of the BSLI’s 30K team.

Once Brutus II launched, the team lost visual of the rocket, but they were prepared.

“We had a GPS telemetry system from RadioBro Corporation onboard so we were able to actively track it from the pad and we were able to know where it was at all times and when it landed,” explained Flesher.

BSLI also competed in the 10,000 commercial-off-the-shelf category. The 10K team developed an active drag system that controlled the rocket’s apogee. Their project was a finalist for the Technical Excellence and Innovation Award, and it finished within the top 10 for the category.

“After years of growth and dedication across the entire team, it’s great to see such a visible, hard-earned success



“After years of growth and dedication across the entire team, it’s great to see such a visible, hard-earned success this summer.”

**SAM SOJDA**

*President, Buckeye Space Launch Initiative (BSLI)*

this summer,” said **Sam Sojda**, the BSLI president. “The facilities, resources, and faculty advisors provided by the College of Engineering and the Department of Mechanical and Aerospace Engineering have proven invaluable to that growth.”

Sojda and the team used the knowledge gained from their engineering courses throughout the competition.

“From coursework in thermodynamics, aerodynamics, and structures to fundamental skills in CAD modeling and MATLAB coding, there is always a place for applying what has been learned in the classroom to our rockets,” Sojda said. “The team builds on

these fundamentals and offers students an opportunity to work alongside others interested in the exciting world of aerospace.”

The BSLI has more than 80 team members and is advised by Professor **John M. Horack**, Neil A. Armstrong Chair in Aerospace Policy. Many team members are MAE students, and they are joined by members from other disciplines, including electrical and computer engineering, computer science and engineering, and physics. The team hopes to expand to include more students from other areas of study.

The Buckeyes will compete in other competitions in the coming year, such as a small, friendly competition with other universities in Ohio, though nothing on the same scale as the Spaceport America Cup. It’s the only competition where students can launch anything so large, so high and so fast.

*Excerpt reprinted with permission from The Ohio State University’s College of Engineering.*

# Buckeye Current raced to first place

*Ohio State’s electric motorcycle team leads Pikes Peak competition*

With a time of 10:55.500, Ohio State’s Buckeye Current student team raced to first place at the Pikes Peak International Hill Climb (PPIHC) Electric Motorcycle Division competition on June 25, 2017. Buckeye Current is the university’s electric motorcycle student team, which is based in the Center for Automotive Research (CAR) and advised by Assistant Professor **Marcello Canova**. Last year, the team finished 16th overall. This is the third consecutive year that the team has competed on the iconic mountain in Colorado.

The team researches, designs, builds and races electric motorcycles not only to create innovative electric vehicles, but to also educate students and the community about green technologies.

“While the time is still short of the team’s goals, the results speak for themselves and the grin from Rob [the team’s professional rider] coming down the mountain was a testament to the bike’s performance on race day,” said team leader **Polina Brodsky**, an MAE graduate fellow.

Since the start of the year, the team has put an incredible effort into improving the motorcycle design and addressing the technical issues that they experienced in previous seasons, Canova shared.

“At Pikes Peak, the Buckeye Current team has not only achieved prestigious victories on one of the most difficult courses in the world, but it set very strong foundations for the future, in terms of design processes, leadership and organizational skills.”



*Excerpt reprinted with permission from The Ohio State University’s College of Engineering.*

# 2018 MAE Design Day

April 20, 2018

To say that our MAE students are innovative is an understatement. The annual **MAE Design Day** gives our Buckeye engineers the opportunity to showcase their engineering design work from various courses, and communicate their processes and project outcomes to visitors from across the campus community. From developing unique vehicle control interfaces to creating a rain cover for individuals who use wheelchairs, our students are working on a rich variety of engineering projects. Save the date for the 2018 event, coordinated by Assistant Professor of Practice **Annie Abell**, and experience this day of discovery in person.





STUDENT SUCCESS

Undergrads create tool for future spacewalks

AstroNuts compete in NASA challenge

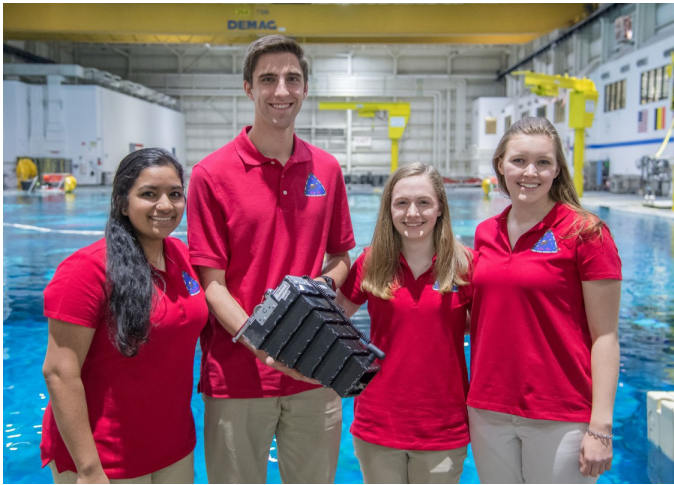
A team of Ohio State engineering students, including MAE’s **Tom Krajnak**, has designed a tool for astronauts that could be used on future spacewalks. The AstroNuts recently became the first Ohio State team to participate in NASA’s annual Micro-g NExT (Neutral Buoyancy Experiment Design Teams) program, in which undergraduate students from across the nation are challenged to propose, design, build and test a tool or device that addresses an authentic, current space exploration challenge.

The team submitted a design for a tool that would anchor an astronaut to the surface of an asteroid. Called the Device for Anchoring in a Microgravity Environment (DAME), the tool uses one 10-inch long auger driven by a ratchet to drill into the asteroid surface. Their proposal was one of only 30 chosen for testing at the Neutral Buoyancy Laboratory (NBL) at NASA’s Johnson Space Center in Houston, Texas, in May 2017. After two semesters of building, extensive testing and refining their concept, the team was excited to see their design in action in the NBL’s 6.2-million-gallon indoor pool, which simulates an asteroid’s surface. The DAME met all challenge objectives and received highly positive feedback from the divers, particularly regarding the ergonomics of the device, which the team had prioritized during the design process.

All Micro-g NExT tested designs are archived in a NASA database that is accessed by engineers designing future spacewalk tools. This means the DAME could influence the design of a new space tool.



The AstroNuts (below) on the pool deck just before testing their anchoring device, the DAME. From left: Jahnvi Murali, MAE student Tom Krajnak, Kelly DeRees and Marysa Addis.



Excerpt reprinted with permission from The Ohio State University’s College of Engineering.

The newest Presidential Fellow

MAE scholar earns the Graduate School’s most prestigious award

The Graduate School at The Ohio State University selected **Kaushik Rangharajan**, a mechanical engineering doctoral candidate, as the 2017 recipient of the Presidential Fellowship.

This fellowship, which is the most prestigious award presented by the Graduate School, recognizes the scholarly accomplishments of outstanding graduate students entering the final stage of their dissertation research. With the support of this award, Rangharajan’s dissertation research, “Engineering Nanofluidic Systems to Control and Manipulate the Transport of Ions, Molecules and Fluids,” will target diverse applications while exploring the principles of microscale and nanoscale transport phenomena.

His research is having a real-world impact. This year, he received an \$8,000 Student Research Project Grant to develop a novel method to desalinate the excessively salty water that arises during unconventional oil-gas extraction. Funding for his “Buckeye Shale Desalter” project was provided by the university’s Office of Energy and Environment.

Additionally, his work is contributing to the healthcare industry, through his exploration of the roles that local fluid mechanics and the electrical environment play in regulating the formation of new blood vessels. Rangharajan also received a 2017 travel grant to present at the Institute of Electrical and Electronics Engineers’ flagship annual meeting on Micro Electro Mechanical Systems (IEEE MEMS).

“I am deeply honored to receive the Presidential Fellowship and am especially thankful to our team for making the learning process enjoyable over the past five years,” Rangharajan said. “With this award, I look forward to bettering my understanding of transport phenomena at the micro and nanoscale — and in the process, strive for innovation.”

Rangharajan is advised by Associate Professor **Shaurya Prakash**, who directs the university’s Microsystems and Nanosystems Laboratory.



“Kaushik is a ‘can do’ student, who is always enthusiastic about pursuing new ideas.”

SHAURYA PRAKASH

Associate Professor

Director, Microsystems and Nanosystems Laboratory

“It is a joy to discuss ideas with him and then see the ideas being implemented with thought and effort.”

Partnership increases community safety

MAE capstone solved critical defect for Columbus Division of Police

Having the nation’s second largest non-federal shooting range has always been a point of pride for the Columbus Division of Police. Unfortunately, the 26,550-square-foot range was also collecting debris from more than 80,000 rounds of fire in the conveyor system. Replete with lead, the bullet rounds were creating a toxic environment for those training to become the newest members of the city’s police force.

That’s when MAE students **Mark Cecil, Maddie Elias, Patrick Politowicz** and **James Roche** jumped into action as a part of their spring capstone project. To fix the problem, the student team redesigned, fabricated and installed new system components from galvanized steel in order to create a new tail ramp and side shields. The debris now travels the full length of the 50-yard belt instead of piling up. The team’s integrated ramp and vertical back plate design also made it possible for the system to be more easily serviced.

Today, the updated conveyor belt system sends roughly five more kilograms of debris into the shooting range’s collection bucket each week.

The MAE student capstone group has Police Commander **Bob Meader** to thank for their connection to this real-world problem. “This partnership has allowed us to dedicate more time to caring for the safety and well-being of the Columbus community and our employees,” he said.

Meader plans to work with Assistant Professor **Russell K. Marzette, Jr.**, who leads the department’s general capstone course each semester, to support future collaborations between the city and the university.

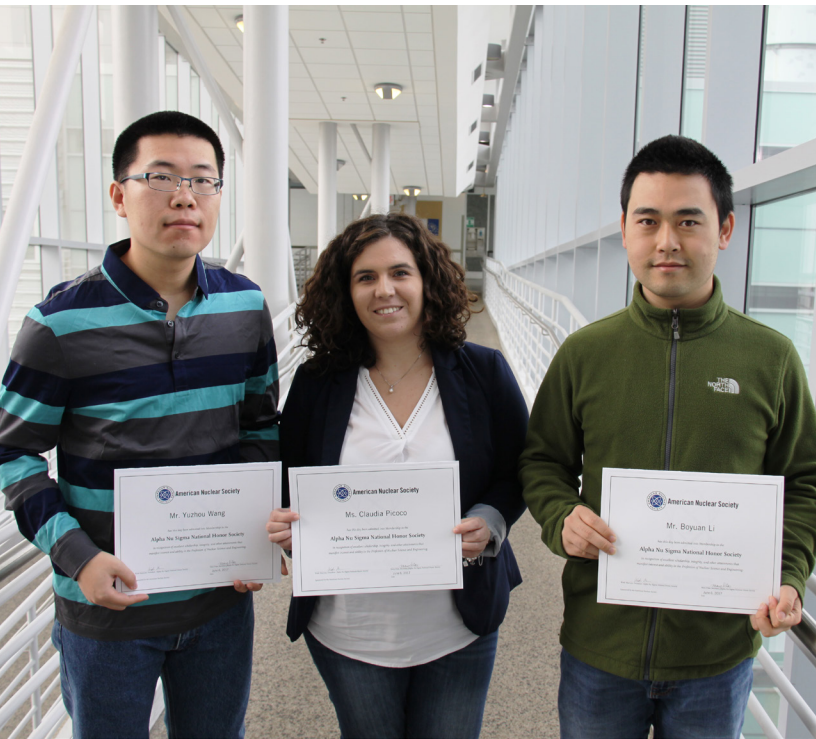


The Columbus Division of Police collaborated with an MAE capstone group to fix their shooting range system’s critical defect.

The students are holding their updated system back-end, which allows debris to now travel the full length of the 50-yard belt instead of piling up.

L-R: Lieutenant Steve Wilkinson, Deputy Chief Timothy Becker, Police Commander Bob Meader, Sergeant Doug Follmer, Mark Cecil, Maddie Elias, Assistant Professor Russell Marzette, Jr., Patrick Politowicz and James Roche.





## The honored four

*Four MAE scholars inducted into ANS honor society*

Four outstanding American Nuclear Society (ANS) Student Chapter members were inducted into the Alpha Nu Sigma National Honor Society. Graduate students (*left to right*) **Yuzhou Wang**, **Claudia Picoco** and **Boyuan Li** and alumnus **Ryan Gallagher** ('17 MS, *not pictured*) were offered membership into the highly selective honorary on June 6, 2017.

“This prestigious membership is a lifetime honor,” said Assistant Professor of Practice **Vaibhav Sinha**, who serves as the chapter’s faculty advisor. “The newly inducted members represent the outstanding students from Ohio State’s nuclear engineering program.”

## Students make Ohio State a smarter campus

*Danny Freudiger’s new group works alongside Smart Columbus*

As researchers, local businesses and citizens of Columbus prepare to improve transportation and sustainability through the Smart Columbus program, **Danny Freudiger**, a mechanical engineering graduate student, hopes to bring similar changes to the university.

Freudiger is leading the new Smart Campus Organization student group, which will partner with the Center for Automotive Research (CAR) and Ohio State to “engage in internal campus projects, use campus as a test bed for industry-sponsored projects, and collaborate with the Smart Columbus initiative through the blending of students from diverse academic backgrounds.”

Freudiger became interested in the Smart Columbus project and the Smart Cities concept in January. Columbus won the U.S. Department of Transportation’s Smart Cities Challenge in June 2016, and in its grant proposal, the city offered a series of transportation solutions, from connected



Members of the Smart Campus Organization hope to make students feel connected to the campus and each other. MAE graduate student Danny Freudiger (far left) is leading the brand-new student organization.

vehicles and smart mobility hubs to common payment methods and LED street lights that also provide wireless internet.

Freudiger worked with **Maryn Weimer**, senior associate director of CAR, to bring students and CAR together to solve similar connectivity and mobility problems on campus.

“My hope is that this organization will engage students from different academic backgrounds and teach them how to

work together to achieve a common goal. That goal is the improvement of campus life here at Ohio State,” Freudiger stated.

“We want to use data analytics and technological advancements to improve university services. Whether those improvements are in the field of mobility or connectivity, we want students to feel as though they are connected to the campus and to each other.”

*Excerpt reprinted with permission from Colleen Herr, Center for Automotive Research.*

## Ohio State EcoCAR3 team nabs victory

*Team stretches three-year winning streak to four years*

Congratulations to Ohio State’s EcoCAR 3 team on winning its third consecutive EcoCAR 3 – Advanced Vehicle Technology Competition. EcoCAR 3 is a four-year collegiate automotive engineering competition that challenges 16 universities across North America to redesign a 2016 Chevrolet Camaro, improving its efficiency and emissions while retaining the iconic Camaro performance value.

With the win, the Buckeyes stretched their three-year winning streak to four years, having come in first in the final year of the EcoCAR 2: Plugging Into The Future competition and the first two years of EcoCAR 3.

“They’re the best prepared Ohio State team that I’ve brought to an EcoCAR competition,” said Associate Professor **Shawn Midlam-Mohler**, the team’s faculty advisor.

“They set the stage for a great competition by putting over 2,000 miles on the car prior to coming and gave so much of their time to the competition.”

The team was recognized for its outstanding performance across all events of the competition, taking home an impressive 15 awards overall. Ohio State placed first in 11 of the 15 awards they won and will be taking home over \$20,000 in award money.

Year three might have just ended, but the team is already looking forward to year four, the final year of the competition. **Brandon Bishop**, a first-year master’s student majoring in mechanical engineering, will be stepping up into the team leader role next year. “I’m looking forward to continuing our tradition of excellence,” said Bishop.



The EcoCAR 3 team at the Ride and Drive event with Al Oppenheiser, chief engineer at General Motors.

*Excerpt reprinted with permission from Colleen Herr, Center for Automotive Research.*

## Flying into the future: Riding a blimp to work

*Students place second in inaugural NASA student design challenge*

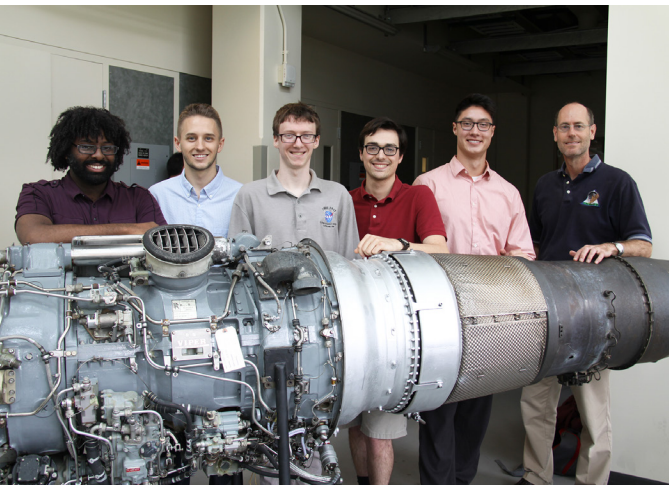
Instead of driving a car or riding the subway, future commuters may have the ability to fly to work.

A team of five aerospace engineering students spent four months designing an aircraft for people commuting to cities as part of NASA’s inaugural University Student Design Challenge, and the quartet of Buckeyes won second place.

The contest tasked 13 teams of university students from across the country with creating an aircraft meant to travel within city limits so as to reduce traffic congestion and fuel emissions, while providing the general population with a reliable form of transportation. Such an airship could provide a solution to traffic problems, which are expected to worsen in the future as urban populations grow, said fifth-year student **Brennan Barrington**, who served as the team leader.

The team’s lighter-than-air design, which they named the Local Transit Airship, contains features similar to two methods of transportation. “It’s a blimp,” said the team’s faculty advisor **Ken Gordon**, an MAE lecturer. “And you’ve got your gondola underneath, which is basically like a subway car, and the people go in and out of that.” Propelled by electric motors, the aircraft is designed to carry 192 passengers into or out of a city such as Honolulu in 10 minutes, significantly shortening commute time.

“None of this is really revolutionary technology,” Barrington said. “We aren’t counting on anything that doesn’t already exist, it’s just that we’re putting all this together in a new way.”



Left to right: MAE students Dennis Scott, Jake Brandon, Brennan Barrington, Colin Trussa and Austin Petsche and MAE Lecturer Ken Gordon, the team’s faculty advisor.

*Excerpt reprinted with permission from Erin Gottsacker, The Lantern.*



# 2017 MAE Alumni, Teaching and Student Honors

The Department of Mechanical and Aerospace Engineering annually honors alumni, faculty and students at the Honors and Awards Ceremony, held this year at Scott Laboratory on April 21, 2017.

## Stillman Robinson Lifetime Achievement Award



William Clippard III (left) and Professor and Chair Vish Subramaniam

Since graduating in 1963 with a bachelor’s degree in mechanical engineering, **William Clippard III** has made significant contributions to the field through his work at Clippard Instrument Laboratory, Inc. This year, he was named the honored 2017 recipient of the **Stillman Robinson Lifetime Achievement Award**. In 1963, he began working full time in the company’s engineering department. He went on to become a chief engineer and eventually vice president of engineering. In 1975, he was named president of Clippard Instrument Laboratory, Inc. and remained in that role until his retirement in 2014. Under his leadership, the company has developed unique and advanced pneumatic products for industrial and aerospace applications. The company has grown to become a world leader in miniature pneumatics. Clippard has served as a member and in a variety of leadership roles for the American Society of Mechanical Engineers, the National Fluid Power Association, the Precision Machined Products Association, and the Society of Manufacturing Engineers. MAE honored Clippard for his significant contributions by naming the Product Design Laboratory space in Scott Lab in honor of Clippard Instrument Laboratory, Inc. In 2007, he was also awarded the department’s Marion Smith Service Award.

## Marion Smith Service Award



Rex Ritchie (left) and Don Caudy

In honor of his exceptional service to the university and our society, **Rex Ritchie** was named the 2017 recipient of the **Marion Smith Service Award**. Ritchie, who earned his bachelor’s degree in mechanical engineering in 1968, has led numerous companies, including Aeroquip Corp., Valeo Engine Cooling’s North American Operation and Ashworth Brothers, in engineering management and general management capacities. Throughout the years, Ritchie has shown his dedication to MAE, and the Rex and Helen Ritchie Fluid Power Laboratory in Scott Lab testifies to his commitment. He was honored in 2001 with the College of Engineering’s Distinguished Alumnus Award, and he led his fellow alumni as the co-chair of the college’s committee for the Affirm Thy Friendship Campaign. He serves as a life member of the Mechanical Engineering Alumni Society and The Ohio State University Alumni Association. He pays it forward by volunteering with Boy Scouts of America, and was named the number one Big Brother for the State of Virginia. He has served on the Salvation Army’s advisory boards in Jackson, MI; Jamestown, NY; and Winchester, VA. He even turned his local Salvation Army’s Thrift Store into the number one performing store in the region.

## E.G. Bailey Entrepreneurship Award



Professor K. Cheena Srinivasan and Dr. Arnon Chait (right)

**Dr. Arnon Chait**, senior scientist and co-lead of the Advanced Energy Conversion Project, received the 2017 **E.G. Bailey Entrepreneurship Award**. Dr. Chait has dedicated his impressive career to detecting cancer as early as possible. As the leader of Cleveland Diagnostics, Inc. — which was co-founded with the Cleveland Clinic Foundation — Dr. Chait and his team are developing breakthrough technologies to detect cancer using blood testing. As the executive director of EarlyCell, Inc., he also guides the development of innovative cell isolation technologies for fetal, cancer and stem cells from blood. Dr. Chait has 17 patents, an extensive publication history and has led multiple biotech, contract research and opto-electronics organizations. As a seasoned inventor, Dr. Chait encompasses the mission of the E.G. Bailey Entrepreneurship Award. He is currently an adjunct faculty member at Case Western Reserve University. He also leads the Computational Multiphysics Laboratory in the NASA Glenn Research Center and has 25 years of experience at NASA, where he founded an interdisciplinary lab. Dr. Chait earned his bachelor’s (’77) and master’s (’79) degrees and PhD (’86) in mechanical engineering from Ohio State. While on campus, he researched transport phenomena and computational fluid dynamics.

## Rudolph Edse Award in Space Engineering



Dr. George Pantalos (left) and Doug Ball

With more than 40 years of experience as a researcher in cardiovascular technologies, **Dr. George Pantalos** is focused on treating heart failure with mechanical devices. He was named the 2017 recipient of the **Rudolph Edse Award in Space Engineering**, in honor of his out-of-this-world research. Dr. Pantalos’ work with NASA explores cardiovascular adaptation during the weightlessness of space flight and the return to Earth. He has participated in 43 parabolic flight missions and 27 research missions on the NASA Zero-G airplane. Dr. Pantalos led the development of a cardiovascular experiment that included an artificial heart, which has flown twice on the Space Shuttle Discovery. His surgical capabilities development research will even take him on a suborbital space flight on the SpaceShipTwo. He serves as a professor in the Departments of Cardiovascular and Thoracic Surgery and Biomedical Engineering at the University of Louisville. His scholastic honors include his service as a 1992 National Institutes of Health (NIH) visiting scientist in Moscow. He earned his bachelor’s degree in aeronautical and astronautical engineering from Ohio State in 1975. He went on to complete his master’s degree in biomedical engineering in 1978, and his PhD in physiology in 1983, also at Ohio State.

## Alan Gregory Loofbourrow Business Achievement Award



Professor Marcelo Dapino and Duane Detwiler (right)

The **Alan Gregory Loofbourrow Business Achievement Award** was presented to **Duane Detwiler**. As a chief engineer and manager of the department of strategic research at Honda R&D Americas, Inc., Detwiler has guided the successful partnership between Ohio State and Honda, including serving as a leader of technical, academic and organizational matters related to the broad relationship. His career has focused on vehicle simulation as well as materials and safety, which has earned him numerous patents and publications. As a spirited Buckeye, Detwiler has worked to bring his knowledge back to campus. He played a prominent role in the development of Ohio State’s Driving Simulation Lab and the Simulation Innovation and Modeling (SIM) Center. He also advocated for Honda to become a member of the Center for Design and Manufacturing Excellence (CDME). Additionally, Detwiler serves on the board of the Ohio Supercomputer Center, the Ohio Academic Resources Network (OARnet) and the National Science Foundation (NSF) Industry-University Cooperative Research Center (IUCRC) Smart Vehicle Concepts Center. Detwiler earned both his bachelor’s (’91) and master’s (’93) degrees in aeronautical and astronautical engineering from Ohio State.



## Thomas French Achievement Award



Dr. Kenneth Diller (left) and Professor Emeritus Gary Kinzel

**Dr. Kenneth Diller** received the **Thomas French Achievement Award**, in recognition of his role as an internationally recognized authority in heat and temperature-related processes in living tissues.

In the 1960s, his first studies were related to the frozen banking of cells and tissues for transplantation. He has also researched the advanced analysis of burn injury occurrence and the treatment of thermal therapy for cancer. Currently, Dr. Diller is focused on the use of temperature manipulation to enhance the healing of injured soft tissues. His research also explores the development of safer and more effective devices for lowering body core temperature in patients with major organ ischemia. He has published more than 200 refereed articles and book chapters and has edited six books.

He was the founding chairperson of the Department of Biomedical Engineering at the University of Texas (UT) at Austin and is the former chair of UT's Department of Mechanical Engineering. Dr. Diller played a key leadership role in the adoption of total quality principles in the academic administrative processes, engineering curriculum and instructional methods at UT.

He earned his bachelor's and master's degrees in mechanical engineering from The Ohio State University in 1966 and 1967 respectively.

## Garvin L. Von Eschen Award



John A. Hamilton (left) and Doug Ball

The 2017 **Garvin L. Von Eschen Award** was presented to **John A. Hamilton**.

As vice president of engineering at Boeing Commercial Airplanes, Hamilton ensures that the organization is led in the most effective and efficient manner. He is responsible for guiding engineering design, compliance, certification and safety activities for all commercial airplane models and their derivatives and post-delivery upgrades.

Prior to this role, he served as Boeing's vice president of safety, security and compliance. In this position, he led the aviation safety and aviation security teams and was responsible for the safety and product integrity of airplane design. His experience as the vice president and chief project engineer for the Next-Generation 737 program made him an ideal candidate for his current position.

Hamilton is a licensed professional engineer in the State of Washington and an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA).

He completed the Aviation Safety Management program at the University of Southern California and flight crew training for the 757 and 767 airplanes. In 2007, he graduated from Columbia University's Senior Executive Program.

He graduated from Ohio State with a bachelor's degree in aeronautical and astronautical engineering in 1984.

## Ralph Boyer Young Achiever Award



James Piper (left) and Associate Professor Blaine Lilly

**James Piper** received the **Ralph Boyer Young Achiever Award** in honor of his influential leadership, significant product development and important manufacturing contributions to the engineering industry.

Piper earned his bachelor's ('99) and master's ('01) degrees in mechanical engineering from Ohio State. After graduating, he worked at Lincoln Electric Company in Cleveland as a design engineer. In his next role, as the company's engineering manager, he traveled to France, where he launched six new products within the European marketplace and reduced bottom-line equipment costs by as much as 18 percent.

Upon his return to the United States, Piper began his work at Visualize as the manager of mechanical and industrial design. During his time at Visualize, he achieved a patent for his Advance Eye Wash bottle and his Protective Headgear Assembly. In 2007, while working at Schleifring North America, Piper was able to establish an entire certified manufacturing facility from the ground up and also increased national sales by more than 50 percent in three years.

Since 2014, Jim has served as the executive vice president for Matot, Inc. Under his leadership, the company recorded its highest revenue from sales all while satisfying production targets with a 98 percent on-time delivery.

## Teaching Awards



The **Mechanical and Aerospace Engineering Graduate Teaching Associate Award** recognizes exceptional teaching provided by a graduate teaching associate (GTA). The 2017 runner-up was Daniel Richie.

The award was presented by Professor

Dan Mendelsohn to **Akul Kakumani** ('13 BS, '17 MS, Mechanical Engineering). The award recognizes his excellent knowledge of and enthusiasm for his course's subject matter; superior organizational skills; ability to stimulate thinking and develop understanding among his students; and his willingness to reflect on feedback about his teaching.



the 2017 Pi Tau Sigma Above and Beyond Award to Assistant Professor **Jason Dreyer** (left).

The **Pi Tau Sigma Above and Beyond Award**

recognizes the outstanding teaching efforts of faculty and staff. Pi Tau Sigma, an international honor society, celebrates sound engineering ability, scholarship, service, leadership and integrity.

Associate Professor Carlos Castro presented



## Student Awards

**Outstanding Research Award:** Presented by Associate Professor Carlos Castro

- Recipient: **Noel Stute**

**Top Academic Awards:** Presented by Associate Professor Blaine Lilly (ME) and Professor Jim Gregory (AE)

Mechanical Engineering Recipients

- Sophomore Recipients: **Hannah Barnes, Michael Lloyd and Ted Sender**
- Junior Recipient: **Clint Teece**
- Senior Recipient: **Peter Bonavita**

Aerospace Engineering Recipients

- Sophomore Recipient: **Madhav Shah**
- Junior Recipient: **Byung Joon (Bryan) Ahn**
- Senior Recipient: **Bryan Kolpitcke**

**Outstanding Senior in Aeronautical and Astronautical Engineering Award and Outstanding First-Year Student Recognition Awards**

Presented by Professor Jim Gregory

- Outstanding Aeronautical and Astronautical Engineering Award: **Tom Krajnak**
- First-Year Student Recognition: **Justin Doup and Riddhi Patel**



The **Rob Wolf Outstanding Senior Award** is presented to a mechanical engineering student in memory of Rob Wolf, a 1997 graduate. The award recognizes students who excel academically while actively participating in department, college, university and community

organizations. Finalists were Chanhee Ha and Mario Sahlani. The award was presented by Professor Dan Mendelsohn to **Kelley Dugan**, who volunteers her time with the Society of Women Engineers and the St. Thomas More Newman Center for Habitat for Humanity. On campus, she is a member of the Taiwanese American Students Association. Her internship with Liebherr Container Cranes Ltd in Killarney, Ireland, sparked her passion for mechanical design.



CLASS NOTES

1960s



**John Anderson, Jr.** ('66 PhD) received the National Aeronautic Association's 2017 Frank G. Brewer Trophy, in recognition of his significant contributions of enduring value to aerospace education in the United States.

**Robert C. Bausmith** ('68 BS) completed his third through-hike of the Appalachian Trail in 2015. His journey began in March at Springer Mountain, GA, and finished in July at Katahdin, ME. The trail is 2,189.2 miles long. He previously completed the Appalachian Trail in 2006 and 2012.

1970s

**William R. Simpson** ('73 MS, '78 PhD) is the author of "Enterprise Level Security: Securing Information Systems in an Uncertain World," published by CRC Press.

1980s



**Teik C. Lim** ('89 PhD) was named provost and vice president of academic affairs at the University of Texas at Arlington. Prior to this role, he served as dean of the College of Engineering and Applied Science at the University of Cincinnati.

**Saeid Rahimian** ('82 MS) is chief executive officer at Aereon, a hybrid airship manufacturer. Prior to this role, he served as chief executive officer and corporate vice president of Gardner Denver, Inc. Energy Group.

1990s



**Jackie DiMarco** ('95 BS, '96 MS) is chief engineer of North American Powertrain Integration and Quality at Ford Motor Company. Prior to this role, she served as chief engineer of Autonomous Vehicle Programs.

**John Hesch, Jr.** ('92 BS) is the engineering team leader at Ply Gem, a leader in exterior building products across North America.

**Steven Hysell** ('99 BS) is a senior mechanical engineer and project manager at Dynamix Engineering. Prior to this role, he was a mechanical engineer at M-Engineering.



**Daria Kotys-Schwartz** ('98 BS, '01 MS), was named a Design Excellence Faculty Fellow at the University of Colorado Boulder. She is a mechanical engineering instructor and co-director of Design Center Colorado.

2000s

**Jennifer Brock** ('05 MS, '09 PhD) was named chair of the Department of Mechanical Engineering at the University of Alaska Anchorage.

**Anne-Marie Chany** ('00 BS, '04 MS) is the author of "Sister Sampler Quilts: 3 Modern Sampler Quilts with Paired Sister Blocks," published by Fons and Porter Books.



**Janelle Glick Kolisch** ('06 BS) was named Young Engineer of the Year by the Professional Engineers of Oregon. She serves as a senior commissioning agent at Heery International.

**Matthew Long** ('09 MS) is now a

senior project engineer for product support engineering at Honeywell Aerospace.



**Margaret Mkhosi** ('03 MS, '07 PhD) is director of the National Nuclear Regulator's Centre for Nuclear Safety and Security in Pretoria, South Africa.

Prior to this role, she served as senior manager at the South African Nuclear Energy Corporation.

**David Pan** ('08 BS) is head of marketing at MyIntent.org. Prior to this role, he served as senior product manager of Amazon's A+ Enhanced Marketing Content.



**Shannon Yee** ('07 BS, '08 MS) was named the recipient of the 2017 Pi Tau Sigma Gold Medal Award by the American Society of Mechanical Engineers. He is assistant professor of mechanical engineering at the Georgia Institute of Technology.



**Craig A. Ziolkowski** ('09 MS) is a member of the four-person test crew that completed the first flight the G500 airplane for Gulfstream Aerospace Flight. He is group head of the Powerplant and Systems Flight Test Engineering team at Gulfstream Aerospace.

2010s

**Ryan Bucio** ('10 BS, '11 MS) is now a lead mechanical engineer at GE Healthcare. Prior to this role, he served as a senior engineering supervisor at Pentair, formerly ERICO.



**Robert O. Crumpacker** ('16 BS) was awarded the prestigious 2016 Air Force Cadet Research Award by the Chief Scientist of the United

States Air Force. He was selected from a pool of nominees submitted by Reserve Officers Training Corps (ROTC) programs across the nation.



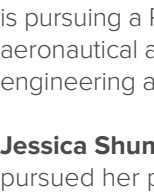
**Vienny Nguyen** ('10 BS, '12 MS) is a robotics engineer at Houston Mechatronics, Inc. Prior to this role, she served as a mechanical design engineer in robotics systems at the National Aeronautics and Space Administration (NASA).



**Michael D. Strauch** ('17 BS) was named the 2017 recipient of Sigma Gamma Tau's Harry H. Hilton Great Lakes Region Award. Sigma Gamma Tau, an aerospace engineering honorary, aims to award excellence among students, alumni and professionals in the field.



**Neil Stanley Ramirez** ('17 BS) and **Jillian Grace Yuricich** ('16 BS, *bottom*) were named recipients of the National Science Foundation's Graduate Research Fellowship Program. Ramirez is pursuing a PhD in mechanical engineering at the University of California - Berkeley, and Yuricich



is pursuing a PhD in aerospace, aeronautical and astronautical engineering at Georgia Tech.

**Jessica Shuman** ('17 BS, *right*) pursued her passion for humanitarian engineering by participating in the Engineering and Culture in India study abroad program. She traveled to Agra, Jaipur and Delhi, where she was exposed to India's rich history, culture and engineering concepts.

She credits the Peter L. and Clara M. Scott Scholarship for making this opportunity possible.



To submit your exciting alumni news for inclusion in the 2018 MAE Exchange, please visit [go.osu.edu/alumnews17](http://go.osu.edu/alumnews17).

Kimmet honored for dedicated service to Ohio State

**D**an Kimmet ('71 BS, '72 MS, Mechanical Engineering) has bled scarlet and gray for as long as he can remember. His commitment to The Ohio State University has remained unwavering throughout his time as both a student and engineering professional.

On Sept. 18, the two-time MAE graduate received the Alumni Association's 2017 Ralph Davenport Mershon Award in honor of his exceptional leadership and service to the university.

As a seasoned leader at Aeroquip Operations, Eaton Corporation and Dilin Corporation, Kimmet succeeded in growing multiple companies while still supporting his dedicated employees. Kimmet's exceptional leadership skills didn't just benefit corporate America; he established and led the university's Center for Design and Manufacturing Excellence (CDME) from 2014 to 2015.

Kimmet has also led the Mechanical Engineering External Advisory Board for more than ten years and has been a champion for MAE's academic success since his time as a student on campus. He is a member of Ohio State's Alumni Advisory Council; a generous contributor to Ohio State funding campaigns; and he was an especially effective partner in restructuring the mechanical engineering program's undergraduate curriculum.

"In supporting Ohio State and other community organizations, I hope I have made a difference, and I am grateful for the opportunity to give back," he said. In addition to his latest honor, Kimmet was honored for his dedication to both MAE and the College of Engineering with the Distinguished Alumnus Award in 1991, the Benjamin G. Lamme Meritorious Achievement Medal in 2001 and the Meritorious Service Citation in 2016.



Alumni Association (AA) President Jim Smith (left) and Kristin Watt, vice chair of the AA Board of Directors, presented Dan Kimmet (center) with the 2017 Ralph Davenport Mershon Award.



# MAE alums bring home college-wide awards

## College of Engineering honors esteemed alumni for achievement

Among the 18 alumni honored at the 20th Annual Excellence in Engineering and Architecture Alumni Awards on November 17, 2017, five were graduates of the Department of Mechanical and Aerospace Engineering.

### Lifetime Achievement Award for Leadership

Robert M. Nerem ('61 MS, '64 PhD)



Dr. **Robert M. Nerem** has truly made an indelible mark on the field of bioengineering. He has provided the key research framework for cardiovascular fluid dynamics. After serving as professor and chair of the Department of Mechanical Engineering at the University of Houston, he became the founding director of the Parker H.

Petit Institute for Bioengineering and Bioscience at Georgia Tech. As the director of the Georgia Tech/ Emory Center for the Engineering of Living Tissues, he studied cellular and tissue engineering as applied to the vascular system. Dr. Nerem is a past senior advisor for bioengineering at the NIH's National Institute for Biomedical Imaging and Bioengineering.

### Meritorious Service Citation

Douglas N. Ball ('74 BS, '75 MA)



**Douglas N. Ball** has significantly advanced both The Boeing Company and Ohio State's College of Engineering. In his impressive 37-year career at Boeing, he served in a variety of roles, including chief of enabling technology and research, chief engineer of aerodynamics, and director of enterprise technology strategy. He

has served on Ohio State's Aerospace Engineering External Advisory Board for more than 12 years and was named board chairman in 2014. In 2015, he created the Doug Ball Endowed Aerospace Scholarship and helped establish the Gregorek Aerospace Endowed Scholarship. Ball was awarded the college's 2006 Distinguished Alumnus Award and MAE's Garvin L. Von Eschen Award in 2013.

### Distinguished Alumni Award

Bassam A. Homsy ('84 BS)

As president and CEO of Autotool, Inc., **Bassam A. Homsy** has become a leader in the manufacturing automation industry. His company provides design, fabrication and robotics support for automotive companies, including BMW, Honda and Mercedes-Benz. Autotool, Inc. and its 35 new employees will soon move to a 167,000-square-foot facility. Homsy supports the manufacturing industry by advocating for quality technical



education. He serves as an advisor for DeVry University and several Ohio trade schools. In 2012, Homsy donated a CNC vertical machining center to MAE, and his donation provides students with a truly hands-on education. He serves on the ME External Advisory Board and previously served on the Dean's Advisory Council.

### Distinguished Alumni Award

Krishan K. Joshi ('61 BS)



Dr. **Krishan K. Joshi** founded UES, Inc., one of the nation's foremost research and technology development companies. He has established partnerships with the Air Force Research Laboratory, the U.S. Army's Aeromedical Research Laboratory, and the Air Force Office of Scientific Research. UES, Inc.'s revenue for

technologies developed through the NSF's Small Business Innovation Research program has exceeded \$175 million. Three of Dr. Joshi's major projects include KI Shell, ProCAST and Paravant, which are software/development products that are widely used by engineering and manufacturing professionals. In 2005, Wright State University opened the 50,000-square-foot Krishan and Vicky Joshi Research Center.

### Distinguished Alumni Award

Daniel L. Wieczynski ('90 BS)



As a leader in the international gas and oil industry, **Daniel L. Wieczynski** has held a variety of senior executive positions in the United Kingdom, Indonesia and Italy. The majority of his career – 26 years – has focused on leading ExxonMobil. After graduating in 1990, Wieczynski served as an inspection engineer at

the company's Baton Rouge refinery. He has gone on to serve as ExxonMobil's clean products coordinator; business manager of the Adriatic LNG Terminal Project; and senior vice president of ExxonMobil Indonesia. Today, Wieczynski is president of ExxonMobil Indonesia and manages the operations of the world's largest listed oil and gas company in Indonesia.



At just 28 years old, MAE alumna **Sampriti Bhattacharyya** ('12 MS) launched her startup Hydroswarm. Her aim was simple: Design and market AI-enabled underwater drones that can map the ocean. Praised by *The Guardian*, *Smithsonian* and *New Scientist*, Bhattacharyya is just getting started.

## Succeeding in uncharted waters

Named to the Forbes 30 under 30 Class of 2016, **Sampriti Bhattacharyya** ('12 MS, Aerospace Engineering) and her startup, Hydroswarm, are gaining the attention of manufacturing leaders across the nation. Launched in Boston, Hydroswarm is commercializing the football-sized autonomous underwater drones that Bhattacharyya developed during her time as a PhD student at MIT. Her egg-shaped robots are capable of working alone or in tandem to map the ocean floor, inspect underwater nuclear reactors, search for lost planes and complete virtually any underwater surveillance task. Her startup has captured worldwide attention with its innovative and relatively inexpensive robot design.

This summer, Bhattacharyya graduated from MIT with a PhD in mechanical engineering and a minor in business. Today, she runs Hydroswarm full-time and is taking her technology out of the lab and into the ocean.

In addition to Hydroswarm, she co-founded the Lab-X Foundation – alongside two Buckeye engineering graduates – in an effort to help future scholars break down the barriers they face when coming to the United States from smaller engineering schools in developing nations.

### Q: Did you always know that you wanted to be an aerospace engineer?

When I lived in India, we had access to a couple hours of the Discovery Channel; I was fascinated by the show on the Mars mission. I always wanted to be an astrophysicist, but there were very limited options. After [sending] over 500 emails, I landed an internship in Fermilab, America's premier particle physics laboratory. That was my first hands-on experience in cutting-edge engineering. I knew there was no going back.

### Q: So after that internship ignited your passion for engineering, what made you choose to pursue your master's degree at Ohio State?

I knew Ohio State's aerospace and mechanical engineering program was world class and well respected. I realized that would really open up the power of connections for me

and give me a very new direction in life. Ohio State is very research-oriented, has lots of students, and I found it very appealing and wanted to experience that life.

### Q: For your master's research, you worked alongside Professor Rama Yedavalli. What did you work on?

We used a particle accelerator beam to produce energy from nuclear waste. That process also made the waste less radioactive. Looking back, I did a pretty intense master's project. I really enjoyed it. I was working full-time at the lab on the feasibility analysis and beam control.

My original plan for my doctoral research at MIT was to build the model system I had designed at Ohio State, but I soon realized the regulatory issues involved would be beyond the scope of this project. So, instead, I started working with Ford Professor of Engineering Harry Asada on a robot designed to look for cracks in a nuclear reactor's water tanks.

### Q: And is that how Hydroswarm got its start?

I was an aerospace engineer before and even worked at NASA on flight controls while I was a student at Ohio State. It was only after the Malaysian Airlines MH370 flight got lost that I realized how little we knew about the oceans. What excited me, in so many ways, was the fact that the challenges in deep water exploration are so much more than in space. I suspected our little robots might be able to work together to map larger areas.

### Q: How does your nonprofit, the Lab-X Foundation, tie into your STEM and engineering interests?

Lab-X Foundation aims to provide hands-on opportunities and global exposure to students in developing countries. For the future engineers who want to break barriers of your own, believe in yourself, don't be afraid to try new things and do something you truly enjoy.

*Excerpt reprinted with permission from Candi Clevenger, College of Engineering.*



# Ohio State sets drone world speed record

## MAE team’s 70-pound autonomous jet pushes technology forward

On Aug. 30, 2017, a team of Buckeye engineers from The Ohio State University’s Aerospace Research Center (ARC) set a world speed record for an unmanned aerial vehicle (UAV) of any size, pending verification. Their UAV flew autonomously with sustained average speeds of 147 miles per hour over an out-and-back course approximately 28 miles long, which also set a record for the longest UAV flight over an out-and-back course.

The record flight began at the Kelleys Island Airport, with the course extending to the east over Lake Erie. Ohio State’s team of engineers overcame a variety of technical challenges, including fuel limits for the 17-minute flight, radio range for maintaining positive vehicle control, and collision avoidance. The 70-pound autonomous jet aircraft opens up new capabilities for applications such as rapid package delivery or search-and-rescue, where both high speed and long range capabilities are mission critical.

The Ohio State-designed jet UAV is uniquely equipped to handle this mission, with a custom-built flight controller, long-range fuel tanks, redundant radio control links, control via satellite communications link, and ADS-B in/out transponder technology for avoiding collisions with other aircraft. Led by Professor **Jim Gregory** (*top photo, far right*) and Research Scientist **Matt McCrink**, ’13 PhD, Aerospace Engineering (*bottom photo, right*), the university’s team collaborated with Ligado for the satellite communications and with uAvionix for the ADS-B transponder. Gregory was recently named director of the ARC.

“Setting a world speed record is a fantastic way to push technology forward,” Gregory said, following the flight. “Aviation records have a rich legacy going all the way back to the Wright brothers, and we’re building on that tradition. We’re hoping to spearhead a competitive technology push for higher speed, longer range and enhanced safety for UAVs.”

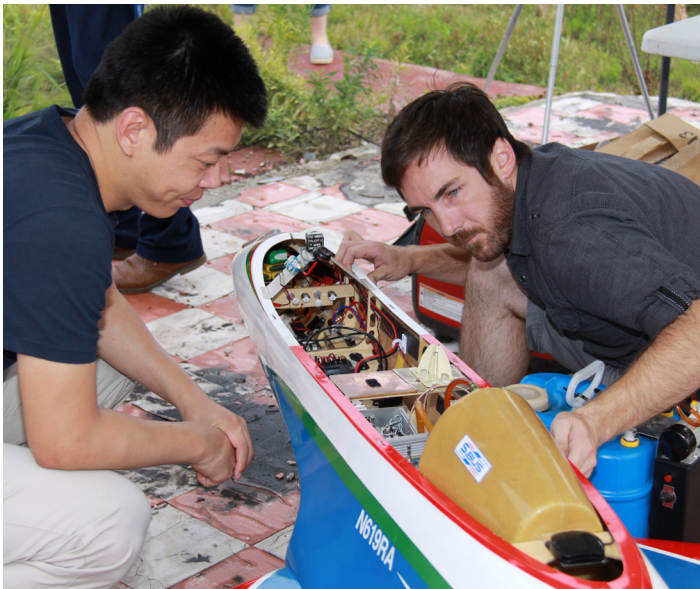
The official record is pending review and certification by the National Aeronautic Association (NAA) and by the Fédération Aéronautique Internationale (FAI). An official observer representing the NAA was present for take-off and landing.

Ohio State is a world-leader in the area of UAV technology and policy. More than 40 faculty are actively involved in research related to UAVs, spanning the domains of all-weather operations (robust flight in wind gusts and icing); flight testing; human factors; control link security; precision agriculture; regulatory policy; navigation system performance; vehicle control; and networked operations. Ohio State also is a core member of the FAA ASSURE Center of Excellence, which enables the safe and efficient integration of UAVs into the National Airspace System.



“We’re hoping to spearhead a competitive technology push for higher speed, longer range and enhanced safety for UAVs.”

**JIM GREGORY**  
Professor, Mechanical and Aerospace Engineering  
Director, Aerospace Research Center



New MAE faculty (left to right) Scott Noll, Vicky Doan-Nguyen, Richard Vasques, Bilin Aksun-Guvenc, Ran Dai, Clarissa Belloni, Alok Sutradhar and Pelagia-Iren Gouma.

## New faculty bring multidisciplinary expertise

Research Professor **Bilin Aksun-Guvenc** serves as an expert on autonomous vehicles; socially acceptable collision avoidance; and automated driving in smart cities.

Assistant Professor **Clarissa Belloni**’s research focuses on the analysis of hydrokinetic and low-head hydro power, building on her experience in wind farm aerodynamics.

Assistant Professor **Ran Dai** joins the department as director of the Autonomation and Optimization Laboratory. Her research will focus on the motion planning and decision making of autonomous systems.

Assistant Professor **Vicky Doan-Nguyen**’s research uses nanomaterials to produce global solutions for electrical energy storage challenges.

Professor and Orton Chair of Ceramics Engineering **Pelagia-Iren Gouma**’s research focuses on developing novel nanomaterials for biotechnology, manufacturing, electrical and chemical applications.

Research Assistant Professor **Scott Noll** aims to solve virtual product development challenges through advanced modeling and experimental approaches.

Assistant Professor **Alok Sutradhar** studies bio-inspired design; biomedical modeling; additive manufacturing; computer-aided design; biomimetics; and topology optimized design of engineering and biological structures.

Assistant Professor **Richard Vasques**’ research focuses on neutron transport in stochastic mixtures and computational methods.

## Dapino and Canova honored for superior teaching



On April 21, **Marcelo Dapino** and **Marcello Canova**’s dedication to teaching, mentorship and guidance earned them both top awards from the Department of Mechanical and Aerospace Engineering. Associate Professor Canova was awarded the 2017 Michael J. Moran Award for Excellence in Teaching, and Professor Dapino was named the recipient of the 2017 Distinguished Graduate Faculty Award.

“Professors Dapino and Canova exemplify the very best that our faculty have to offer, especially in the development of our graduate and undergraduate students as professionals,” said MAE Chair and Professor **Vish Subramaniam**. “They are outstanding educators, researchers and mentors, and their dedication and passion to engage, inspire and develop the next generation of engineering professionals is valued and being recognized by these awards.”



## Selamet receives Lifetime Achievement Award



For more than 30 years, Professor **Ahmet Selamet** has served as a leader in the mechanical engineering field. To recognize his significant contributions, Selamet was named the 2017 recipient of the Ralph K. Hillquist NVH Lifetime Achievement Award, which was presented by the Society of Automotive Engineers (SAE) International. This honor, which is given to only one individual every other year, recognizes those who have made outstanding contributions to ground vehicle noise, vibration and harshness research for 15 years or more.

The Ralph K. Hillquist NVH Lifetime Achievement Award also recognizes Selamet's service to the field and his role in the development of others in the profession. For more than 20 years, he has organized the intake and exhaust sessions at the SAE Noise and Vibration Conference. He has also organized sessions at SAE's Fuels and Lubricants, and Powertrain and Fluid Systems conferences.

## Cho receives prestigious DARPA Young Faculty Award



Assistant Professor **Hanna Cho**'s passion for understanding nonlinear dynamics in micro and nanoscale mechanical systems – some so small that they are almost invisible to the naked eye – will contribute to the U.S. Department of Defense's national security research. A \$499,769 Young Faculty Award from the Defense Advanced Research Projects Agency (DARPA) will support Cho's work to utilize intentional nonlinearity to manipulate the mechanical resonance in order to achieve performance otherwise unattainable in linear settings. This competitive DARPA award aims to engage rising stars in junior faculty positions in an effort to transform the research capabilities of the nation's military force. The knowledge obtained through Cho's study will have a real-world impact on soldiers' potential use of microelectromechanical systems (MEMS) on the battlefield. Her latest project ties in directly with Cho's work as director of the university's Micro/Nano Multi-physical Dynamics Laboratory.

## Smidts and Yedavalli elevated to IEEE Fellows



Professor **Carol Smidts** was recognized for her career, research and service accomplishments by being named a Fellow of the Institute of Electrical and Electronics Engineers (IEEE). She is joined by less than 0.1 percent of the association's voting members in this member grade elevation. Smidts, who serves as the director of MAE's nuclear engineering program, was recognized by IEEE for her contributions to the reliability analysis of high-assurance systems.

IEEE's Life Fellow status is reserved for individuals who have truly distinguished themselves through their sustained contributions to the association. Professor **Rama Yedavalli**'s exemplary service to IEEE coupled with his leadership and dedication to advancing technology earned him IEEE Life Fellow status. Yedavalli researches systems-level robust stability analysis and control design for uncertain dynamical systems, distributed control, adaptive control, hybrid systems control and control of time-delay systems.

## Midlam-Mohler promoted to SIMCenter director



Associate Professor **Shawn Midlam-Mohler**, who serves as a fellow of the Center for Automotive Research (CAR), was recently named director of Ohio State's Simulation Innovation and Modeling Center (SIMCenter). Midlam-Mohler has served as associate director of the SIMCenter since its inception in 2013.

As the center moves toward its fourth year, Midlam-Mohler looks to continue "strengthening our research presence in simulation while also launching a number of new initiatives, such as our professional development program and a research consortium."

Launching these new initiatives will allow the SIMCenter to better serve its industry partners, as well as the Ohio State students, staff and faculty associated with the center.

Midlam-Mohler also serves as the lead faculty advisor for Ohio State's EcoCAR 3 team, and he supervises the Model-Based Design of Complex Systems Lab.



## College of Engineering celebrates distinguished MAE faculty

Each year, the **College of Engineering** at The Ohio State University honors faculty for their outstanding research and teaching. Four faculty from the Department of Mechanical and Aerospace Engineering received 2017 Distinguished Faculty Awards on April 27:



**Clara M. and Peter L. Scott Faculty Award for Excellence - Giorgio Rizzoni**

Ford Motor Chair and Professor **Giorgio Rizzoni** (*right*) was recognized for his leadership in education and research in the field of dynamic systems and control with application to energy efficient and clean transportation.



**Innovators Award - Bharat Bhushan**

Howard D. Winbiger Professor **Bharat Bhushan** (*right*), an Ohio Eminent Scholar, was recognized for his original, creative and innovative research and development of bioinspired liquiphilic/phobic surfaces for commercial applications.



**Lumley Research Awards - Sandip Mazumder and Carlos Castro**

Associate Professors **Sandip Mazumder** (*left*) and **Carlos Castro** (*right*) each received a 2017 Lumley Engineering Research Award. They were recognized for exceptional activity and success in pursuing new knowledge of a fundamental or applied nature.



### STAY CONNECTED

Update your profile, register for events, share class notes and more.

**VISIT**  
[go.osu.edu/alumni-portal](https://go.osu.edu/alumni-portal)

### VOLUNTEER

Join Ohio State Volunteer Match - connect with the Buckeye community by paying it forward.

**VISIT**  
[volunteer.osu.edu](https://volunteer.osu.edu)

### REUNION/HOMECOMING WEEKEND

Stay tuned for the 2018 Reunion/Homecoming Weekend dates.

**VISIT**  
[homecoming.osu.edu](https://homecoming.osu.edu)



As a four-time Buckeye (yes, four), Associate Professor **Blaine W. Lilly** can't help but call The Ohio State University home. From student to alumnus to faculty member, his time on campus has spanned almost five decades. For Lilly ('71 BA, '83 BS, '86 MS, '98 PhD), Ohio State and MAE will always hold a special place in his heart.

## Ohio State will always be home

For 23 years, Associate Professor **Blaine W. Lilly** has taught courses in mechanical, manufacturing and product design engineering at Ohio State. In his classroom, students go beyond the textbook to learn engineering techniques firsthand. In 2006, the Office of Academic Affairs honored Lilly for his exceptional instruction by presenting him with the Alumni Award for Distinguished Teaching. As one of his students stated, "his class is a venture into a world of new education."

Teaching, service and research go hand in hand for Lilly. This year, he was named MAE's associate chair for undergraduate programs and chair of the university's Faculty Council. In these new roles, he will serve as a primary advocate for both MAE undergraduate students and faculty across campus. Lilly's research explores innovative product design, with a primary focus on how complex systems theory applies to modeling how products survive and evolve in the marketplace.

### Q: Your first bachelor's degree is in English. What made you pursue a mechanical engineering degree?

After graduating in English in 1971, I moved to Boulder, CO, to pursue an MA. I quickly discovered that being an English professor was not for me. I returned to Columbus in 1976 with the idea of staying a few months and returning to Boulder. Things didn't turn out that way – I ended up working as a tool and die maker apprentice at General Motors. I came back to campus in 1978 to pick up a few courses for my apprenticeship, did well and just kept going. Since GM was generously paying for it, I decided to see how far I could get. I went to school in the mornings and worked second shift at GM for eight years, eventually earning a BS and MS. Ohio State allowed me to completely re-invent myself at the age of 28 and, for that reason, I'm very loyal to this university and this department.

### Q: What is the greatest change in engineering education since you first started teaching?

I would say that the recognition that "hands-on" experiences are important for our undergraduates is the most important change I've seen. I was very fortunate to go through an apprenticeship when I was younger, and I've tried to duplicate that experience in

ME 2900, working with Dr. Sandra Metzler.

### Q: Who has had a lasting impact on your career?

Professor Gary Kinzel was really the first professor who noticed the older student sitting in the back of the classroom, and he has been in my corner ever since. Professor Al Miller, who was chair of Integrated Systems Engineering in the 1990s also gave me the chance to teach for the first time. He hired me as an assistant professor at age 48, which is generally unheard of. Professor Taylan Altan was also a constant supporter for many years, and Professor Cheena Srinivasan has been very supportive of my classes in product design and ME 2900 for two decades.



### Q: We found this photo in our archives! What is that device?

That machine took three years out of my life! That's a four-legged trotting machine that I built for my MS thesis with Professor Ken Waldron, back in the 1980s when Ohio State led the world in legged locomotion research. Ken wanted to prove his theory that a machine could be made to actually run – with all four legs leaving the ground at the same

moment – without a sophisticated control system. So I built this little cam-driven machine to prove it. Building it was the easy part, getting it started from a dead stop was tough. I finally got it to work, captured it running on videotape and graduated.

### Q: Any other pursuits or pastimes?

My wife Agi Risko, who was born in Budapest, is quite the world citizen, so we travel quite a bit. Our plan when I retire is to strap on backpacks and start walking. One of our dreams is to walk from Budapest to Amsterdam, upstream along the Danube, and then downstream along the Rhine.



## Placing students first

*Putting scholars on a clear (and affordable) path to success*

Each year, the best and brightest students from across the nation come to The Ohio State University to study with our faculty experts in the Department of Mechanical and Aerospace Engineering. Those students, in turn, conduct groundbreaking research, lead prominent student organizations and develop creative solutions to better our society.

It is our aim to provide MAE students with a clear and affordable path to the American Dream. As President **Michael V. Drake** stated, "affordable excellence is fundamental to who we are as a land-grant university." We invite you to join us in placing students first by investing in one of the department's priority funds listed below:

- **MAE Priority Fund** provides funding for emerging key areas within the Department of Mechanical and Aerospace Engineering (#302655)
- **MAE Engineering Scholarship Fund** supports scholarship awards for outstanding MAE students (#310208)
- **Nuclear Engineering Priority Fund** supports student scholarships, key program activities, student participation in conferences and the costs associated with hosting seminar speakers (#306406)
- **MAE Curriculum Fund** will be used for the MAE chair's curriculum reform project (#313090)
- **Aerospace Student Projects Fund** empowers our aerospace student teams, including the Buckeye Space Launch Initiative and the Students for the Exploration and Development of Space, to successfully complete academic projects (#314553)

**“Our priority fund affords us the opportunity to truly enrich the educational experience and implement new initiatives proposed by our faculty and students. I cannot stress enough how grateful we are for donor support in this critical area.”**

**VISH SUBRAMANIAM**  
MAE Professor and Department Chair

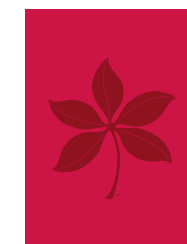
## In Memoriam



Dr. **Lit Sien Han** ('48 MS, '54 PhD, Mechanical Engineering) passed away on April 13, 2017. Born and raised in Shanghai, China, Dr. Han moved to the U.S. in 1947 to pursue his master's and doctoral degrees at Ohio State.

For Dr. Han, teaching was his life. After earning his PhD in 1954, he enjoyed a long career at the university serving as a lecturer, assistant professor, associate professor and full professor before retiring in 1987. He was named the recipient of the College of Engineering's Charles McQuigg Award for Excellence in Teaching in 1978. In addition to his teaching and research commitments, Dr. Han served as a consultant for the U.S. Air Force, the Office of Naval Research, Bell Laboratories, Battelle Memorial Institute and NASA.

In 1987, Dr. Han moved to Los Altos, California, where began a second career working at the Lockheed Missiles and Space Company. After his second retirement, Dr. Han stayed active as a substitute teacher in the Palo Alto School District.



**Robert O. Webster** ('47 BS, Mechanical Engineering) passed away on July 10, 2016. After graduating from Ohio State with his bachelor's degree, Webster worked as an engineer for the Los Alamos National Lab, Boeing and the Atlantic Research Corporation.

He earned his JD from George Washington University Law School in 1957 and worked as an investment executive before becoming an engineering consultant. In this role, Webster worked with SAI Engineers, TERA Corporation, Morrison-Knudsen Corporation and the Office of Minority and Small Business Enterprise. He retired from consulting in 1986.

Despite him not calling Columbus home for many years, Webster never cut his close ties to the university. His generous contributions to the department supported the creation of the Robert O. Webster Machine Shop in Scott Lab. Since opening in 2007, his namesake machine lab has provided MAE students with the hands-on, experiential knowledge needed to succeed after graduation.





**THE OHIO STATE UNIVERSITY**

COLLEGE OF ENGINEERING

NON-PROFIT ORG.  
U.S. POSTAGE

**PAID**

COLUMBUS, OHIO  
PERMIT NO. 711

## Department of Mechanical and Aerospace Engineering

Peter L. and Clara M. Scott Laboratory  
201 W. 19th Avenue  
Columbus, Ohio 43210  
[mae.osu.edu](http://mae.osu.edu)

### 2017 Exchange Alumni News

*Exchange Alumni News* is a free publication from The Ohio State University.

#### **Vish Subramaniam**

Professor and Department Chair  
[subramaniam.1@osu.edu](mailto:subramaniam.1@osu.edu)

#### **Kam A. King**

Editor and Graphic Designer  
[king.1166@osu.edu](mailto:king.1166@osu.edu)

Letters to the editor are welcome. Permission to quote from or reproduce articles in this publication is granted with the appropriate acknowledgment. Please send a copy of the publication in which information from *Exchange Alumni News* is used to the editor at the address above.

Mention of trade names or commercial products in this publication does not constitute endorsement or recommendation for use.

Join the conversation and celebrate our MAE #BuckeyeEngineers on social media.

 [facebook.com/OhioStateMAE](https://facebook.com/OhioStateMAE)

 [twitter.com/OhioStateMAE](https://twitter.com/OhioStateMAE)

 [youtube.com/OhioStateMAE](https://youtube.com/OhioStateMAE)

 [go.osu.edu/MAELinkedIn](https://go.osu.edu/MAELinkedIn)

 [go.osu.edu/MAEFlickr](https://go.osu.edu/MAEFlickr)

© 2017. All rights reserved.

