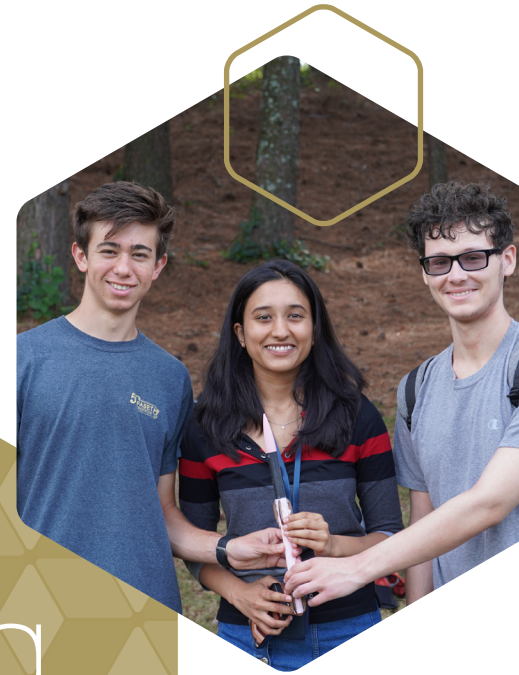
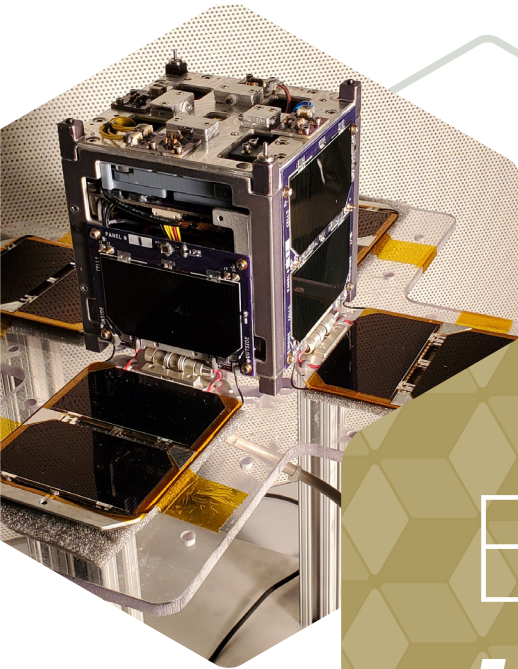




Georgia Tech College of Engineering

Daniel Guggenheim School
of Aerospace Engineering



Empowering **INNOVATION**

2021-2022
ANNUAL REPORT





Georgia Tech College of Engineering

Daniel Guggenheim School of Aerospace Engineering

As I walk through the halls of Montgomery-Knight, I'm struck by the remarkable progress the School has made since my days as a student. Amidst all the changes, one thing has remained constant: the School's commitment to **empowering innovation** through groundbreaking research and student support has led to incredible breakthroughs.

Our students have designed and constructed CubeSats that now orbit Earth or venture into deep space. Every year, our students secure internships and co-ops at the nation's leading aerospace companies and ambitious startups. We have new programs, student-led organizations, and course offerings, pushing the boundaries of innovation and fostering a culture of creativity and curiosity.

Research lies at the core of our mission, and the School is home to some of the brightest minds in the field. We recently welcomed professors **Kai A. James**, **Cristina Riso**, and **Elizabeth Qian** to our growing faculty. Their strong academic background combined with their interdisciplinary research encourages students to explore the connections between aerospace, science, and physics. We also welcomed **Kali Morgan**, learning scientist, who's aiding aerospace faculty in their curricular and pedagogical initiatives and excellence, as well as supporting the Kern Family Foundation grant.

Campus is back to being the lively place it once was pre-2020, filled with community engagement and collaboration. This year, we had the honor of hosting Space Force leaders and astronaut **Shane Kimbrough** to campus to revel in our research efforts and meet with the AE School community. The School partnered with Georgia Tech Athletics to host a space-themed football game and a baseball game, which we invited the Tuskegee Airmen Global Academy students and teachers to join.

Sadly, we bid farewell to two incredible professors and mentors - **Dewey Hodges** and **Joseph Saleh**. Their impact on the AE student body and discipline is one that all professors aspire for as they start their career. They conducted world-renown research while going above and beyond for their students with such humility and grace – it was inspiring to see as their leader - but more importantly - their friend.

As we look ahead to new research efforts, new team members, and new facilities, we are at the cusp of something tremendous and the energy is building. I catch myself saying this a lot, but it rings true - it's an exciting time to be in aerospace - and in many ways - **we're just getting started.**



Mark F. Costello

Mark F. Costello
William R. T. Oakes Professor & School Chair
Daniel Guggenheim School of Aerospace Engineering

TARGIT and GT-1 Launch Onboard SpaceX's Commercial Resupply Services (CRS-24) Mission

Two CubeSats created in the Space Systems Design Lab (SSDL) launched on December 21, 2021 on board a SpaceX Falcon 9 rocket from NASA's Kennedy Space Center in Cocoa Beach, Florida. The launch was part of the SpaceX Commercial Resupply Mission-24 which included the Tethering And Ranging Mission Of The Georgia Institute Of Technology (TARGIT) and GT-1 Cubesats.

Launching off the historic Launch Complex 39A, the Falcon 9 hauled a used Cargo Dragon, Christmas gifts, 6,500 pounds of supplies, scientific experiments, and hardware for the crew of Expedition 66. Attendance included Daniel Guggenheim School faculty, students, and recent graduates who worked on either CubeSat.

About eight minutes after liftoff, the Falcon 9's first stage returned to Earth, landing on one of SpaceX's drone ships called Just Read the Instructions. Meanwhile, Dragon has a longer commute and is headed to the International Space Station (ISS) where it connected with the ISS crew on December 22 around 4:30 a.m. (EST), just 24 hours after launch.

Once the crew loaded TARGIT and GT-1 into the CubeSat orbital deployer the CubeSats made their way to low Earth orbit. While in low Earth orbit, Tech students and researchers in the Mission Control Center, located on Tech's campus, began running a series of tests and analysis before carrying out their missions.



TARGIT and GT-1 launched without a hitch under cloudy skies from NASA's Kennedy Space Center. Photo: SpaceX.

TETHERING AND RANGING MISSION OF THE GEORGIA INSTITUTE OF TECHNOLOGY (TARGIT)

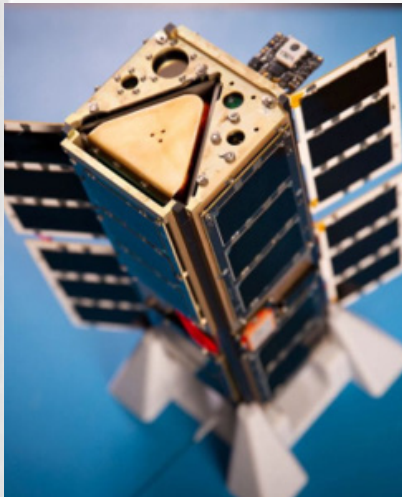
The 3U CubeSat was developed through support from the NASA Undergraduate Student Instrument Program (USIP), which gathers U.S. university proposals to develop an Earth or space science payload that will fly on a NASA suborbital vehicle. It was selected for a launch opportunity in 2017 through NASA's CubeSat Launch Initiative (CSLI).

The team at Georgia Tech - made up of more than 100 undergraduate students and led by Prof. **Brian Gunter** - developed and tested the solar-powered CubeSat to house a compact laser altimetry system. By using light detection and ranging (LiDAR), scientists were able to determine various distances by targeting an object with a laser and measuring the time for the reflected light to return to the receiver.

TARGIT was used as a technology demonstration for more complex LiDAR imaging missions. The advanced technology and measuring capabilities of the LiDAR system onboard allowed scientists to view the topography down to the centimeter from as far away as 10 meters. This type of accuracy will enable future planetary small satellite missions to gather valuable topographic, navigation, and reconnaissance data with a low size, weight, and power (SWaP) instrument.

When TARGIT deployed from the ISS and found its way to low Earth orbit, it deployed a small inflatable secured by a six-meter tether. The inflatable is a regular tetrahedron measuring approximately 1 meter on each side. The orange color - selected to optimize detection from the on-board computer vision system - and size gave scientists a chance to test the camera's accuracy. It created a 3D image of the inflatable using a miniaturized LiDAR imaging camera on the CubeSat.

The mission demonstrated a series of experimental spacecraft technologies, including active tether and inflation systems, 3D-printed components, horizon sensors using low-resolution thermal imagers, and a set of nanocarbon-based solar cells that were developed by Prof. **Jud Ready's** group at the Georgia Tech Research Institute (GTRI).

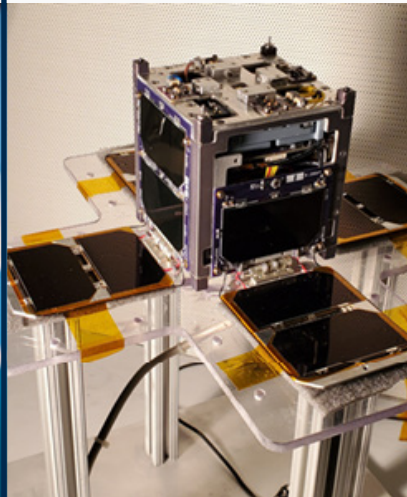


GT- 1

The GT-1 marks the first of a series of four CubeSats to be developed annually at Georgia Tech, giving students the opportunity to design, construct and operate an active CubeSat. GT-1 is a 1U CubeSat developed in the Space Systems Design Lab under the direction of Prof. **Glenn Lightsey**. Its primary mission was to demonstrate a rapid cradle-to-grave life cycle so that scientists can better understand environmental impact of spacecraft.

The CubeSat boasts experimental deployable solar panels and a deployable ultra-high frequency (UHF) radio antenna which allows HAM operators from around the world to communicate with the spacecraft as it orbits the Earth. GT-1's deployable solar panels support 23 solar cells, which is more than double the surface area that a typical 1U can support, allowing future 1U missions to hold a heavier payload.

After GT-1 completed its mission it slowly broke down over a seven-month period as it disintegrated when it reentered Earth's atmosphere.



Find out more: ssdl.gatech.edu

Ben T. Zinn Combustion Laboratory Receives \$2.4 Million Upgrade

The Georgia Institute of Technology will spend \$2.4 million on a major upgrade to its facilities for combustion science and aerodynamics, an investment that is expected to provide a significant boost in researchers' ability to study high-temperature processes that exist inside modern combustion systems.

"People have been making fire since the dawn of time," said **Tim Lieuwen**, professor in the Daniel Guggenheim School of Aerospace Engineering. Lieuwen's research group focuses on advancing the understanding of this age-old process.

The bulk of the new funds will go towards improvements on the Ben T. Zinn Combustion Laboratory, an 18,000 square-foot facility located on Tech's campus that has played a key role in the training and education of engineers for two decades.

"This is going to be a major differentiator for us," Lieuwen said, "Letting us do real things we couldn't have done. It's pretty exciting."

The \$30 million dollar facility is already one of the top two university-based laboratories in the country for its focus area, according to Lieuwen, director of the lab, as well as director of the Strategic Energy Institute (SEI) at Georgia Tech. Twelve different academic and research faculty and 70 graduate and undergraduate students use the lab for research and education.

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Experiments performed at the facility have helped to make progress on a wide variety of combustion and aerodynamics problems. "Most of them have the objective of somehow cleaning up emissions," said **Ben Emerson**, a senior research engineer at the lab. In some cases, researchers directly study how to make cleaner combustion, while in other cases they study how to run combustors in cleaner but more challenging operating regimes.

With the upgrades, Georgia Tech researchers will be able to use the laboratory to reproduce the airflow conditions inside the most modern jet engines and fuel-burning power systems. By emulating these conditions, they can then study and test how various technologies perform in them.

The investments, which will include gifts of \$225,000 and \$200,000 from industry partners, Leidos, and Raytheon Technologies, respectively, will allow the lab to hit extreme physics conditions. Much of the spending will go into specialized materials and supplies, like piping made from advanced alloys

that can withstand high temperatures. The plan is to increase maximum temperatures of air that the pipes can deliver from 1,000 to 1,550 degrees Fahrenheit.

"This piping is thousands of dollars per foot," Lieuwen said. "We're spending several hundred thousand on really, really expensive pipe."

Other upgrades will enable the lab to deliver hydrogen fuel to experiments, which is studied for its potential to serve as a renewable resource in a cleaner energy economy.

"Infrastructure to run hydrogen requires the right sensors and things from a safety standpoint," said **Devesh Ranjan**, Eugene C. Gwaltney, Jr. School Chair and professor in the Woodruff School of Mechanical Engineering. "Very few places in academia can do that."

All these improvements will enhance researchers' ability to partner with government and industry on new research projects. These partnerships have been a longstanding feature of the lab, which has accrued \$120 million dollars in funding over the last 20 years in various forms of grants and industry contracts, according to Lieuwen.

For industry partners, the Combustion Laboratory is positioned in a middle ground between large-scale, highly expensive facilities, which are needed to test full-scale power systems, and smaller university labs, which are unable to sustain comparable experimental conditions. Industry manufacturers often go to the lab when they are interested in obtaining specialized scientific studies at relatively low cost. Lieuwen believes that nearly a billion people rely on industry power systems that have been directly influenced by innovations made in the Zinn Lab.

The upgrade will continue to support local and regional collaborations, as well. "Georgia Tech is investing to support state priorities," Lieuwen said. According to the Georgia Department of Economic Development, aerospace products are the state of Georgia's number one export, at \$9.98 billion in 2020.

"We have these really special capabilities," Lieuwen said. "We're continuing to invest in them. We're committed to continuing to develop them."



Prof. Tim Lieuwen

Find out more: comblab.gatech.edu

Space Day Atlanta 2021

On October 9, 2021, for the first time, the AE School hosted Space Day Atlanta on campus to spark local K-12 students' interest in science, technology, engineering, and mathematics. The day-long event was organized by NASA's Georgia Space Grant Consortium (GSGC) and included demonstrations of current aerospace research as well as hands-on activities such as virtual flights to Mars and rocket building and launching. The event also featured former astronaut and Daniel Guggenheim School graduate **Susan Kilrain**, M.S.A.E 1985.

"I love speaking with students, especially those from less than perfect situations," said Kilrain, who launched to space twice in 1997 and has spent nearly 20 days in orbit. "When I grew up in Georgia, we had very little money and my parents weren't very active in my life during those years. Obstacles just made me stronger and more determined to go after my dream of flying in space. My message to these students will be if I can become an astronaut, you can become anything you dream to be."

Find out more: ae.gatech.edu



U.S. Space Force Recognizes Georgia Tech as New Strategic Partner

On Nov. 11, Georgia Tech and the U.S. Space Force launched a strategic partnership to develop a high-caliber aerospace workforce and collaborate on advanced aerospace research. As part of a comprehensive agreement, the two parties signed a memorandum of understanding, making Georgia Tech the newest member of the U.S. Space Force's University Partnership Program.

Lt. General **Nina M. Armagno**, U.S. Space Force director of staff, joined Georgia Tech Provost **Steven W. McLaughlin** and Executive Vice President for Research **Chaouki T. Abdallah** to sign the agreement. The signing ceremony, which fell on Veterans Day, took place on Georgia Tech's campus.

"At the heart of the Space Force's University Partnership Program is the need to advance our science and technology to build the next generation of space capabilities, while developing the workforce of the future," Armagno said. "With its reputation as a leader in cutting-edge aerospace research, we are confident that Georgia Tech will be an outstanding partner."

The U.S. Space Force — the sixth and newest branch of the U.S. Armed Forces — established the University Partnership Program to identify, develop, and retain a diverse, STEM-capable workforce to further its mission to protect U.S. and allied interests in space. Through the partnership, the Space Force will seek to recruit new members and also create educational and leadership development programs for existing Space Force employees. Georgia Tech was selected for its outstanding aerospace engineering research, its expertise in national defense and security, the diversity of its students, and its robust ROTC program.

"Georgia Tech is proud of its longstanding collaborations with NASA and the Department of Defense to help achieve strategic national objectives," Abdallah said. "We look forward to charting bold new areas of research with the Space Force and leveraging

our expertise in aerospace engineering and national security to address today's most complex space-based military challenges."

Georgia Tech joins 11 universities selected for the U.S. Space Force University Partnership Program in fiscal year 2021. They include Howard University, Massachusetts Institute of Technology, North Carolina Agricultural and Technical State University, Purdue University, University of Colorado Boulder, University of Colorado Colorado Springs, University of North Dakota, University of Southern California, University of Texas at Austin, and University of Texas at El Paso.

The institutions were selected based on four criteria: the quality of STEM degree offerings and space-related research laboratories and initiatives; ROTC program strength; diversity of student population; and degrees and programming designed to support military, veterans, and their families in pursuing higher education.

The signing ceremony was the culmination of a daylong campus visit for Lt. General Armagno and the Space Force delegation. In the morning, she met with Air Force ROTC students and gave a public talk at the Sam Nunn School of International Affairs about the Space Force's integration into the U.S. military. In the afternoon, she held a discussion with Daniel Guggenheim School of Aerospace Engineering students, toured the Space Systems Design Lab, and received an overview of the Georgia Space Grant Consortium and Aerospace Engineering Outreach.



Lt. General **Nina Armagno** holds cubesat designed by the Space Systems Design Lab's lab, led by Prof. Glenn Lightsey.

Find out more: ae.gatech.edu

\$40 Million NASA Award to Increase Rotorcraft Vertical Lift Technology at Georgia Tech

A new award from NASA will give Georgia Tech researchers easier and faster access to research and engineering funds during the next five years to support advances in rotorcraft vertical lift technology. The team, led by Professor **Marilyn Smith**, is one of six chosen by NASA and the only higher education institution selected as a leader.

Georgia Tech will provide resources and technical expertise to support the Rotorcraft Vertical Lift Technology Development through task orders in areas such as advanced rotorcraft technologies, testing, flight controls, and health management. Most of the work will be performed on campus, with some taking place at NASA's Ames Research Center in California.

The Rotorcraft Vertical Lift Technology Development (RVLTD) award is an IDIQ (Indefinite Delivery/Indefinite Quantity) contract with a total ceiling of \$40 million. It allows Georgia Tech to propose, apply, and quickly learn if they're selected for NASA research projects that could also include developing codes, accessing models for validation, and more.

"Instead of writing a 30-page research proposal and waiting up to year for a decision, this contract vehicle allows us to submit a brief statement of work in response to NASA's requests for support. We will learn within a few weeks if NASA selects our team for each request," said Smith, a professor in Daniel Guggenheim School of Aerospace Engineering (AE School). "It's a significant advantage that allows us to collaborate closer with NASA."

The Georgia Tech group includes GTRI (Georgia Tech Research Institute) and the University of Texas at Arlington. It also includes a number of private companies around the country, with an emphasis on small businesses and organizations led by veterans and women. One of them is Laser Aviation in Duluth, Georgia, which specializes in 3D laser scanning and modeling. Of the six submissions accepted, Georgia Tech's proposal was ranked first by the Source Evaluation Board (SEB).

The AE School was one of the nation's first helicopter rotorcraft research and educational institution. Montgomery Knight became the School's first director in 1942 and developed one of the first jet-powered rotors for a helicopter. He was among the country's earliest top researchers of helicopter design.

Through the decades, Georgia Tech has expanded its research to fit the current definition of rotorcraft, which also includes tilt rotors, unmanned air vehicles, and advanced urban air mobility. Georgia Tech has been a Vertical Lift Research Center of Excellence (VLRCE) since 1982, conducting basic research focused on scientific barriers in technologies that support current and future vertical lift capabilities.

The RVLTD award is not restricted to AE researchers. Any Georgia Tech faculty member supporting vertical lift technology can ask to be on the list of faculty who will respond to each NASA request. Those interested should send their contact details and research areas of interest to Professor Smith.

"Georgia Tech faculty and students are contributing to rotorcraft technology research in a variety of ways," said Smith, who serves as director of the VLRCE. "This includes not only vehicle design and analysis in AE, but air traffic control, cyber-physical security, vertiport design, public policy, robotics, and sustainability. We have the core faculty and students across the Institute to drive this field. This depth of research, along with our excellent student base, is what makes us more competitive."



Prof. Marilyn Smith

Find out more: ae.gatech.edu

FACULTY HIGHLIGHTS

- **Sandy Magnus** was elected into the National Academy of Engineering's (NAE) Class of 2022 and the U.S. Astronaut Hall of Fame (AHOF) Class of 2022.
- Professor **Marilyn Smith** was unanimously selected by the Vertical Flight Society (VFS) to give the 2022 Alexander A. Nikolsky Honorary Lectureship. Smith was also selected for the 2022 American Institute of Aeronautics and Astronautics (AIAA) Aerodynamics Award.
- The Georgia Tech Center for Teaching and Learning (CTL) and BP America have awarded Professor **Claudio Di Leo** with the Junior Faculty Teaching Excellence Award.
- **Yongxin Chen** was awarded the Donald P. Eckman Award from the American Automatic Control Council (AACC) for his work in stochastic control.
- Professor **Tim Lieuwen** was awarded the AIAA Propellants and Combustion Award, American Society of Mechanical Engineers (ASME) R. Tom Sawyer Award, and the 2021 recipient of the Pendray Award for Aerospace Literature. Lieuwen was also named Fellow of the American Physical Society for his exceptional contributions to the enterprise in physics research, important applications of physics, leadership in or service to physics, or significant contributions to physics education.
- Professor **John Christian** was selected as the 2021 American Astronautical Society Fellow for his significant scientific, engineering, academic and/or management contributions to astronautics and space.
- Professor **Mitchell L. R. Walker II** was appointed to serve a three-year term as a member of the Technology, Innovation and Engineering Committee of the NASA Advisory Council. Walker will also lead the College of Engineering's Undergraduate and Graduate Academic Programs as associate dean of academic affairs.
- Professors **Claudio di Leo** and **Tim Lieuwen** were selected to organize and participate at the NAE's 27th U.S. Frontiers of Engineering Symposium.
- Professor **Dimitri Mavris** became president of the International Council of the Aeronautical Sciences (ICAS), and was awarded the Sigma Xi (GT Chapter) Sustained Research Award. He also became a technical team member of the NATO panel MSG-205 on Digital Twin Interoperability.
- Professor **Koki Ho** was on one of the two winning teams under the Air Force Research Laboratory (AFRL)/Air Force Office of Scientific Research (AFOSR) Space University Research Initiative: Space Object Understanding and Reconnaissance of Complex Events (SOURCE).



Dr. Sandy Magnus



Prof. Yongxin Chen



Prof. Mitchell L.R. Walker II



Prof. Claudio di Leo



Prof. Dimitri Mavris

WELCOMING NEW FACULTY

Professor **Kai A. James** joined the faculty in August 2022. James' research interests are in the areas of computational mechanics and multidisciplinary design optimization, with a particular focus on problems involving complex, nonlinear structures and mechanisms. Some of his major research projects include aerostructural optimization of electric aircraft wings, design synthesis of self-actuating morphable structures containing active materials, and generative adversarial neural networks for design automation. Beyond his technical interests, Prof. James is also passionate about increasing diversity in the STEM fields through outreach to economically disadvantaged students and underrepresented minorities. Prior to joining Georgia Tech, he was a professor at the University of Illinois at Urbana-Champaign and a postdoctoral research scientist at Columbia University.



Prof. Kai A. James

Professor **Cristina Riso** joined the faculty as an assistant professor, in January 2022. Her research involves developing computational models and analysis methods to study aeroelastic phenomena in the next generation of aerospace vehicles, focusing on both advancing the understanding of new configurations and supporting their design. Professor Riso joins Georgia Tech from the Department of Aerospace Engineering at the University of Michigan. At Michigan, she was a research fellow in the Airbus-Michigan Center for Aero-Servo-Elasticity of Very Flexible Aircraft and the Active Aeroelasticity and Structures Research Laboratory. She holds B.S., M.S., and Ph.D. degrees from Sapienza University of Rome. She serves on the AIAA Structural Dynamics Technical Committee and is a member of the Third Aeroelastic Prediction Workshop Large Deflection Working Group.



Prof. Cristina Riso

Professor **Elizabeth Qian** holds a joint appointment at Georgia Tech as assistant professor in the Schools of Aerospace Engineering and Computational Science and Engineering (CSE). Her interdisciplinary research develops new computational methods to enable engineering design and decision-making for complex systems. Her specialties are in developing efficient surrogate models through model reduction and scientific machine learning, and in developing multifidelity approaches to accelerate expensive computations in uncertainty quantification, optimization, and control. She previously held a postdoctoral appointment as a von Karman Instructor at Caltech in the Department of Computing + Mathematical Sciences. She has been the recipient of many awards, including the 2020 SIAM Student Paper Prize, the Fannie and John Hertz Foundation Fellowship, and the NSF Graduate Research Fellowship. She is also an alumna of the U.S. Fulbright student program. She earned her PhD, SM, and SB degrees from the MIT Department of Aeronautics & Astronautics.



Prof. Elizabeth Qian

Find out more: ae.gatech.edu/news

STUDENT HIGHLIGHTS

• Aerospace engineering and astrophysics graduate **Yashvardhan "Yash" Tomar** selected as the 2022 recipient of the Love Family Foundation Award, one of the Institute's highest awards given to a graduating senior. The award recognizes the undergraduate student with the "most outstanding scholastic record of all members of the class" and includes a \$10,000 monetary award • AE graduate student **Rikhi Roy** and AE alumnus **Oscar Klempay** were selected for the 2021 Aviation Week Network's 20 Twenties program. • **Rebekah Geil**, **Satvik Kumar**, and **Elton Shinji Okuma Hayachiguti** were awarded scholarships from the American Institute of Aeronautics and Astronautics (AIAA) Foundation for their aerospace academics and research. Geil received the annually awarded Leatrice Gregory Pendray Scholarship for \$1,250. Kumar received the 2021 Werner von Braun Scholarship for his hard work and commitment to the aerospace field. Okuma Hayachiguti was awarded the Dr. James Rankin Digital Avionics Scholarship. • **Rahul Tauro-Padival** (AE) and **Timothy West** (BME) won the National Security Innovation Network Hackathon by designing a cyber security system for the military that warns operators about cyber threats. • Team Nightmare won the best AE Project from Capstone Expo Fall 2021. Team members included **Cody Brown**, **Jonathan DeLozier**, **Christopher Languell**, **Josh McElveen**, and **Paul Trevidic**. • **Brenden Oates** received the Department of Defense Science Mathematics and Research for Transformation Scholarship, which financially supports college students pursuing degrees in STEM. • Four AE students were named fellows of the 2022 Matthew Isakowitz Fellowship Program class. **Carson Coursey** (Aerospace Corporation), **Emma Johnson** (Planet), **Daniel Nwachukwu** (Nanoracks), and **Shan Selvamurugan** (Blue Origin) intered at top aerospace companies. • Doctoral student **Archana Tikayat Ray** was selected as the 2022-2023 Amelia Earhart Fellowship recipient. • Three AE students were selected for the Patti Grace Smith Fellowship, which pairs Black undergraduate students with the nation's leading aerospace companies. **Jalen Cauley**, **Justin Connors**, and **Suraya John** were among the 39 national honorees from 26 institutions selected. • Design, Build, Fly (DBF) team took home first place at the 26th AIAA Design, Build, Fly Competition.



Yashvardhan "Yash" Tomar



Rebekah Geil



Emma Johnson



Jalen Cauley

• AE students **Carlota Bonnet**, **Aaron Crawford**, **Jahnvi Hariani**, and **Derek Anthony Safieh Matheu** were awarded Vertical Flight Foundation Scholarships. Bonnet received the Evan Sampatacos Scholarship, Crawford received the Dr. Dewey H. Hodges Scholarship, Hariani received the Charles C. Crawford Scholarship, and Safieh Matheu received the Hal Andrews Scholarship. • **Stacey Tian** was selected for the Donnell W. Dutton Outstanding Senior in Aerospace Engineering Award. • **Eliezer Zavala Gonzalez** received the CoE Honors Award for Aerospace Engineering. • **Carl De Vries** was awarded a NASA Space Technology Graduate Research Opportunity (NSTGRO) for his proposal titled, Illumination Invariant Terrain Relative Navigation. • The RotorJackets placed first in the Collegiate Drone Racing Championship in Grand Forks, North Dakota, which was hosted by the University of North Dakota. • **Anonto Zaman** was recognized with the Aerospace Engineering Outstanding Senior Scholar Award. • Aerospace Engineering undergraduate **Colin Burnett** was awarded the Astronaut Scholarship from the Astronaut Scholarship Foundation (ASF). He received \$15,000, a paid trip to the ASF Innovator's Weekend, and a lifelong network with astronauts and ASF alumni and supporters. • **Eliezer Zavala Gonzalez** received the CoE Honors Award for Aerospace Engineering. • Team PICARD won the best overall aerospace engineering project at Georgia Tech's Spring 2022 Capstone Design Expo. They designed a "hopper" vehicle that would travel to Phobos and take samples of its regolith. Team members included **Sergio Acosta**, **Jake Anderson**, **Blake Berge**, **Brittney Brown**, **Jacob Chmielarz**, **Chandler Clemmons**, **Graham Jordan**, **Jerry Schweiger**, and **Ava Thrasher**. • AE Design Build Fly Team brought home the Micro and Advanced class awards at the SAE Aero Design East Competition. The teams included: **Tilahta Agbere**, **Ashkar Awal**, **Grant Ewing**, **Benjamin Gomez Del Campo**, **Carl Johnson**, **Andrew Nguyen**, **Ishan Padmani**, **Elvin Puchuela**, **Vedant Ruia**, **Maria Cayetana Salinas Rodriguez**, **Nikita Shakhraichuk**, **Salil Sodhi**, **Dalton Vega**, **Gowtham Venkatachalam**, **Ryan Wijaya**, and **Ryan Warner**.



Derek Anthony Safieh Matheu



Stacey Tian



Colin Burnett



Maria Cayetana Salinas Rodriguez

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