

Longhorn

LIFTOFF

TO THE
MOON

PAGE 10

HARNESSING
THE POWER OF
PLASMA

PAGE 22

ELEVATING
SENIOR DESIGN

PAGE 16



The University of Texas at Austin
Aerospace Engineering
and Engineering Mechanics
Cockrell School of Engineering



LONGHORN LIFTOFF

Longhorn Liftoff is published for alumni and friends of the Department of Aerospace Engineering and Engineering Mechanics in the Cockrell School of Engineering at The University of Texas at Austin.

EDITORIAL

KENDRA HARRIS
Communications Coordinator

WRITERS

Kendra Harris, Nat Levy

DESIGN & PHOTO

Kendra Lewellyn, Jack Myer

SHARE NEWS & UPDATE YOUR CONTACT INFO

ae.utexas.edu/alumni/stay-engaged

SUPPORT TEXAS A&E/EM

ae.utexas.edu/giving

FROM THE CHAIR

As I reflect on the past year’s activities in the Department of Aerospace Engineering and Engineering Mechanics, I am inspired by the extraordinary work that our community has come together to accomplish. Our faculty, staff, alumni and industry partners have been working closely together to create new department programs and initiatives, provide our students with real-world engineering experiences and networking opportunities, conduct impactful research, perform outreach and more.

In this issue, I’m pleased to share just some of the incredible stories representing these activities. You’ll meet our incoming faculty, learn how Texas Engineers are making their mark on the Moon, get to know our extraordinary staff team, meet our newly elected distinguished alumni, and hear about our student successes. I encourage you to reflect on your time here as you read these stories. What did you enjoy the most as a student? How would you like to engage with us? There will be plenty of future opportunities for alumni to get involved, including more happy hours and on-campus events, so please watch your email and follow us on social media. I also encourage you to stay up to date on our latest news and events by updating your contact information (see page 24).

It has been my honor to be chair of this great department for the last four years, and I look forward to serving in this role over the next four years as well. The sky is not the limit for our department and community.

Hook ‘em!

CLINT DAWSON

**CHAIR, DEPARTMENT OF AEROSPACE ENGINEERING AND ENGINEERING MECHANICS
COCKRELL FAMILY REGENTS CHAIR IN ENGINEERING #2**



Clint Dawson was named a 2024 recipient of the The University of Texas at Austin President’s Research Impact Award. Learn more about his impactful work to develop a simulation code that is used worldwide in coastal ocean modeling and hurricane storm surge predictions.

VIEW VIDEO:
bit.ly/dawson-res-impact

CLEMENS ELECTED TO NATIONAL ACADEMY OF ENGINEERING



The National Academy of Engineering elected Noel T. Clemens, a professor in the Department of Aerospace Engineering and Engineering Mechanics at The University of Texas at Austin, to the academy for 2024. Christine Schmidt, who received a bachelor's degree in chemical engineering from UT and served on the University's faculty from 1996 to 2012, was also elected.

Election to the academy is among the highest professional distinctions bestowed upon an engineer. Membership honors those who have made outstanding contributions to engineering research and practice, including pioneering new and developing fields of technology and making major advancements in the engineering field and profession. In all, 114 new members and 21 foreign members joined the NAE in 2024.

During the past decade, more than 15 UT professors have been elected to the academy, and the University has nearly 50 current and retired members. Six of the UT NAE members are from the ASE/EM department – four full-time faculty members and two retired members.

Clemens was recognized by the academy for laser-based measurements to understand and control high-speed reactive and nonreactive flows. His research focuses on hypersonics, experimental gas dynamics, experimental methods and combustion. He specializes in measurement technology using laser imaging diagnostics to study mixing, combustion, ablation, shock/boundary layer interactions and other high-speed unsteady flows.

Clemens is the director of the ULI FAST for Hypersonics Aerodynamics Measurements that focuses on developing a new measurement technology for hypersonic flight. This novel technique will redefine sensing and analysis of hypersonic vehicles and could eventually be applied to lower-speed aircraft as well.

A fellow of both the American Institute of Aeronautics and Astronautics and the American Physical Society, Clemens is also a former National Science Foundation Presidential Faculty fellow and former editor-in-chief of the journal *Experiments in Fluids*.

Clemens holds the Clare Cockrell Williams Centennial Chair in Engineering in the Cockrell School of Engineering. He joined the ASE/EM faculty in 1993 and served as the department chair from 2012 to 2020. ■

TABLE OF CONTENTS

ON THE COVER

PAGE 10
TO THE MOON

DEPARTMENT UPDATES

PAGE 17
A CLOSER LOOK

FACULTY & RESEARCH

PAGE 3
CLEMENS ELECTED TO NAE
Noel Clemens elected to National Academy of Engineering

PAGE 6
ROBOTS IN SPACE
ASE/EM joins U.S. Space Force operation to improve in-space tech

PAGE 8
NEW FACULTY MEMBERS
Meet Think Doan and Hannah Lu

PAGE 22
THE POWER OF PLASMA
Tom Underwood developing self-propelling satellites and re-entry shields

STAFF

PAGE 21
MEET OUR STAFF

STUDENTS

PAGE 4
STUDENT RECOGNITION

PAGE 14
5 QUESTIONS WITH MATTHEW NATTIER
Meet the 2024 Cockrell Outstanding Scholar-Leader

PAGE 16
ELEVATING SENIOR DESIGN
Learn about the new sponsorship program

ALUMNI

PAGE 25
LEAVITT'S GAMEPLAN FOR SUCCESS
Jeannie Leavitt gives University commencement keynote

PAGE 24
BLAST FROM THE PAST

PAGE 26
ACADEMY OF DISTINGUISHED ALUMNI INDUCTEES

TEXAS ECLIPSE BALLOONING PROJECT



On Monday, April 8, 2024, nearly 70,000 students, faculty and staff members, and visitors celebrated a Total Eclipse of the Horns at The University of Texas at Austin – a rare and exciting opportunity to witness a total solar eclipse. But one group of students celebrated off campus in the small Texas town of Meridian in a different way – by launching a weather balloon to the Earth’s stratosphere during totality.

The Texas Eclipse Ballooning Project (TEBP), a senior capstone project designed by six aerospace engineering seniors with the guidance of faculty member Adam Nokes, designed and built a custom payload that they attached to a high-altitude balloon, just in time to capture unique data during the totality of the Great North American Eclipse. The team’s goals included observing changes in atmospheric conditions such as temperature, pressure, wind-field patterns, and gravity wave observation, in addition to observing the altitude to which streaming video is reliable.

Not only was launch successful (and memorable), but the team was also able to recover the payload safely, which traveled nearly 110 miles from where it launched. Data collected from the launch was sent to the Nationwide Eclipse Ballooning Project, with more updates to come. ■

LEARN MORE ABOUT TEBP
sites.utexas.edu/tebp

STUDENT AWARDS & RECOGNITION

*Students Win Prestigious
Fellowships and Awards*

UNDERGRADUATE STUDENTS



Urvi Alamela (ASE) received a Matthew Isakowitz Fellowship, which awards exceptional college students passionate about the commercial spaceflight industry with paid summer internships at cutting-edge commercial space companies, as well as mentorship and networking opportunities. Alamela interned at Ursa Major.



Samantha Dolski (ASE) and **Wendy Rossi** (ASE) received Brooke Owens Fellowships, which recognize exceptional undergraduate women and other gender minorities studying aerospace engineering. Fellows are paired with space and aviation companies where they complete an internship. Dolski interned at Relativity Space and Rossi interned at Hermeus.

Ira Narang (COE), an undergraduate researcher in Clint Dawson’s Computational Hydraulics Group at the Oden Institute, won the Best



Undergraduate Oral Presentation at the UTRGV College of Sciences 2024 Annual Research Conference for her work modeling dune erosion and storm surge.



Maritza Miranda (ASE) received the Aviation Week Network's 2023 Wings Club Foundation Scholarship, awarded to 17 select students worldwide pursuing careers in aviation.

"ULTIMATELY, MY DECISION TO MAJOR IN AEROSPACE ENGINEERING AT UT AUSTIN WAS DRIVEN BY A COMBINATION OF ACADEMIC EXCELLENCE, A COMMITMENT TO INNOVATION, AND A GENUINE PASSION FOR CONTRIBUTING TO ADVANCEMENTS IN AEROSPACE TECHNOLOGY." – Miranda



Jacob Rollins (ASE) won the Texas Exes Edward S. Guleke Student Excellence Award, which recognizes one UT junior student who has distinguished academic credentials, made significant contributions to the University through campus-wide activities and evidences the personal attributes of character and integrity that have earned the respect and admiration of their peers. Rollins served as team president of UT's men's lacrosse team and on the Longhorn Rocketry Association's propulsion team.

GRADUATE STUDENTS



Sai Subhankar (ASE Ph.D. student), advised by Tom Underwood, was presented with the Green Engineering Best Student Paper Award at the 2024 AIAA SciTech Forum and Exposition for his innovative approach that could be used in the production, storage and transportation of hydrogen fuel.



Akhilesh Mulgund and Wenkai Qin (ASE Ph.D. students) were awarded U.S. National Defense Science and Engineering Graduate fellowships. Mulgund, advised by Maruthi Akella, is investigating space domain awareness in cislunar space, and Qin, advised by Todd Humphreys, aims to develop satellite-based navigation solutions to protect the current state of international navigation.



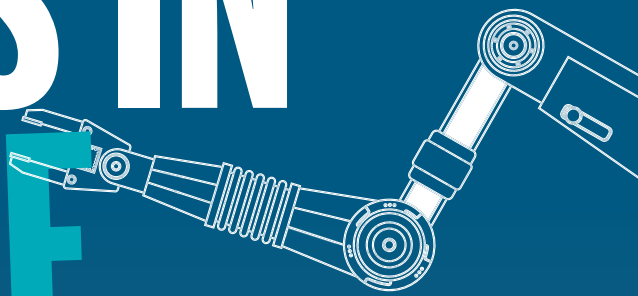
Charan Nallapareddy received the Chevron Energy Graduate Fellowship Endowment which supports the work of outstanding graduate students conducting energy systems research. Nallapareddy, advised by Tom Underwood, works on producing green and sustainable fuels using nonthermal plasmas at near room temperature and atmospheric pressure, and develops ultrafast laser diagnostic tools to understand the properties of these plasmas. ■

The Cygnus cargo spacecraft is pictured moments away from being captured by the Canadarm2 robotic arm.

Image Credit: NASA



ROBOTS IN SPACE



Aerospace and mechanical engineers join U.S. Space Force operation to improve in-space tech.

Texas Engineers are participating in a groundbreaking U.S. Space Force operation that will propel innovative technologies for in-space operations.

Aerospace and mechanical engineers from The University of Texas at Austin will contribute major advances for space robotics, mobility, motion-planning, and high-performance actuator development for rendezvous, proximity maneuvers, in-space repair, refueling, and assembly operations. The project is part of the Space Strategic Technical Institute for In-Space Operations (SSTI-ISO), a collaborative effort involving several leading academic units and industry partners.

The project has been awarded \$37.6 million over five years, with UT's portion totaling approximately \$5.8 million. Maruthi Akella, professor in the Department of Aerospace Engineering and Engineering Mechanics, will lead UT's portion of the project, with Texas A&M University at the helm.

"Robotics and autonomy are central to the goals of this in-space operations effort," Akella said.

"OUR RESEARCH IS ADVANCING SPACE ROBOTICS WITH UNPRECEDENTED LEVELS OF AGILITY, DEXTERITY, PERCEPTION, ONBOARD PLANNING AND DECISION-MAKING, THEREBY SIGNIFICANTLY EXPANDING THE RANGE AND NUMBER OF MISSIONS THAT CAN BE OPERATED WITH SAFETY AND RELIABILITY GUARANTEES." —Akella

Robots in space isn't a new concept. Robotic arms on the International Space Station and deep-space missions that send rovers to other worlds to map out areas and collect samples are just two examples.

However, the majority of these mission operations involve significant pre-planning, tele-operation, and/or human supervision that limits the cost and scale of adoption for these technologies.

Other Texas Engineering faculty involved in the project include aerospace engineering professor Luis Sentis and Mitch Pryor, a research professor in the Walker Department of Mechanical Engineering. SSTI-ISO will infuse novel technologies into industrial efforts and government laboratories and provide access to workforce, talent and subject matter experts for defense space missions.

Led by Robert Ambrose, a professor in the mechanical engineering department at Texas A&M, the team also includes researchers and students from the University of Southern California, Purdue University, Carnegie Mellon University, the University of New Mexico, the University of Texas at El Paso, Prairie View A&M University and the Southwest Research Institute, amassing over 400 years of combined experience in the space sector.

Leading space industrial partners include Northrop Grumman, Lockheed Martin, Intuitive Machines, Blue Origin, Lunar Resources, Novium, Aegis and Axiom Space. ■

Thin Doan joined us as an assistant professor in August 2024. He comes from Virginia Tech, where he served as an assistant professor in the Department of Electrical and Computer Engineering (ECE). He earned his Ph.D. in ECE at the University of Illinois at Urbana-Champaign in 2018 and is a recipient of the NSF CAREER award and the AFOSR Young Investigator Program award.

TELL US ABOUT YOUR RESEARCH AND WHY IT'S MEANINGFUL.

My research focuses on advancing existing control and learning algorithms that enable a team of robots, such as UAVs or ground vehicles, to help humans perform complex tasks. We begin by working closely with practitioners to gain a better idea of the context of the real, practical problem, which helps us develop mathematical solutions that benefit society.

For example, in one of our current projects we use autonomous drones to sample microbes in the smoke after a fire to understand their behavior, such as how they are transported by smoke and wind. In another project, we use drones to help firefighters fight wildfires. We can collect information about the wildfire and its boundaries, such as wind and weather conditions, or even develop an escape route for firefighters trapped in a fire. Once we design a solution to the problem, we apply it to either a simulation or a real testbed to understand its performance and limitations. Then, we can go back and redesign our solution if needed.

WHY DID YOU CHOOSE TO JOIN TEXAS ASE/EM?

It is a great opportunity to advance my career and further my interests in autonomy, robotics and controls. I was impressed with the faculty in the department, and there is great potential to work with students from top universities around the world. I was also very impressed with the robotics facilities at UT.



WHAT DO YOU ENJOY MOST ABOUT YOUR RESEARCH?

Being a professor in academia gives me a lot of freedom to choose the topics I want to work on, and the topics our group selects have great potential to solve practical problems. I also enjoy working with brilliant, young researchers as well as performing outreach with high school students. It's an excellent opportunity not only for me to share my knowledge, but to also learn from these students.

HOW DO YOU LIKE TO SPEND YOUR FREE TIME?

I enjoy a lot of sports activities, especially soccer, which I play at least three or four times a week. I also enjoy trail running, kayaking and tennis. ■

**MEET
THIN DOAN**

MEET HANNAH LU



Hannah Lu joined us as an assistant professor in August 2024, coming from the Massachusetts Institute of Technology. She earned her Ph.D. in energy science and engineering at Stanford University's Doerr School of Sustainability. Lu is also a core member of the Oden Institute for Computational Engineering and Sciences.

TELL US ABOUT YOUR RESEARCH AND WHY IT'S MEANINGFUL.

My research interests lie in scientific computing, model reduction, uncertainty quantification and machine learning in applications of environmental fluids. I am working on leveraging advances in data-driven tools to improve computation efficiency, quantify the uncertainty of models and provide scientific information to inform decision making on climate change.

One of my current major research projects is developing machine learning tools to improve geologic CO₂ sequestration. This process, which captures and stores carbon dioxide in underground geologic formations, is an important strategy for reducing greenhouse gas emissions in the atmosphere and mitigating climate change. I am also interested in collaborating with faculty in the department to develop a subsurface digital twin model, which combines every aspect of my previous and current research.

WHY DID YOU CHOOSE TO JOIN TEXAS A&E/EM?

After visiting UT and giving a seminar last fall, I realized it was a dream place for me to pursue interdisciplinary studies. There are many computational engineering pioneers at UT who I've looked up to since graduate school. As a woman especially, I have been highly inspired and encouraged by role models like Mary Wheeler and Karen Willcox. Texas is a unique location with a lot of support for energy and reservoir studies as well.

WHAT DO YOU ENJOY MOST ABOUT YOUR RESEARCH?

I enjoy working with people from different disciplines. I work with experimental and national labs, mathematicians, computer scientists, industry and policymakers. It can be challenging at times, but it is also fun working together on real-world problems.

HOW DO YOU LIKE TO SPEND YOUR FREE TIME?

Most recently, I enjoy swimming and learning how to play the harp. ■

- WELCOME NEW A&E/EM FACULTY -



A NEW SPAC



*Just after 5:30 p.m.
on Thursday, Feb. 22, 2024,
a new era of space travel began.*

*That was when Intuitive Machines, a
Houston-based space company, confirmed
that its lunar lander – named Odysseus,
or Odie for short – touched down on the
Moon’s surface, marking the first U.S. Moon
landing in more than 50 years.*

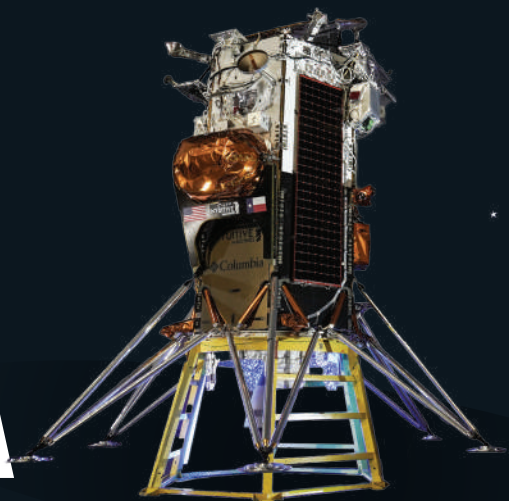
“Houston, Odysseus has found its new home,” said Tim Crain, a UT aerospace engineering distinguished alumnus who is a co-founder and the chief growth officer for Intuitive Machines.

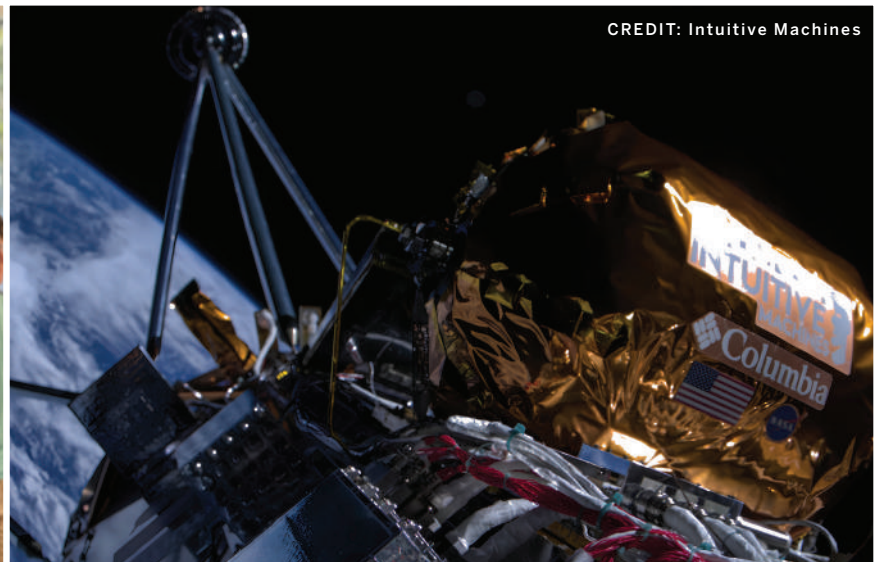
Texas Engineers’ fingerprints were all over this historic event. Maruthi Akella, a professor in the Cockrell School of Engineering’s Department of Aerospace Engineering and Engineering Mechanics, and his students supported the development of an onboard guidance algorithm that helped Intuitive Machines precisely target and point its lander toward its destination near the Moon’s south pole.

“This is a watershed moment for U.S. space efforts and NASA’s work to unleash the full force of the private industry into the U.S. space domain,” Akella said. “This mission marks the U.S.’ first trip to the Moon since the Apollo era, and it is just the beginning. Our research group at UT Austin has been a proud partner in Intuitive Machines’ lunar vehicle guidance and control efforts, and we are excited to see what they do next.”

Confirmation of the landing – and ensuing excitement from all involved – came over a NASA livestream tracking the uncrewed lander.

SPACE TO THE MOON ERA





CREDIT: Intuitive Machines

CREDIT: Intuitive Machines

CREDIT: Intuitive Machines

The landing was scheduled for 5:24 p.m., but communication with the lander was interrupted for a few stress-filled minutes. Eventually, Crain's confirmation broke through the thick air of uncertainty, and the mood immediately changed to exuberance.

"What we can confirm without a doubt, is our equipment is on the surface of the Moon," Crain said over the NASA livestream. "And we are transmitting. So, congratulations."

Akella watched the landing at the Aerospace Engineering building, surrounded by approximately 50 students and faculty colleagues. The room was full of chatter and excitement, but it fell silent as the expected landing time approached.

As the clock continued to roll, past the expected landing time, students and faculty members intently listened to the broadcast while calmly talking through communications scenarios and challenges. A temporary communications issue, a permanent communications blackout, or that the spacecraft landed too hard and was completely lost were all on the table in these discussions.

Andrew Miller, a graduate research assistant on Akella's team who worked on the guidance algorithm and watched the landing at the Aerospace building, wasn't worried. Temporary communications outages aren't uncommon and can happen for various reasons. It was just another issue for the mission team to figure out.

After those few tense minutes, when Odysseus' signal

began to recover, the small crowd breathed a collective sigh of relief followed by smiles and applause.

"I THEN FELT THE MAGNITUDE OF THE ACHIEVEMENT WE JUST WITNESSED; THAT THIS WAS THE FIRST TIME THAT THE U.S. HAS LANDED A SPACECRAFT ON THE MOON IN 50 YEARS," MILLER SAID. "WHAT AN ACCOMPLISHMENT FOR UT, FOR INTUITIVE MACHINES, FOR THE UNITED STATES AND THE ENTIRE AEROSPACE COMMUNITY. IT MADE ME FEEL PROUD TO BE AN AEROSPACE ENGINEER AND PROUD TO BE A PART OF THE COMMUNITY THAT LITERALLY 'SENDS S* TO THE MOON,' A SEEMINGLY IMPOSSIBLE TASK."**

—Andrew Miller, a graduate research assistant on Akella's team

One of the big challenges Akella and his research team faced was the lander's unique vehicle geometry and propulsion constraints. As its main engine burnt fuel, the vehicle's mass distribution changed, introducing uncertainty into how much force and torque the craft needed to generate to stay on track.

Because of that, the guidance system for the main engine needed to include an onboard learning logic for accurately characterizing the instantaneous mass distribution of the vehicle.

To "smoothly land on its feet," the lander had to make



CREDIT: Intuitive Machines



TEXAS ENGINEERS AT INTUITIVE MACHINES

Top right photo, from left to right: UT ASE alumnus CJ Busic, who now works at IM, alongside Tim Crain and Maruthi Akella

a sharp and complex turn. Accuracy in center-of-gravity estimates and attitude pointing was key to a successful deorbit, descent and landing sequence. Following the lunar landing, telemetry data indicated that the main engine thrust vector control exhibited excellent stability properties through lunar orbit insertion and powered descent to touchdown.

This mission is part of NASA's Commercial Lunar Payload Services (CLPS) initiative and the Artemis Campaign. The initiative harnesses the private space industry by using their craft to deliver science and technology to the lunar surface.

Though not everything went according to plan, the lander was able to continue communicating with Earth and send back images of the surrounding environment. It landed closer to the south pole of the Moon than any other previous mission – a very challenging terrain to navigate to that is appealing to scientists because of the presence of water and ice in that area.

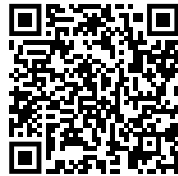
The science and technology payloads sent to the Moon's surface as part of CLPS will help lay the foundation for human missions and a sustainable human presence on the lunar surface.

"To have contributed to such a historic mission is hugely satisfying, but also fills us with humility given the complexity of the task and how many things need to correctly come together to pull off a lunar landing," Akella said.



LONGHORNS HELM CUTTING-EDGE LUNAR TECHNOLOGIES

Read the Texas Exes Alcalde story to learn how Texas Engineers are making their mark on the Moon and how they plan to make spaceflight operations safer and more accessible.



Next Up: Moon Hopping

In late 2024, Intuitive Machines aims to send its propulsive drone, Micro Nova – also known as Hopper – to explore the Moon as part of the IM-2 mission. Akella and Miller will be working on this mission as well, supporting the control law development work. Since flying a drone on the Moon is nearly impossible due to the lack of atmosphere, the three-foot-tall robot will explore the lunar landscape in short bursts of hops and flights.

"Our controls work is being designed to ensure that Hopper can safely and accurately execute the optimal hop sequences on the lunar terrain subject to propulsion constraints, pointing requirements, and navigational uncertainty," Akella said.

Micro Nova is designed to hop into craters and permanently shaded regions of the Moon, take pictures and acquire science data, then send the data back to Nova-C. This demonstration aims to provide a first look into undiscovered areas that could support the critical science needed to sustain a human presence on the Moon.

"We've proved a commercial company can land and transmit data from the surface of the Moon," Crain said. "Now, we are setting out to discover, explore and establish infrastructure services that will serve as a blueprint for commercializing celestial bodies. As a Longhorn, capturing the technical prowess of Texas Engineers gives me a sense of pride, and as a company, it brings value that makes a difference in lunar exploration." ■



5 QUESTIONS WITH OUTSTANDING SCHOLAR-LEADER

MATTHEW NATTIER

This spring, Matthew Nattier, who completed his aerospace engineering degree with a certificate in computational science and minor in computational geosciences, was named the Cockrell School's Outstanding Scholar-Leader. The award is given to one student annually whose hard work and dedication, both in and out of the classroom, exemplify leadership and inspire our community.

WHY DID YOU CHOOSE TO STUDY AEROSPACE ENGINEERING AT UT?

First, in high school, I participated in a NASA program in Houston where I learned a lot about what aerospace engineers do and got to tour the Johnson Space Center. Second, I lived through Hurricane Harvey and saw how aerospace engineering can really help people. Several people in my neighborhood with drones could fly things like medicine to those trapped in their houses, and satellite data helped coordinate the relief effort. I think a combination of these experiences really showed me that aerospace engineering can be both fun and make a big impact in helping people.

As for UT, the decision was pretty easy. I knew it had one of the best aerospace programs in the country. When I toured campus for the first time, I really liked how friendly everyone was and how many student organizations there were. I felt like I could explore a wide range of interests and meet great people while doing it, which has been my experience since coming here.



2 WHICH OF YOUR MANY ACCOMPLISHMENTS HERE HAS MEANT THE MOST TO YOU?

If I have to pick one, I would say my senior design project. During the 2023 and 2024 solar eclipses, I worked with a team of students to launch weather balloons to contribute data to a nationwide study. Getting to see two eclipses in one year is really a once-in-a-lifetime experience, and I got to experience them with a really awesome group of people.

Senior design meant a lot to me because I really got to see how things we learn in class work in real life. There were a lot of problems we had to solve using our own judgement as engineers, and that helped me gain confidence to do real engineering work.

3 HOW DID YOU BALANCE YOUR BUSY SCHEDULE OF ACADEMICS, RESEARCH AND EXTRACURRICULARS?

At the start of each semester, I would add all my exams and important dates to my calendar, which helped me keep up with my classes and clubs. I usually tried to break up tasks into smaller pieces every day, which also helped prevent me from getting caught up with too many things to do at the same time.

Whenever possible, I tried to combine things that I was working on. I think overall keeping a calendar/planner in a way that works for me was one of the most important skills I learned to balance everything.

4 WHAT'S NEXT ON THE HORIZON AND HOW DID UT AEROSPACE PREPARE YOU FOR IT?

I started a full-time position at York Space Systems in Austin this past June where I also worked as a summer intern! Before coming to UT, I had no experience with programming, so my classes really taught me most of what I know now. I think the time I spent in aerospace research labs like Texas Spacecraft Laboratory (TSL) also really helped me. Since York does a lot of work with small satellites, the hands-on experience I had from TSL really

helped me learn the basics of satellite engineering projects.

5 WHAT ADVICE DO YOU HAVE FOR INCOMING STUDENTS?

Get involved! One of my first major experiences at UT was working as an orientation advisor, which helped me learn more about the university. To this day, many of my closest friends are people I worked with as an advisor. Being involved in different clubs and jobs on campus gave me a support system of friends and mentors that have helped me in countless ways. I would recommend trying out a few different clubs until you find one that's right for you.

I would also recommend talking to your professors, especially if you are unsure what you want to do once you graduate. I remember during my junior year I was still a bit unsure about what particular part of aerospace I was interested in, so I reached out to a professor from a class I enjoyed. Talking to her gave me a much better idea of what kinds of projects are out there and helped me start focusing on things that were relevant to what I wanted to do. ■



A LESSON LEARNED

“Senior design meant a lot to me because I really got to see how things we learn in class work in real life. There were a lot of problems we had to solve using our own judgement as engineers, and that helped me gain confidence to do real engineering work.”



ELEVATING SENIOR DESIGN

Senior students in the Department of Aerospace Engineering and Engineering Mechanics are reaching new heights while gaining valuable insight from industry leaders.

The new Senior Capstone Design Sponsorship Program established in Fall 2023, provides undergraduate students with an opportunity to work on real-world projects and gain experience in their field of study. The senior capstone design course series serves as the final step for aerospace (ASE) and computational engineering (COE) undergraduate students as they prepare to leave the Forty Acres and enter the workforce.

In recent years, students in spacecraft mission/design have competed in various NASA-sponsored design challenges, aircraft design students have participated in end-of-year fly-off competitions, and COE students have developed computational solutions for a variety of complex engineering problems. This year, two senior design projects were selected for sponsorship by participating partners, Samsung and Sandia National Laboratories.

“TWO COE TEAMS PARTICIPATED IN DEVELOPING AND ANALYZING DESIGN SOLUTIONS FOR INDUSTRY PARTNERS SAMSUNG AND SANDIA. DESPITE SIGNIFICANT CHALLENGES, THEY WERE ABLE TO SUCCESSFULLY ACHIEVE THE GOALS THEY HAD SET OUT FOR THEMSELVES AT THE BEGINNING OF THE SEMESTER, WHILE LEARNING ON THE GO.”

—Raghav Mahalingam, lecturer of the computational engineering capstone design course



This sponsorship program will continue to elevate the department's senior capstone design projects to the next level by weaving industry wisdom with experiential learning. Senior design faculty members work closely with sponsors to determine the project topic and provide guidance throughout the entire process. Senior design projects typically consist of spacecraft, atmospheric, or computational design engineering projects that require students to research the topic, develop a preliminary design, design a prototype, write a preliminary design report and prepare a final poster presentation. ■

WANT TO HELP?

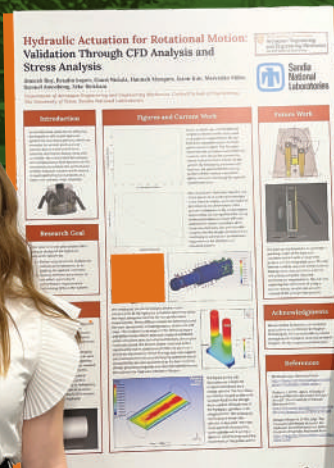
Project sponsorship supports student lab material costs, lab upkeep fees and project technical support. For more information on senior design sponsorship, visit our website.



“WORKING ON MY SENIOR DESIGN PROJECT WAS ONE OF THE MOST CHALLENGING YET REWARDING EXPERIENCES DURING MY PURSUIT OF A COMPUTATIONAL ENGINEERING DEGREE.”

—Mercedes Milke Mosconi, a 2024 B.S. computational engineering team leader who worked with Sandia to develop a low-cost hydraulic actuation system for flight control surfaces

“Although my teammates and I had rather limited experience with complex systems like elevons and actuators prior to commencing this project, the nature of the task helped us learn. The lessons and skills learned through my senior design project are definitely something I will apply in my professional engineering career and future works,” said Mosconi.



A CLOSER LOOK AT TEXAS ASE/EM

DEPARTMENT OF AEROSPACE ENGINEERING
AND ENGINEERING MECHANICS

RANKINGS

#9

Aerospace Engineering
Graduate Program
U.S. News and World Report



#10

Aerospace Engineering
Undergraduate Program
U.S. News and World Report

STUDENTS

UNDERGRADUATE

ENROLLMENT

612

Aerospace Engineering (ASE)	506
Computational Engineering (COE)	106

UNDERREPRESENTED POPULATIONS

Aerospace Engineering	33%
Computational Engineering	25%

WOMEN

Aerospace Engineering	25%
Computational Engineering	34%

DEGREES AWARDED 2023-2024

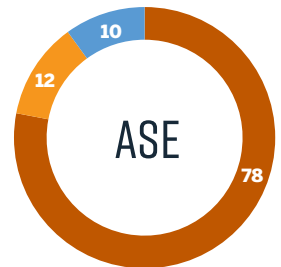
Aerospace Engineering bachelor's	107
Computational Engineering bachelor's	32

AFTER GRADUATION

ASE

\$80,000 average starting salary

78%	employed
12%	graduate school
10%	other



Top Employers: Bell Flight, Blue Origin, Boeing, Emergent Space Technologies, Firefly Aerospace, Lockheed Martin, NASA, RTX, SwRI, SpaceX

COE

\$93,000 average starting salary

69%	employed
24%	graduate school
10%	other



Top Employers: Amazon, Boston Consulting Group, Capital One, Chevron, Dell Technologies, GM, Goldman Sachs, JP Morgan Chase, KBR, NASA, Qvest, Silicon Labs

A CLOSER LOOK AT ASE/EM

STUDENTS CONT.

GRADUATE

ENROLLMENT

Aerospace Engineering	231
Engineering Mechanics	206
Average GPA of admitted students	25
Ph.D. students receive full funding	3.59
Women	93%
	14.3%

DEGREES AWARDED 2023-2024

*ASE, EM & CSEM programs

Master's	37
Doctoral	15

ALUMNI

5,894

alumni around the world



74

members of the
ASE/EM Academy of
Distinguished Alumni

OUR GRADUATES ARE LEADERS IN:

- Research
- Government
- Industry
- Academia
- Military

LEARN HOW OUR ALUMNI ARE CHANGING THE WORLD:

ae.utexas.edu/alumni/profiles

HOME TO



FACULTY

TENURE/TENURE-TRACK FACULTY 39

HONORS & DISTINCTIONS

- 1 Fellow, *MacArthur*
- 1 Recipient, *Presidential Early Career Award for Scientists and Engineers*
- 1 Member, *National Academy of Sciences*
- 4 Members, *National Academy of Engineering*
- 11 Recipients, *National Science Foundation CAREER Award*
- 6 Fellows, *American Society of Mechanical Engineers*
- 6 Fellows, *American Institute of Aeronautics and Astronautics*
- 5 Recipients, *AFOSR Young Investigator Program Award*
- 3 Fellows, *Society for Industrial and Applied Mathematics*
- 3 Fellows, *American Academy of Mechanics*
- 4 Fellows, *American Astronautical Society*
- 2 Recipients, *Office of Naval Research Young Investigator Program Award*
- 1 Recipient, *American Heart Association Career Development Award*
- 1 Recipient, *DARPA Young Faculty Award*

FEATURED AWARDS & RECOGNITION

John-Paul Clarke was selected to serve on the advisory board of the American Institute of Aeronautics and Astronautics' newly formed Aerospace Artificial Intelligence Advisory Group.

Todd Humphreys received the Johannes Kepler Award from the Institute of Navigation "for sustained contributions to the art and science of navigation signal processing; and for increasing the public awareness of the vulnerability of GNSS."

Nanshu Lu was inducted into the American Institute for Medical and Biological Engineering's College of Fellows "for pioneering contributions in soft bio-integrated electronics including epidermal electronics or e-tattoos, and for international leadership in translational research."

Ufuk Topcu was named a fellow of the Institute of Electrical and Electronics Engineers "for contributions to the design and verification of autonomous systems."

Karen Willcox received the Theodore von Kármán Prize from the Society of Industrial and Applied Mathematics "for pioneering the development and use of model reduction methods for optimal design, optimal control, uncertainty quantification, decision-making, and digital twins."

VIEW MORE FACULTY AWARDS:

bit.ly/awards-honors

RESEARCH ON THE RISE

RESEARCH AREAS

- Aerothermodynamics and fluid mechanics
- Computational engineering
- Controls, autonomy and robotics
- Orbital mechanics
- Solids, structures and materials



\$25.5M

in research expenditures

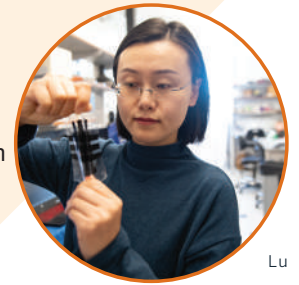
RESEARCH HIGHLIGHTS

David Fridovich-Keil received a **National Science Foundation (NSF) Faculty Early Career Development Program (CAREER)** award to develop flexible modeling frameworks and efficient algorithms for cyber-physical systems (CPS) – autonomous systems that interact with people, the environment and other similar systems. A game theory expert, Fridovich-Keil aims to improve models like these by studying current traffic systems and identifying their weaknesses due to the limited knowledge of how players, in this case, humans, interact with the CPS.



Fridovich-Keil

A first-ever stretchy electronic skin developed by **Nanshu Lu** could equip robots and other devices with the same softness and touch sensitivity as human skin, opening up new possibilities to perform tasks that require a great deal of precision and control of force.



Lu

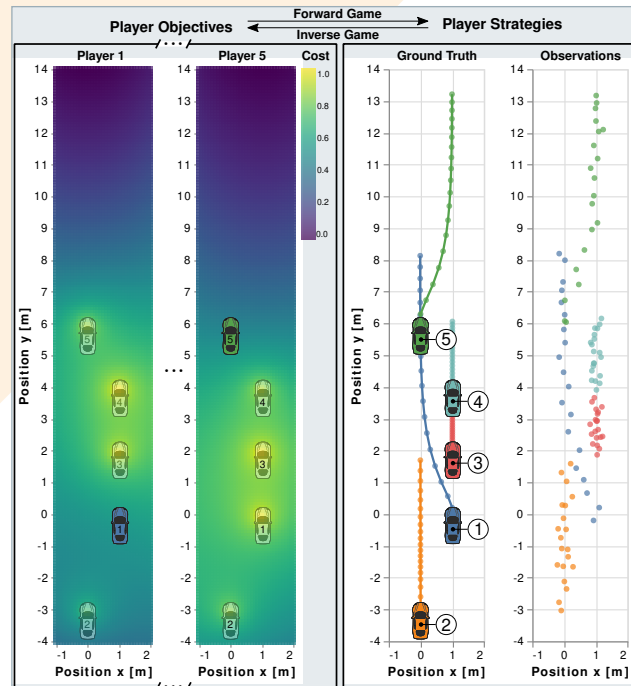
An all-woman group of authors lead by **Lori Magruder** published an anthology of all the **important data unearthed by laser altimetry** over the last two decades in Nature Reviews Earth & Environment.

Fabrizio Bisetti and **Noel Clemens** received a grant from the National Science Foundation to **study hydrogen/ammonia** blends, which could play key roles in decarbonizing the energy sector.

Brandon Jones is leading a new project funded by NASA that paves the way for UT Austin researchers and the Texas Spacecraft Laboratory to **build and launch a CubeSat that will help spacecraft determine their location** in relationship to the Earth and, eventually, the Moon. ■



CubeSat



This graphic represents the performance of Fridovich-Keil’s recent game-theoretic objective estimation scheme in a five-car highway driving scenario.

LEARN MORE ABOUT OUR RESEARCH:

ae.utexas.edu/research

IN MEMORIAM

Professor Emeritus Roy Craig

passed away on July 9, 2024. He served on the ASE/EM faculty for 40 years before retiring in May 2001. During his tenure, Craig specialized in structural dynamics, particularly in the development of computational and experimental methods for flexible substructures. He also had two years of industry experience and published two books, five book chapters and more than 70 technical articles and reports. A memorial service in his honor was held on Aug. 19 at the University Presbyterian Church.



Craig

READ THE FULL OBITUARY:

bit.ly/Roy-Craig

2024-25 FACULTY PROMOTIONS

Congratulations to three ASE/EM faculty members who received promotions this year!

Moriba Jah was promoted to full professor. **Jingyi “Ann” Chen** and **Takashi Tanaka** were promoted to associate professor. ■

 FOLLOW US ON LINKEDIN



LORI MAGRUDER NAMED DIRECTOR OF CENTER FOR SPACE RESEARCH

Associate Professor Lori Magruder was named director of the Center for Space Research (CSR), effective Jan. 1. Magruder, an expert in remote sensing and 3D geospatial data exploitation for Earth science, has a long history with CSR, beginning with her years as a Ph.D. student where she worked under former professor Bob Schutz on ground-based validation studies for NASA’s ICESat laser altimetry mission. In 2020 after spending 14 years at UT Austin’s Applied Research Laboratories, Magruder returned to ASE/EM and CSR as an associate professor. And now, she’s making history as the first woman director of the center. ■

READ THE FULL ANNOUNCEMENT:
bit.ly/csr-director

STAFF ON THE RISE

A CLOSER LOOK AT ASE/EM



Our devoted staff members continue to demonstrate their dedication to establish our department as a world leader in the new space age. In this issue, we introduce you to some of the newest members of our staff team while also highlighting awards for some of our more seasoned members. The sky is not the limit for this remarkable staff team!

OUR AWARD-WINNING STAFF

Renee Babcock, academic advising coordinator:
2024 Texas Exes James W. Vick Award for Academic Advising, President's Outstanding Staff Award, 2021

"IT'S A WONDERFUL FEELING TO KNOW THAT THE STUDENTS I AM SERVING CHOSE TO NOMINATE ME FOR THIS AWARD, AND IT IS TANGIBLE CONFIRMATION THAT I PLAY AN IMPORTANT ROLE IN THEIR EDUCATIONAL JOURNEY."

– Renee Babcock on receiving the Vick Award for Academic Advising

Holly Bhasin, senior academic advisor: 10 Year University Staff Service Award

Scott Messec, senior information technology manager: 30 Year University Staff Service Award, Cockrell School Staff Excellence Award, 2019

Joe Pokluda, technical staff assistant V, Cockrell School Staff Excellence Award, 2023

NEW-TO-THE-TEAM

- **Paige Anderson**, graduate program administrator
- **Rafael Alvarez**, technical staff assistant III
- **Jamie Huffman**, assistant professor of practice; program director, Texas Rocket Engineering Laboratory
- **Chanté Moreland**, business coordinator
- **Guillermo Nieves III**, building/lab manager
- **Maggie Scott**, associate director of development
- **Kelly Smith**, purchaser
- **Libby Spencer**, events coordinator
- **Kenneth Thomas**, grants and contracts specialist
- **Yasmin Deosaran Welch**, senior administrative program coordinator

MEET ALL OF OUR INCREDIBLE STAFF MEMBERS: ae.utexas.edu/people/staff-directory

THE POWER OF PLASMA

Sustained missions in low Earth orbit, protecting fast-moving spacecraft as they reenter the atmosphere, limiting emissions in semiconductor manufacturing and clean hydrogen production – these may seem like completely unrelated subjects, but they’re all areas where aerospace engineering faculty member Thomas Underwood is applying his unique research approach.

Underwood has received grants to study these topics over the last several months, totaling nearly \$3 million. There’s a through line uniting them – the infusion of electrical energy into gases to create plasmas. These plasmas can be applied to various concepts, from propelling spacecraft to reducing emissions.

“THE CORE IDEA IS TO USE ELECTRICAL ENERGY TO CREATE A PLASMA DISCHARGE THAT CAN RETHINK HOW FUELS ARE MADE, STORED AND USED ON-DEMAND. THESE PLASMAS FEATURE ENERGIZED ELECTRONS THAT CAN ACTIVATE MOLECULES, DRIVE CHEMICAL REACTIONS, SYNERGIZE WITH CATALYTIC MATERIALS, OR ACCELERATE MOLECULES WITHOUT NEEDING BULK SCALE HEATING OR PRESSURIZATION.”

– Underwood, an assistant professor in the Department of Aerospace Engineering and Engineering Mechanics

THE PROJECTS

A recent \$1 million grant from DARPA will support sustained travel in low Earth orbit through a big goal: the reimagination of propulsion systems. Instead of using atomic propellants based on xenon and other limited elements, the researchers will develop and test a prototype propulsion system that can harvest molecules and solar energy out of the atmosphere itself to compensate for drag on spacecraft.



▲ A plasma propulsion device that is operating in conditions that simulate very low Earth orbit. The device operates by adding electrical energy to ionize and accelerate molecules using electromagnetic forces. The goal of this experiment is to develop a propulsion system that can refuel as it orbits the Earth.



◀ IN THE LAB

Tom Underwood and
Ph.D. candidate Charan
Nallapareddy in
Underwood Lab

In a **\$1.5 million grant from University Consortium for Applied Hypersonics**, Underwood and his colleagues are designing a multifunctional thermal protection system (TPS) to help spacecraft retain radio signals during hypersonic flight and upon re-entering the atmosphere. Loss of communication has consistently plagued space missions, and the plan is to embed layers of meta-materials into spacecraft TPSs directly to mitigate the attenuation of radiofrequency communication through plasmas. This highly collaborative project includes Underwood's aerospace colleague Noel Clemens and researchers from the Missouri S&T and Lockheed Martin.

A **\$450,000 grant from the Samsung Global Research Collaboration** program focuses on the abatement of harmful emissions, including N₂O and fluorocarbons, created during semiconductor manufacturing. In collaboration with chemical engineer C. Buddie Mullins and Graeme Henkelman from the College of Natural Sciences' Department of Chemistry, this project aims to capture and convert molecules emitted during these processes before they can escape plants and make it into the atmosphere. As semiconductor manufacturing increases, this is a critical need because molecules emitted during these processes produce long-lasting impacts with atmospheric lifetimes that can exceed 10,000 years.

"WE NEED TO FIND WAYS TO DESTROY THE MOLECULES THAT COME FROM SEMICONDUCTOR FABRICATION BEFORE THEY ARE EMITTED," UNDERWOOD SAID. "IF WE DESIGN PLASMA SYSTEMS TO SYNERGIZE WITH CATALYTIC MATERIALS, WE CAN DEVELOP NEW AND MORE EFFICIENT WAYS TO ABATE HARMFUL MOLECULES BEFORE THEY CAN BE EMITTED INTO THE ATMOSPHERE."

One final area of emphasis for Underwood's work in plasmas is the creation of sustainable hydrogen directly from distributed resources like methane. He and his collaborators have several research papers underway in this area that are supported by the U.S. Department of Energy. And Underwood, along with Mullins and mechanical engineer Michael Webber, recently received funding from the UT Energy Institute's Strategic Seed Grant program to study "distributed and electrified green ammonia production using plasma-catalysis."

WHY IT MATTERS

In many industries, innovation is limited by issues with power sources. For example, it's nearly impossible to sustain missions in low Earth orbit because of harsh conditions and limits on the amount of propellant a spacecraft can carry. Several of these projects, like the self-fueling propellant technology, are not small improvements, but reimaginings of established systems.

"These are grand challenges, holy grail problems," Underwood said. "How can we fly spacecraft without forcing them to carry propellant and protect them upon re-entry? How can we come up with new ways to store, convert, and utilize fuels? How can we minimize pollution from semiconductor manufacturers?"

HOW WE GOT HERE

Raise your hand if you've heard something like, "In 20 years, nuclear fusion will take care of all energy problems." Underwood read a few books about it as a high schooler and became intrigued. Plasmas are a critical part of nuclear fusion, serving as the medium to drive fusion reactions. They are inherently chaotic, and discovering new ways to control them has long inspired Underwood. ■



NEW 4+1 INTEGRATED COMPUTATIONAL ENGINEERING PROGRAM B.S. AND M.S. DEGREE IN JUST FIVE YEARS

In collaboration with the Oden Institute of Computational Engineering and Sciences, the Department of Aerospace Engineering and Engineering Mechanics now offers a five-year integrated **bachelor's degree in computational engineering (COE) and master's degree in computational science, engineering, and mathematics (CSEM).**

This prepares students for competitive programs in computational modeling and simulation, data sciences, artificial intelligence and machine learning, computational science and engineering, and computational and applied mathematics.



LEARN MORE AND APPLY

UPDATE YOUR CONTACT INFO AND SEND US YOUR NEWS!



BLAST FROM THE PAST

NAHUM ALEM B.S. ASE 2018

an aerospace engineer at NASA Ames Research Center, received a Black Engineer of the Year (BEYA) Modern-Day Technology Leader Award at the 2024 BEYA DTX Conference for being part of an extraordinary group of forward-thinking STEM experts.



Alem

MATTHEW ASPER M.S. ASE 2021, PH.D. ASE 2024

is working as a propulsion engineer at Aurora Flight Sciences in Manassas, VA.



Asper

CHAD HANAK B.S. ASE 2003, M.S. ASE 2005, PH.D. ASE 2009

is the founder and president of Superior QC, which applies aerospace guidance, navigation and control algorithms to the process of automatically and precisely placing 3-to-5-mile wellbores within oil, gas and geothermal reservoirs.

MICHAEL KALB B.S. ASE 2011

is working as a teacher in Leander ISD.

MATTHEW NATTIER B.S. ASE 2024, who also earned a certificate in computational science and a minor in computational geosciences, accepted a full-time position at York Space Systems in Austin.

CAROLINE O'NEAL B.S. ASE 2019

is working as a launch engineer for Aerojet Rocketdyne in Jupiter, FL.



O'Neal



Sebastianelli

CRAIG PHILLIPS B.S. ASE 1981, recently retired from the U.S. Navy after 42 years of service.

ANDREW PRITCHARD B.S. ASE 2011, is an engineer for Lockheed Martin.

YIFAN RAO PH.D. EM 2024, was awarded the Andlinger Distinguished Postdoctoral Fellowship at Princeton.

FRANK SEBASTIANELLI B.S. ASE 2014, is a NASA senior robotics engineer with a passion for mobile robotics. His work on the ARMADAS robot project was recently featured on the cover of Science Magazine Robotics.

JOHN L. SHEPORT B.S. ASE 1955, is a retired manager of missions operations at Lockheed Missiles and Space Company. He was also a senior member of AIAA.

ARTHUR IAN SHERIDAN B.S. ASE 2015, is working as a senior structural analysis engineer at Answer Engineering. ■



THE SKY IS NOT THE LIMIT WITH YOUR SUPPORT!

YOUR GIFT TO THE DEPARTMENT OF AEROSPACE ENGINEERING AND ENGINEERING MECHANICS:

- Enriches our students' educational experiences through hands-on learning outside the classroom.
- Provides opportunities for students to develop their research skills through undergraduate research opportunities that align with their coursework.
- Helps faculty pursue solutions to engineering challenges of tomorrow by leading efforts to address their impact on society and the environment.
- Ensures that our graduates have the analytical, computational and laboratory skills by incorporating more real-world engineering problems into our degree programs.
- Supports high-profile interdisciplinary research institutes and projects, paving the way for future technology developments in emerging areas.



**With your generous
and continued
support, the sky
is not the limit!**



JEANNIE LEAVITT'S GAMEPLAN FOR SUCCESS

Jeannie Leavitt knows all about courage.

The 1990 UT graduate and retired major general in the U.S. Air Force logged more than 3,000 hours of flight time, including over 300 hours of combat flying in Iraq and Afghanistan in her 31 years of service.

Leavitt, a distinguished alumna of the Department of Aerospace Engineering and Engineering Mechanics, is a perfect example of a courageous engineer. In her UT Austin commencement keynote address to more than 50,000 attendees, including more than 10,000 graduates, she emphasized the importance of courage in accomplishing her goals.

It started at an early age when, as a teenager, she attempted to train her first horse, Smokie, a wild 3-year-old Appaloosa stallion that others had failed to ride successfully. It took many, many attempts, and a lot of pain along the way, but Leavitt realized that if she could overcome her own fear, that would calm Smokie as well, and ultimately, she was right.

These experiences paid off later in life as she sought to overcome a significant barrier, which eventually led to Leavitt becoming the first-ever woman fighter pilot in the U.S. Air Force.

An avid Longhorn football fan, Leavitt framed her speech in terms of the three phases of the game, offense, defense and special teams. She advised graduates to be courageous on offense, gritty on defense and to serve as a unifying force for those around them – special teams.”

“When you see an opportunity, take the shot. Maybe it will work and maybe it won't... but you will never know unless you try.”

Watch Leavitt's inspirational speech:
bit.ly/Leavitt-speech



ASE/EM ACADEMY OF

CLASS OF
2024
INDUCTEES



DISTINGUISHED ALUMNI

Congratulations to the 10 new members of the 2024 class of the ASE/EM Academy of Distinguished Alumni. Members are recognized by the academy for leading distinguished careers that include outstanding technical contributions, excellence in leadership and dedication to improving communities.

This year's class of distinguished alumni includes space tech leaders in government and industry, an astronaut, a professor, pilots, entrepreneurs and more. A new category for electing young alumni to the academy was introduced this year as well, with Payam Banazadeh as the inaugural member. Learn more about the academy at ae.utexas.edu/alumni/ada.

THE ASE/EM ACADEMY OF DISTINGUISHED ALUMNI MEMBERS ELECTED TO THE CLASS OF 2024 ARE:

PETER G. ANTREASIAN

Flight Director, KinetX Aerospace

PAYAM BANAZADEH

(Outstanding Young Alumnus), Founder, Capella Space

STEVEN J. BERESH

Distinguished Member of the Technical Staff, Sandia National Laboratories

ANDREA CHAVEZ

Bell Engineering Talent Management Team, University and STEM Collaborations, Bell Flight

JOHN E. COCHRAN, JR.

Professor Emeritus, Auburn University

BARBARA CRAIG

Vice President and Director of Research & Development, Ticom Geomatics, Inc. (retired)

JOHN W. HICKS

Hypersonics Expert, NASA (retired)

SUSAN KELLY

Director of Software Engineering, Raytheon (retired)

ANDREAS MOGENSEN

Astronaut, European Space Agency

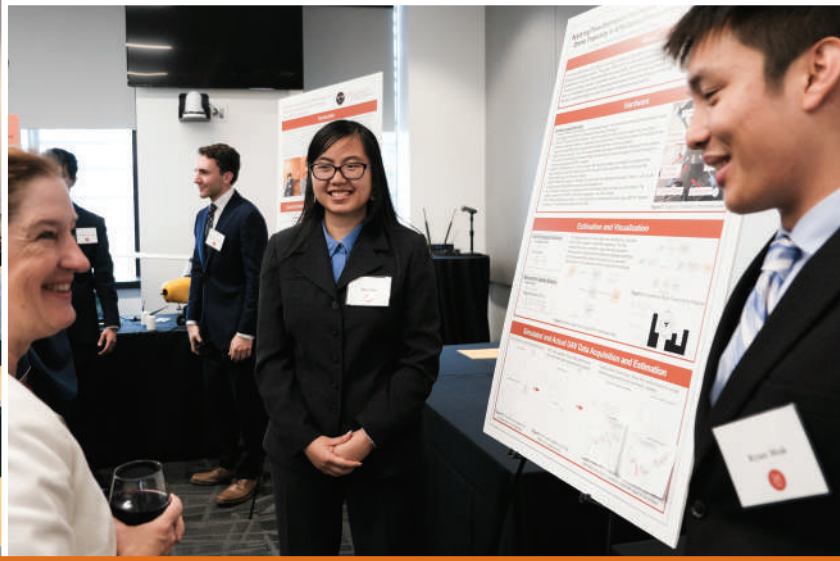
CAROLYN OVERMYER

Director, Orion Chief Engineer, Lockheed Martin Space

THE UNIVERSITY OF TEXAS AT AUSTIN
2617 WICHITA STREET, STOP 0600
AUSTIN, TX 78712-1221

NONPROFIT ORG.
U.S. POSTAGE PAID
AUSTIN, TX
PERMIT #391

RETURN SERVICE REQUESTED



THANKS TO ALL WHO HAVE JOINED US

We have enjoyed engaging with our alumni over the past year by hosting happy hours across the U.S. and inviting speakers to campus. Thanks to all who have joined us so far, and we look forward to seeing many more of you in the near future!

Follow us on LinkedIn to stay up to date with upcoming alumni events and opportunities to engage with the department.

[linkedin.com/company/utaerospace](https://www.linkedin.com/company/utaerospace)

STAY CONNECTED @UTAEROSPACE

