2025

AMELIA EARHART FELLOWS

Expanding opportunities for women in aerospace engineering and space sciences

ZONTA INTERNATIONAL

In an effort to carry out its mission that women have access to all resources and are represented in decision-making positions on an equal basis with men, Zonta International offers the Amelia Earhart Fellowship.

The Zonta International Amelia Earhart Fellowships were established in 1938 in honor of Amelia Earhart, famed pilot and member of the Zonta Clubs of Boston and New York. The fellowships are awarded annually to women pursuing Ph.D./doctoral degrees in aerospace engineering or space sciences.

Zonta International offers the Amelia Earhart Fellowship to ensure women have equal opportunities to pursue education, careers and leadership positions in aerospace engineering and space sciences.

zonta.org/AEFellowship

Marina Barahona

Citizenship: Spain

Proposed Program: Aerospace Engineering at Delft University of Technology, Netherlands

Marina Barahona graduated in aeronautical engineering at the Polytechnic University of Catalonia in 2019. During her undergraduate studies, she conducted research on wind-assisted ship propulsion aimed at reducing carbon dioxide emissions in the maritime sector.

After earning her bachelor's degree, Ms. Barahona received the prestigious "La Caixa" scholarship to pursue a master's degree in aerospace engineering at Delft University of Technology (TU Delft), where she specialized in aerodynamics. She is now a Ph.D. candidate at TU Delft, focusing on innovative flow control strategies for hydrogen-powered aircraft.

Ms. Barahona's research explores "cryogenic drag reduction," a concept that uses the cryogenic properties of liquid hydrogen to actively cool aerodynamic surfaces. Cooling delays the transition from laminar to turbulent flow on swept wings. In swept-wing configurations, the angle of the wing relative to the oncoming flow gives rise to a three dimensional boundary layer. This flow configuration creates a fertile condition for the formation of crossflow instabilities. Understanding the dynamics of these instabilities is key to control the transition process. The main objective of her research is to understand how cooling the wing surface alters the behavior of these instabilities and, ultimately, how this affects the overall route to transition and subsequent drag reduction.

In addition to her academic work, Ms. Barahona remains engaged with the "La Caixa" Foundation as a mentor, supporting younger fellows in their academic and career journeys. When not in the wind tunnel, she enjoys hiking in the Spanish Pyrenees with her dog, Axel, and photographing the natural landscapes. Her dream is to combine her passion for science with environmental preservation.

Myrella Cabral

Citizenship: Brazil

Proposed Program: Aerospace Engineering at Massachusetts Institute of Technology, USA

Myrella Cabral is a Ph.D. student in the Department of Aeronautics and Astronautics at the Massachusetts Institute of Technology (MIT), where she researches aerothermoelastic phenomena in hypersonic flow. Working under Dr. Wesley Harris and Dr. Earl Dowell, her research focuses on improving predictive models for fluid-thermal-structural interaction, an area critical to the safety and performance of high-speed aerospace vehicles.

As part of her doctoral work, Ms. Cabral participates in NASA's Aeroelastic Prediction Workshop, High-Speed Working Group, where she correlates computational models with hypersonic wind tunnel data from the Air Force Research Laboratory and the University of New South Wales. She is also an active member of the American Institute of Aeronautics and Astronautics (AIAA) Hypersonic Technologies and Space Planes Technical Committee.

Originally from northeastern Brazil, Ms. Cabral is a first-generation college student. She holds a master's degree in mechanical engineering from the University of São Paulo, where she specialized in nonlinear supersonic flutter of composite panels, and a bachelor's degree in civil engineering from the Federal University of Pernambuco. As an undergraduate, she gained hands-on experience in aircraft design as part of an aero design team, working from conceptualization through construction of radio-controlled aircraft.

Ms. Cabral's passion for flight physics also led her to intern at Wisk Aero, where she contributed to several projects: implementing aerodynamic corrections to the Doublet-Lattice Method using computational fluid dynamics (CFD) data, developing an optimization-based load envelope for rotor performance and supporting ground vibration testing of key aircraft components.

Outside of her research, Ms. Cabral serves as a dREF in MIT's AeroAstro department, mentors for MIT's AeroAstro department, mentors MIT undergraduates and supports Brazilian students applying to graduate programs abroad through the BRASA network. She also volunteers as an English teacher for MIT service employees through the ESOL program.

Greta Cappello

Citizenship: Italy

Proposed Program: Astrophysics at the University of Graz, Austria

Greta Cappello began her academic journey at the Politecnico di Torino, where she studied physics engineering in the department of electronic engineering. Her interest gradually shifted toward astrophysics, leading her to an internship with the Solar Physics group at the Pino Torinese Observatory under Dr. Luca Zangrilli and Dr. Gerardo Capobianco. There, she worked in a cleanroom environment characterizing position sensors for ESA's PROBA-3 coronagraph mission, a formation-flying experiment designed to observe the solar corona.

Inspired by this hands-on application of physics, Ms. Cappello pursued a master's degree in astrophysics at the University of Turin. During her studies, she completed an Erasmus+ traineeship at the Austrian Academy of Sciences in Graz under Professor Davide Gandolfi and Professor Luca Fossati. Her thesis focused on modeling the atmosphere of the ultra-hot Jupiter MASCARA-2b/KELT-20b using the radiative transfer code "Cloudy," exploring how different stellar types impact planetary systems. She graduated with highest honors in 2022.

Ms. Cappello is currently a Ph.D. candidate at the Institute of Physics, University of Graz, supervised by Professor Manuela Temmer and Professor Astrid Veronig. Her doctoral work is funded by the competitive Young Researcher Project in interdisciplinary space science and planetary research (YRP@Graz). Her Ph.D. studies focus on coronal mass ejections (CMEs), using multi-spacecraft data from Parker Solar Probe, Solar Orbiter, STEREO, SOHO and the PUNCH mission. She investigates the 3D morphology and internal fine-scale structures of CMEs through white-light and EUV imaging, and examines their connection to solar source regions and in-situ signatures.

Ms. Cappello is an early-career member of the International Space Science Institute (ISSI) international team "Tomographic Inversion of Synthetic White-Light Images" and serves on the organizing committee of the Parker Heliophysics Scholars seminar series. She aspires to become a principal investigator for a future heliophysics mission. Outside of research, Ms. Cappello enjoys cooking, traveling and gardening.

Jasmine Chang

Citizenship: United States

Proposed Program: Aerospace Engineering at University of Michigan, USA

Jasmine Chang is a Ph.D. candidate in aerospace engineering at the University of Michigan, where she conducts research in the Active Aeroelasticity and Structures Research Lab. Her work focuses on developing eigenvalue-based aeroelastic solutions for predicting whirl flutter, a potentially catastrophic instability that can affect rotating systems mounted on flexible supports.

As the aerospace industry explores novel vertical lift vehicle configurations for urban air mobility, the use of multiple propellers and rotors near wings introduces new aerodynamic challenges. Ensuring these designs are free from aeroelastic instabilities is critical for safe operation. Ms. Chang's research aims to understand how aerodynamic interactions influence the onset of whirl flutter and to develop efficient, linearized mid-fidelity aerodynamic models to enable reliable prediction of these effects.

Ms. Chang previously earned both her bachelor's and master's degrees in naval architecture and marine engineering from the University of Michigan. After completing her Ph.D., she hopes to pursue an academic career that allows her to work closely with undergraduate students and inspire the next generation of engineers.

Outside of research, Ms. Chang served on the first executive board of Gender Minorities in Aerospace, a student organization dedicated to building community among graduate students and postdoctoral fellows who identify as gender minorities in the Department of Aerospace Engineering at the University of Michigan. She also enjoys walking, reading and playing the piano.

ZONTA INTERNATIONAL

zonta.org/AEFellowship

Hephzibah Christopher

Citizenship: India

Proposed Program: Earth and Atmospheric Sciences at Georgia Institute of Technology, USA

Hephzibah Christopher is a second-year Ph.D. student in earth and atmospheric sciences at the Georgia Institute of Technology. As a planetary scientist, her research focuses on lunar surface characterization and in-situ exploration, with an emphasis on the moon's south polar region, an area of critical interest for upcoming missions, including NASA's Artemis program.

Ms. Christopher's dissertation aims to improve understanding of the distribution of water ice in permanently shadowed regions (PSRs at proposed landing sites. She integrates remote sensing data with computational modeling, analyzing orbital laser altimetry and synthetic aperture radar datasets to map icy composition and terrain properties. In summer 2024, she interned at the Lunar and Planetary Institute. There she contributed to the characterization of Artemis III candidate sites alongside a cohort of graduate researchers.

Ms. Christopher holds a bachelor's degree in engineering in geoinformatics from the College of Engineering, Guindy, Anna University in India, and a Master of Science in geology from Auburn University. During her master's program, she was a member of the science team for NASA's VIPER mission, where she developed ray-tracing-based illumination models for PSR mapping and predicted the ice-regolith environment at Mons Mouton to support sampling experiments. She also investigated surface roughness characteristics of icy terrain on the dwarf planet Ceres.

As an undergraduate, Ms. Christopher was awarded a Summer Research Fellowship by the Indian Academy of Sciences and interned at the Physical Research Laboratory in Ahmedabad, where she studied volcanic landforms on the moon.

Ms. Christopher's broader research interests include planetary surface dynamics on airless bodies such as the moon, Mercury and asteroids. After completing her Ph.D., she hopes to pursue an academic career combining research and mentorship in support of interplanetary exploration.

Rachel Cueva

Citizenship: United States

Proposed Program: Aerospace Engineering Sciences at University of Colorado Boulder, USA

Rachel Cueva is a fifth-year Ph.D. student in aerospace engineering sciences at the University of Colorado Boulder, where she conducts research in the Orbital Research Cluster for Celestial Applications (ORCCA) Lab. She earned her bachelor's degree in aerospace engineering from the University of Maryland, College Park, in May 2021, and her master's degree in aerospace engineering sciences from the University of Colorado Boulder in December 2023.

Ms. Cueva's dissertation research focuses on the long-term dynamical evolution of binary asteroid systems, which make up roughly 15% of both the near-Earth asteroid (NEA) and main-belt populations. She models how these systems' orbital and rotational dynamics evolve and how they respond to external perturbations, such as scattering by outer planet resonances. Her work provides insights into how binary systems may be disrupted during their migration from the asteroid belt to the NEA region, with broader implications for understanding solar system evolution and main belt depletion.

Ms. Cueva's research also contributes to planetary defense. She has studied the post-impact evolution of the Didymos binary asteroid system following NASA's Double Asteroid Redirection Test (DART) mission. On 26 September 2022, the DART spacecraft intentionally impacted Dimorphos, the smaller body in the system, as a demonstration of kinetic impactor technology. This is a potential strategy for deflecting hazardous asteroids on a collision course with Earth.

After completing her Ph.D., Ms. Cueva plans to pursue a career as a planetary research scientist.

In her free time, Ms. Cueva enjoys climbing, both rock and ice and hiking. She also holds five SCUBA certifications and has gone diving in a variety of locations, from Mexico and South Korea to national aquariums.

Samantha Gilbert-Janizek

Citizenship: United States

Proposed Program: Astronomy and Astrobiology at University of Washington, USA

Samantha Gilbert-Janizek is a Ph.D. candidate and Washington NASA Space Grant Graduate Fellow in the dual-title astronomy and astrobiology program at the University of Washington. Under the supervision of Professor Rory Barnes, her research focuses on the search for life on exoplanets.

Ms. Gilbert-Janizek's dissertation work uses dynamical models to simulate the evolution of uninhabited Earth-like planets, including their interiors, surfaces and atmospheres over billions of years. These simulations help define the range of non-living atmospheres that could exist on potentially habitable exoplanets, improving our ability to distinguish between living and lifeless worlds using future telescope observations. She also applies statistical models to assess how assumptions in atmospheric modeling affect a planet's reflected light spectrum. Her work supports the science goals of NASA's upcoming Habitable Worlds Observatory and has led to a publication in "Planetary Science Journal" and invited presentations at the Jet Propulsion Laboratory and NASA Goddard Space Flight Center.

Before joining the University of Washington, Ms. Gilbert-Janizek earned a bachelor's degree in physics with honors from the University of Chicago, where she helped develop instrumentation for high-energy particle astrophysics missions. She later completed a year-long post-baccalaureate internship at Lawrence Berkeley National Laboratory, where she built a cryostat capable of reaching sub-Kelvin temperatures.

Outside of her research, Ms. Gilbert-Janizek is deeply committed to mentoring and education. In 2021, she founded Raising eSTEAM, a program at the University of Washington that offers academic advising and mentorship to incarcerated youth. In her free time, she enjoys hiking, eating sushi and spending time with her husband and dog.

Maryam Haytham Esmat

Citizenship: Egypt

Proposed Program: Astronomy and Astrophysics at Johns Hopkins University, USA

Maryam Haytham Esmat is an astrophysicist, writer and Ph.D. candidate in astrophysics specializing in dark matter detection. She holds a Master of Arts in physics, a Bachelor of Science in astrophysics with a minor in mathematics, and a Bachelor of Arts in English with a concentration in creative writing.

Ms. Esmat's research includes co-founding a radio astronomy observatory at Lycoming College, contributing to NASA's James Webb Space Telescope Near-Infrared Camera and studying galactic electron density using pulsating neutron stars detectable by the future Laser Interferometer Space Antenna. She also served as science mission lead for the Moon Village Association's Lunar Roadmap at the Egyptian Space Agency.

As a doctoral researcher, Ms. Esmat works with the Haloscope at Yale Sensitive to Axion Cold Dark Matter (HAYSTAC and Axion Longitudinal Plasma Haloscope collaborations (ALPHA, both at the forefront of dark matter detection. For her dissertation, she serves as the Cosmic Axion Background analysis lead within HAYSTAC to broaden experimental sensitivity and inform future dark matter studies. Her doctoral research has been supported by fellowships from the American Association of University Women, the Egyptian-American Organization in Los Angeles and the Center for Arab American Philanthropy.

Ms. Esmat is the bestselling author of "Finding: The Escaping Flashback" and co-editor of "Classical Mechanics: A Computational Approach Using Mathematica & Python." Passionate about science communication, she co-wrote a popular episode on stellar evolution for the Arab science show "El-Daheeh," which surpassed 3.1 million views, and was the only Arabic-language scientific commentator for the JWST launch in December 2021. She also translated JWST key facts from English to Arabic for NASA and has worked to expand science outreach in both the Arab world and the United States.

Named one of Forbes Middle East's 30 Under 30 most influential individuals, Ms. Esmat has also served on the Society of Physics Students National Council. In her free time, she enjoys hiking, camping, studying history and taking eco-cultural trips to remote areas around the world.

Sage Herz

Citizenship: United States

Proposed Program: Aerospace Engineering at The Ohio State University, USA

Sage Herz is a Ph.D. student in aerospace engineering at Ohio State University and a research associate in the Aerodynamic Flow Control and Advanced Diagnostics (AFCAD) group, advised by Dr. Matthew McCrink. Her graduate research follows the theme "Fundamental to Flight Test Aerodynamics," which emphasizes the design and use of flight test demonstrators with advanced measurement capabilities to explore core aerodynamic phenomena in realistic flight conditions.

Ms. Herz's work focuses on multirotor uncrewed aerial vehicles (UAVs) operating in complex flow environments—such as near boundaries, in variable wind patterns, and within urban landscapes. She is among the first to experimentally quantify how these conditions impact vehicle performance using free-flight data. A major milestone in her research demonstrated how aerodynamic interactions affect vehicle performance, resulting in a publication in Aerospace Science and Technology in 2025 and presentations at several Vertical Flight Society (VFS) Annual Forums.

Ms. Herz earned her bachelor's degree in mechanical engineering from Lafayette College in 2021. She is a two-time recipient of the Burggraf Graduate Scholarship and has been supported by the Burggraf Endowed Graduate Fund since 2021, which honors outstanding women pursuing aerospace doctorates at Ohio State. She recently interned with the Flight Dynamics Group at NASA Langley Research Center in summer 2025.

After earning her Ph.D., Ms. Herz plans to work in the aerospace industry, with a focus on flight testing and multirotor vehicle operations in complex environments, including potential applications to extraterrestrial rotorcraft.

Outside of her academic pursuits, Ms. Herz is actively involved in the VFS Women in Vertical Flight Engineering Network (WOVEN), serves as a graduate student ambassador and sits on Ohio State's Graduate Student Advisory Council. In her free time, she enjoys reading, watching Formula 1 and hopes to earn her private pilot's license.

Giuliana Caramella Hofheins

Citizenship: United States

Proposed Program: Aerospace Engineering at Cornell University, USA

Giuliana Caramella Hofheins is a fourth-year Ph.D. candidate in the Sibley School of Mechanical and Aerospace Engineering at Cornell University and a member of the Advanced Space Technology Research and Architectures Lab (ASTRAlab). A recipient of the NASA Space Technologies Graduate Research Opportunities Fellowship, she specializes in micro-electric space propulsion technologies known as electrospray thrusters.

Electrospray thrusters are compact, fuel-efficient systems that use arrays of needle-like tips to electrically accelerate charged liquid propellant, enabling precise maneuvers for small satellites and future gravitational wave detection missions. Ms. Hofheins develops novel diagnostics to examine lifetime-limiting mechanisms in these systems, employing mass spectrometry to study high-speed ion collisions with target surfaces at velocities exceeding 10,000 meters per second.

Ms. Hofheins graduated summa cum laude and Phi Beta Kappa from Rhodes College with a Bachelor of Science in physics and a minor in mathematics. As an undergraduate, she co-founded the college's first satellite program, which was accepted into NASA's CubeSat Launch Initiative and aims to launch a 1U CubeSat in 2025 to test space-hardiness of novel photovoltaic cells.

Ms. Hofheins' background includes internships at The Aerospace Corporation, where she advanced from digital satellite ethernet systems to electric propulsion, including Hall thruster analysis and secondary electron emission measurements. She also interned at NASA's Jet Propulsion Laboratory, developing diagnostics for micro-electric propulsion systems.

Beyond her research, Ms. Hofheins co-founded the Graduate League of Women+ in Mechanical and Aerospace Engineering at Cornell. Outside the lab, she enjoys reading, spending time with her kitten, Frank, and starting her mornings with a 6 a.m. CrossFit class.

Erin Holdorf

Citizenship: Australia

Proposed Program: Astronomy and Astrophysics at Australian National University, Australia

Erin Holdorf is a Ph.D. candidate in astronomy and astrophysics at the Australian National University. Her research focuses on the use of adaptive optics in both astronomical imaging and free-space optical communication to improve signal quality degraded by atmospheric turbulence.

During strong turbulence, both the phase and amplitude of light waves are distorted, the latter known as scintillation. Traditional wavefront sensing techniques perform poorly under these conditions, which are common during daytime operations or at ground sites with suboptimal seeing. Ms. Holdorf's research investigates the use of a novel sensor, a point diffraction interferometer, that is theoretically immune to the effects of scintillation. To overcome signal nonlinearities from this sensor, she is applying machine learning techniques to estimate wavefront phase with greater accuracy.

Ms. Holdorf's work also explores methods to measure tip-tilt from laser guide stars, which are currently unable to provide this information. For astronomy, this limitation prevents the use of adaptive optics on targets lacking nearby natural guide stars. In free-space optical communication, it impairs the system's ability to accurately track a satellite's projected position in the sky. Measuring tip-tilt is expected to reduce beam variance and enhance signal reception.

Ms. Holdorf holds both a bachelor's and an honors degree in astronomy and astrophysics from the Australian National University. Her undergraduate research focused on deriving exoplanet masses from radial velocity data.

Outside of her research, she enjoys hiking and reading.

Nicole Khusid

Citizenship: United States

Proposed Program: Physics and Astronomy at Stony Brook University, USA

Nicole Khusid is a Ph.D. student in physics with a concentration in astronomy at Stony Brook University. As an active member of the LIGO–Virgo–KAGRA (LVK) collaboration, a global network of instruments that detect gravitational waves from stellar-mass sources, she studies gravitational wave signals from merging black hole binaries.

Ms. Khusid focuses specifically on ringdowns, the gravitational wave emission that occurs shortly after two black holes merge into a single remnant. Using Bayesian inference techniques, she analyzes ringdown signals to measure the remnant black holes' masses and spins and to directly test predictions of Einstein's theory of general relativity. She enjoys developing novel computational methods for these analyses and plans to extend her work to include ringdowns from much more massive black hole systems.

Before starting graduate school, Ms. Khusid earned bachelor's degrees in physics and computer science with a minor in astrophysics from the University of Connecticut in 2022. She received the 2021 UConn Student Undergraduate Research Fellowship Award to support her research on forecasting the detection of gravitational waves from strongly lensed pairs of merging supermassive black holes.

Outside of her thesis work, she serves as a math and physics tutor for Stony Brook's Educational Opportunity Program, which supports undergraduate students who have faced financial barriers in their academic journeys. In her free time, she enjoys outdoor activities, live music, playing the piano and participating in a book club.

ZONTA INTERNATIONAL

zonta.org/AEFellowship

Leah Kiner

Citizenship: United States

Proposed Program: Aerospace Engineering Sciences at University of Colorado Boulder, USA

Leah Kiner is an aerospace engineering Ph.D. student in the Autonomous Vehicle Systems (AVS) laboratory at the University of Colorado Boulder. Her research focuses on multi-body spacecraft dynamics, with an emphasis on developing general, modular software formulations capable of simulating a wide range of complex spacecraft configurations. Leveraging a rigid body assumption with the prescribed dynamics of actuated spacecraft components, her analytical results are generalized and formulated into a modular software architecture where they can be used as building blocks in a spacecraft dynamics simulation. After deriving a formulation to attach any number of prescribed motion-actuated components to a central rigid spacecraft hub, she is now expanding her previous work to wedge these prescribed components between force and torque-actuated spacecraft components. Her work aims to support spacecraft mission design and analysis by making the process more accessible and efficient.

Before her graduate studies, Ms. Kiner received a Bachelor of Science in aerospace engineering at the Pennsylvania State University in 2021. Afterward, she graduated with her Master of Science in aerospace engineering sciences from the University of Colorado Boulder. Since starting her Ph.D., she has been working part-time as a graduate research assistant at the Laboratory for Atmospheric and Space Physics (LASP), where she supports the Guidance, Navigation and Control subsystem for the Emirates Mission to the Asteroid Belt. Her research results are currently being used on the mission to simulate the solar array deployment dynamics and the articulation of the solar arrays and the two-axis gimballed thruster platforms.

Outside of her academic life, Ms. Kiner enjoys spending time outside exploring the beautiful Colorado mountains. She is passionate about rock climbing, trail running and hiking with friends.

Joanna Krynski

Citizenship: Canada and Poland

Proposed Program: Optoelectronics at Institut Supérieur de l'Aéronautique et de l'Espace (ISAE-SUPAERO), Université de Toulouse, France

Joanna Krynski is a Ph.D. candidate at ISAE-SUPAERO, conducting research in the Integrated Image Sensor group under the supervision of Dr. Vincent Goiffon and co-supervision of Dr. Cedric Virmontois, team lead for Optoelectronics and Detection Chain at the French Space Agency (CNES). Her research focuses on single-photon image sensors and their potential applications in space missions, particularly examining how radiation affects the performance of these advanced technologies.

Ms. Krynski is also investigating the fundamental noise limits of image sensors. Her recent work includes a published study that characterizes the quantization of dark current, a key factor in the sensitivity of low-light detectors. She aims to better understand and optimize these sensors for future space-based applications.

Before beginning her Ph.D., Ms. Krynski earned her Master of Science from the Institute for Quantum Computing at the University of Waterloo in Canada. Her research involved qualifying photon detection systems for quantum communication satellites, including radiation testing of candidate detectors and functional testing of flight-model modules. She later led the design and testing of the photon detector module for the Satellite Entanglement Annealing QUantum Experiment (SEAQUE), which is currently operational aboard the International Space Station.

In addition to Ms. Krynski's doctoral studies, she remains actively involved with the SEAQUE project, supporting the analysis and operation of its detector module. She also co-supervises master's students on a collaborative research project with the European Space Agency. At ISAE-SUPAERO, she serves as Secretary of the IEEE Student Branch, helping organize events that connect students with aerospace professionals.

Outside the lab, Ms. Krynski enjoys spending time outdoors and is passionate about hiking, cooking, reading and playing the piano.

Émilie Laflèche

Citizenship: Canada

Proposed Program: Planetary Sciences at Purdue University, USA

Émilie Laflèche is a Ph.D. candidate in planetary sciences at Purdue University. Her research combines biogeochemical, photochemical and radiative transfer modeling to explore how seasonal changes on Earth-like exoplanets may influence future life detection efforts. Her work is directly tied to NASA's upcoming Habitable Worlds Observatory (HWO), the first space-based telescope designed specifically to search for signs of life on exoplanets.

Ms. Laflèche's research contributes to several key science cases that will shape the design and instrumentation of HWO, helping to define humanity's search for life beyond Earth for decades to come. She received her Bachelor of Science with honors in planetary sciences from McGill University, where she conducted research on surface mapping of simulated exoplanets, remote sensing of lunar impact melt deposits, and experimental precipitation of Martian analog bioclays.

During her time at McGill, Ms. Laflèche founded and chaired the Royal Astronomical Society of Canada's Next Gen Youth Committee, for which she was awarded the RASC President's Award. In 2022, she was selected to command a lunar analog mission at the LunAres Research Station in Poland, where she led research projects on 3D-printed geological tools and food growth in lunar analog soils. Following this mission, she founded and led Purdue's Student-Analog Astronaut Training Program (SA2TP) from 2022-2023, a training and support network for the next generation of analog astronauts.

Ms. Laflèche is also passionate about space ethics and is currently co-leading an interdisciplinary study on ethical issues in astrobiology research alongside a team of philosophers and astrobiologists. She actively contributes to several STEM mentoring and public outreach initiatives at Purdue and beyond.

After completing her Ph.D., she aspires to join the Habitable Worlds Observatory science team as a research scientist at NASA, and one day become an astronaut.

Taylor Lonner

Citizenship: United States

Proposed Program: Aerospace Engineering Sciences at University of Colorado Boulder, USA

Taylor Lonner is a Ph.D. candidate in bioastronautics at the University of Colorado Boulder (CU Boulder). Her research focuses on developing countermeasures for vestibular dysfunctions caused by spaceflight, including motion sickness and spatial disorientation—conditions that, beyond being uncomfortable, can jeopardize astronaut performance and mission safety.

Ms. Lonner uses motion devices to simulate the gravitational transitions and dynamic environments astronauts experience during spaceflight. As part of her work, she employs a short-arm centrifuge to expose participants to hyper-gravity under the Sickness Induced by Centrifugation paradigm, which recreates vestibular-driven symptoms associated with spaceflight. She then uses a second motion platform to simulate high-risk operational scenarios, such as water landings in capsules or piloting lunar landers. These analogs are critical for evaluating potential countermeasures aimed at mitigating motion-related disorders in space.

Ms. Lonner earned her bachelor's degrees in geophysics and astrophysics from the University of California, Los Angeles. Her undergraduate research investigated the fluid dynamics of Earth's liquid outer core at low latitudes using laboratory analogs, a project that sparked her lasting interest in centrifugation and simulation techniques. She went on to complete her master's degree in aerospace engineering sciences at the University of Colorado Boulder, where she also earned a certificate in satellite system design.

Outside of her academic research, Ms. Lonner volunteers as a judge for engineering design competitions at a local high school, leads a space medicine journal club through a nonprofit organization and mentors undergraduate and graduate students at CU Boulder. In her free time, she enjoys knitting gifts for loved ones, designing and 3D-printing gadgets and perfecting her sourdough bread recipe.

Elena López-Contreras González

Citizenship: Spain

Proposed Program: Aerospace Engineering at Institut Supérieur de l'Aéronautique et de l'Espace, (ISAE-SUPAERO), Université de Toulouse, France

Elena López-Contreras González is a Ph.D. candidate in aerospace engineering at the Institut Supérieur de l'Aéronautique et de l'Espace (ISAE-SUPAERO) in Toulouse, France. Her research focuses on human performance in extreme environments, with a particular emphasis on applications in space exploration.

Currently midway through her doctoral studies, Ms, López-Contreras González is leading the "Impact of Extreme Environments on the Operation of Critical Systems" (IMMERCOG) project, which examines how factors such as gravity, pressure, and temperature affect cognitive and physical performance in teleoperation—the remote control of robotic systems. This capability is essential for current and future space missions, from operating robotic arms on the International Space Station to navigating lunar rovers.

Ms. López-Contreras González's research spans three experimental environments: laboratory simulations using a physical rover, underwater teleoperation while scuba diving, and in-flight teleoperation aboard an aircraft. By recreating the stressors astronauts may face in space and on planetary surfaces, her work aims to inform safer mission design, improved astronaut training, and more resilient human–robot interaction systems.

Ms. López-Contreras González holds a double degree in aerospace engineering from the Polytechnic University of Catalonia and in business management and administration from the Open University of Catalonia. She also earned a Diplôme d'Ingénieur, equivalent to a master's degree, at ISAE-SUPAERO, where she specialized in data science and Neuroergonomics and Artificial Intelligence.

Outside of her academic work, she enjoys scuba diving, skiing, and running—activities that allow her to explore diverse environments while maintaining physical fitness. She also finds creative fulfillment in playing the piano, a lifelong passion that offers both focus and relaxation.

McKayla Meier

Citizenship: United States

Proposed Program: Geological Sciences at University of Florida, USA

McKayla Meier is a Ph.D. candidate in planetary geology at the University of Florida. Her research takes a multi-perspective approach to understanding lunar evolution, combining geochemical analysis, mission planning and preparation for future lunar return samples.

Ms. Meier's work integrates experimental petrology and isotope geochemistry to identify signatures of lunar magmatic processes. She applies this research to both previously collected samples and the development of protocols for future sample processing. In addition to laboratory experiments and modeling, she contributes to upcoming lunar missions through geochemical analyses of lunar meteorites and surface mapping of potential landing sites to assess crustal diversity and scientific interest.

Before beginning her Ph.D., Ms. Meier earned a Master of Science in planetary geology from the University of Idaho and a Bachelor of Science in Earth science, GIS and chemistry from Oregon State University.

Beyond her scientific research, Ms. Meier is passionate about teaching, outreach and fostering inclusive learning environments in Earth and planetary sciences. She is the co-designer of the international GeoSPACE Field Program and serves as president of the Northern Florida Chapter of the Association for Women Geoscientists. An aspiring university faculty member, she has led graduate school preparation workshops, participated in numerous panels, and mentored students through both research projects and the graduate application process.

Outside of her academic work, Ms. Meier enjoys kayaking and snorkeling in the Florida springs, hiking lava flows and playing ball with her dogs.

Lisette Melendez

Citizenship: United States

Proposed Program: Planetary Sciences at Purdue University, USA

Lisette Melendez is a planetary geologist and Ph.D. candidate in planetary science at Purdue University. She conducts her research in the Laboratory Studies of the Evolution of Airless Planetary Surfaces (LEAPS), under the advisement of Dr. Michelle Thompson. Her work focuses on understanding how the surfaces of hydrated, carbon-rich asteroids are altered by space weathering processes, including micrometeoroid impacts and solar wind irradiation.

Space weathering plays a critical role in shaping the optical properties of airless bodies, which affects how scientists interpret data from remote sensing missions, our primary method for studying solar system objects. Ms. Melendez uses coordinated laboratory techniques to analyze asteroid samples at the micron scale, including electron microscopy, x-ray computed tomography and nano-infrared spectroscopy. Her research involves materials returned from two major space missions: asteroid Ryugu samples from JAXA's Hayabusa2 mission and asteroid Bennu samples from NASA's OSIRIS-REx mission.

Ms. Melendez earned her Bachelor of Science in geology with a minor in astronomy from the University of South Florida. As an undergraduate, she interned with NASA, the Smithsonian National Museum of Natural History and Brown University, working on projects that ranged from asteroid geology and Martian surface processes to echinoderm fossils. She also contributed to the digital preservation of Florida's natural history and archaeological collections at the USF Library and Institute for Digital Exploration.

Outside of the lab, Ms. Melendez enjoys studying art history, traveling to new countries and curating personal collages from her collection of travel mementos, tickets and keepsakes.

ZONTA INTERNATIONAL

zonta.org/AEFellowship

Valerie Mrotzek

Citizenship: Germany

Proposed Program: Aerospace Engineering at University of Stuttgart, Germany

Valerie Mrotzek is a doctoral candidate at the Institute of Aerospace Thermodynamics at the University of Stuttgart. Her research focuses on experimental investigations of near-critical fluid injections, phenomena typically encountered in liquid rocket engines. Under these thermodynamic conditions, fluid injections involve complex phase transitions that remain poorly understood.

Ms. Mrotzek's work seeks to complement recent qualitative observations with quantitative data, particularly regarding droplet size during phase formation near the critical point. To support this goal, she developed a custom optical setup that extends traditional elastic light scattering techniques. Her method combines structured illumination with polarization analysis to improve scattering data quality and interpretation using Mie theory.

She earned both her bachelor's and master's degrees in aerospace engineering from the University of Stuttgart, where she also served as a tutor in thermodynamics. During her academic career, she specialized in mathematical and physical modeling, spaceflight technology and space utilization. For her master's thesis, she spent a semester abroad at KU Leuven in Belgium. One of her most formative experiences was an internship at the German Aerospace Center (DLR) in the Flight Experiments Facility, where she supported operations for major test campaigns.

Outside of academia, Ms. Mrotzek enjoys spending time with her dog, Bravo, whom she is training to become a search and rescue dog. She also enjoys outdoor sports and playing the piano.

Preethi Mysore

Citizenship: United States

Proposed Program: Aerospace Engineering at Georgia Institute of Technology, USA

Preethi Mysore is a Ph.D. student and National Science Foundation Graduate Research Fellow in the Department of Aerospace Engineering at the Georgia Institute of Technology (Georgia Tech). She conducts her research in the High Performance Computing Lab (HPCL) under the advisement of Dr. Joseph Oefelein, with a focus on large eddy simulation (LES) wall modeling techniques for hypersonic boundary layer transition.

Ms. Mysore's research began with the analysis of transition sensors paired with fully turbulent wall models for canonical flows. Her next phase involves developing pre-transitional wall models for compressible flows, based on the stability analysis of perturbations in laminar regions. She will ultimately apply both the transition sensor and pre-transitional wall model to NASA's BOLT-II geometry, which includes flow features relevant to future hypersonic aircraft.

Before starting her Ph.D., Ms. Mysore earned both her bachelor's and master's degrees in aerospace engineering from Georgia Tech. Since 2020, she has interned at NASA's Langley Research Center in the Computational Aerosciences Branch. Her work there has included adaptive mesh refinement for transition modeling, verification and validation of transition models in NASA's FUN3D computational fluid dynamics (CFD) code, and adjoint-based design optimization for airfoils and swept wings.

After completing her doctoral program, Ms. Mysore aspires to work at NASA Langley or a national laboratory developing CFD models for application in industry.

Beyond academics, Ms. Mysore has served on the board of the Georgia Tech chapter of Women of Aeronautics and Astronautics since 2019. The organization fosters community among women and gender minorities in aerospace engineering while engaging in outreach to promote the field. In her free time, Ms. Mysore enjoys cooking, spending time with friends and going on walks and runs around Atlanta.

Margaret Nunn

Citizenship: United States

Proposed Program: Mechanical Engineering at The Pennsylvania State University, USA

Margaret (Maggie) Nunn is a Ph.D. student in the Department of Mechanical Engineering at The Pennsylvania State University. She conducts her research in the Steady Thermal Aero Research Turbine (START) Lab, where she focuses on improving gas turbine performance to reduce fuel consumption and carbon dioxide emissions.

Gas turbines, which are essential for both jet propulsion and power generation, operate in extreme conditions. The main gas path temperatures typically exceed hardware melting points by more than 400°C. To maintain structural integrity, turbines rely on a combination of internal and external cooling systems, creating a complex trade-off between protecting hardware and minimizing the energy used for cooling. Ms. Nunn's research aims to optimize this balance by strategically managing cooling flows to protect turbine components while enhancing overall engine performance. Her work specifically addresses the prevention of hot gas ingestion into critical areas, thereby increasing cooling efficiency and engine sustainability under engine-relevant conditions.

Before pursuing her graduate studies, Ms. Nunn earned her Bachelor of Science in mechanical engineering from the University of Wisconsin–Madison. As an undergraduate, she was involved in research and served as a mentor through Women in Mechanical Engineering (WME), where she supported first- and second-year students in navigating the field.

Outside of her research, Ms. Nunn is actively involved in Graduate Women in Engineering (GradWIE) and the American Society of Mechanical Engineers (ASME).

Palak Patel

Citizenship: United States

Proposed Program: Mechanical Engineering at Massachusetts Institute of Technology, USA

Palak Patel is a Ph.D. candidate in mechanical engineering at the Massachusetts Institute of Technology, conducting research in necstlab within the Department of Aeronautics and Astronautics. A NASA Space Technology Graduate Research Opportunities Fellow, she works under Professor Brian Wardle at MIT and Dr. Valerie Wiesner at NASA Langley Research Center to develop multifunctional materials for extreme environments that will support human deep space exploration.

Ms. Patel's research focuses on creating ultra-lightweight composite materials that integrate nanotubes into polymers to shield astronauts from ionizing radiation on long-duration missions. She also designs materials for lunar dust mitigation and ablative thermal protection systems, with work spanning manufacturing, mechanical testing, radiation beamline exposure, microgravity flight experiments and International Space Station testing.

Ms. Patel earned her Master of Science in mechanical engineering at MIT, where she applied synchrotron-based techniques to study nanoengineered aerospace composites under extreme conditions. She received her bachelor's degree in mechanical engineering from Pandit Deendayal Energy University in India, collaborating with the Indian Space Research Organization on metal manufacturing for space applications.

Ms. Patel has contributed to NASA design challenges in in-situ resource utilization, designing mission architecture and analog simulations, developing concepts for lunar and Martian water extraction, regolith-based metal processing, radiation shielding lunar regolith bricks, recycling on the moon and hybrid moon-Mars mission planning. She also served as an analog astronaut in a student-led simulation in Switzerland.

Beyond her research, Ms. Patel is a safety officer and mentor at MIT's Makerworkshop, an Environmental Health and Safety officer, a graduate residential advisor and a leader of STEM outreach initiatives. She plans to continue advancing technologies for human spaceflight and sustainable exploration beyond Earth. In her free time, she enjoys soccer, painting, running and spending time outdoors.

Carolyn Pethrick

Citizenship: Canada

Proposed Program: Mechanical Engineering at McGill University, Canada

Carolyn Pethrick is a Ph.D. candidate in mechanical engineering at McGill University in Montreal, Quebec. She conducts her research in the Computational Aerodynamics Group under the supervision of Professor Siva Nadarajah. Her work addresses the energy intensity of the aerospace industry by developing high-fidelity computational tools for aerodynamic simulation, enabling engineers to improve efficiency without compromising safety.

Ms. Pethrick specializes in modeling turbulent flows, such as the complex air movement around an aircraft in flight. While conventional industry methods often lack the resolution needed for high-fidelity simulations, advanced methods can be unstable when applied to complex flow conditions. Her thesis develops provably stable algorithms that allow for the use of large time steps, an approach that enhances both reliability and computational efficiency. Her work brings cutting-edge simulation methods closer to real-world aerospace applications, with the goal of accelerating the design process and introducing more efficient technologies to the market faster.

Ms. Pethrick earned her bachelor's degree in mechanical engineering from the University of Calgary, where she specialized in energy and the environment and was supported by the Seymour Schulich Academic Excellence Scholarship. Since moving to Montreal, she has become actively involved in the local aerospace sector, benefitting from the support of the Consortium for Research and Innovation in Aerospace in Quebec (CRIAQ). After completing her Ph.D., she plans to continue advancing numerical methods for the aerospace industry.

Beyond her research, Ms. Pethrick has contributed to science communication as a Writing Fellow at the McGill Writing Centre, where she led workshops on explaining scientific concepts to non-expert audiences. In her free time, she is pursuing a certificate in French.

Kirtee Ramo

Citizenship: Mauritius

Proposed Program: Geosciences at Stony Brook University, USA

Kirtee Ramo is a second-year Ph.D. student at the State University of New York at Stony Brook (SUNY Stony Brook), where she studies planetary geochemistry and mineralogy. Her research focuses on the analysis of carbonate-rich lithologies in Jezero Crater, Mars, using data from the Planetary Instrument for X-ray Lithochemistry (PIXL), the first micro–X-ray fluorescence spectrometer deployed on the Martian surface. As a student collaborator on the PIXL team for NASA's Mars 2020 mission, Ms. Ramo contributes to understanding the extent of aqueous activity in Jezero Crater and supports efforts toward Mars Sample Return.

Ms. Ramo's doctoral research centers on the Margin Unit, one of the most exposed carbonate-rich terrains on Mars. She also conducts laboratory studies at Stony Brook using a PIXL prototype to analyze terrestrial analog samples and compare them to in situ Martian data.

Prior to her doctoral studies, Ms. Ramo earned bachelor's degrees in geology and biochemistry and molecular biology, with a minor in astronomy, from Bryn Mawr College. She completed her master's degree in geodatascience at Purdue University.

Following her Ph.D., she hopes to continue working on space missions at a national research laboratory. Ultimately, she aspires to serve as a science advisor for a legislator or nonprofit organization, helping to bridge the gap between scientific research and public policy.

Outside of her research, Ms. Ramo is active in the Graduate Student Organization at SUNY Stony Brook and advocates for better working conditions for graduate students as an organizer for the Research Assistants Union. In her free time, she enjoys reading, cooking, dancing, watching sports and volunteering with nonprofits in New York City.

Martina Rusconi

Citizenship: Italy

Proposed Program: Aerospace Engineering at Politecnico di Milano, Italy

Martina Rusconi is a Ph.D. candidate in aerospace engineering at Politecnico di Milano, where she is part of the COMPASS research group. Her work supports the ERC-funded GREEN SPECIES project and focuses on developing long-term strategies to address the growing threat of space debris and ensure the sustainability of orbital operations.

As satellite launches increase and current mitigation methods fall short, Ms. Rusconi combines orbital dynamics modeling with automated control strategies to identify effective remediation policies. She also contributes to international initiatives advancing practical and scientifically informed approaches to managing outer space as a shared resource.

In addition to her doctoral research, Ms. Rusconi is involved in several space sustainability efforts, including the creation of environmental indicators such as the European Space Agency's THEMIS index, which assesses the ecological impact of space missions.

Ms. Rusconi holds both a master's degree in space engineering and a bachelor's degree in aerospace engineering from Politecnico di Milano. During her graduate studies, she spent time at KTH Royal Institute of Technology in Sweden as an exchange student, where she worked on a thesis simulating a CubeSat landing on an asteroid for small-body exploration.

Long term, Ms. Rusconi hopes to help shape the future of sustainable space activities through interdisciplinary research, collaboration and policy advocacy. Outside of her academic work, she enjoys hiking, reading, painting and volunteering at a local cat shelter, supporting the care and adoption of rescued animals.

zonta.org/AEFellowship

Anna Taylor

Citizenship: United States

Proposed Program: Planetary Sciences at University of Arizona, USA

Anna Taylor is a Ph.D. student in planetary sciences at the University of Arizona, where she studies the upper atmospheres of exoplanets. Her research examines how hydrogen and helium escape from hot Jupiter-sized exoplanets under intense stellar radiation, using hydrodynamic simulations, stellar flux models, and spectroscopic observations to explore planetary evolution and star–planet interactions.

Ms. Taylor earned her Bachelor of Science in honors in physics, with minors in mathematics and computer science, from North Carolina State University in 2023. As an undergraduate, she conducted research on binary star hydrodynamics and stellar chromospheres. In 2022, she interned at NASA Goddard, using the PHOENIX code to model stellar atmospheres. Her work earned her recognition as a John Mather Nobel Scholar, and her first-author paper on stellar Mg II line formation was published in The Astrophysical Journal in 2024.

In addition to her research, Ms. Taylor is deeply committed to science communication and outreach. She is a lead instructor for Sky School, an outdoor STEM program that brings K–12 into the field to engage with planetary science through research and discovery. She also mentors high school students through the STAR Labs program, volunteers with the Arizona Science Center's Girls Who STEM initiative and regularly participates in outreach events and classroom visits.

Receiving the Amelia Earhart Fellowship has strengthened Ms. Taylor's dedication to planetary science and educational equity. She hopes to pursue a career in academia that combines research, teaching and mentorship to foster a more inclusive scientific community and inspire future generations.

In her free time, Ms. Taylor enjoys trail running, backpacking, rock climbing, exploring new cuisines, spending time with friends and reading fantasy novels.

Melissa Yeung

Citizenship: United States

Proposed Program: Mechanical and Aerospace Engineering at Syracuse University, USA

Melissa Yeung is a Ph.D. student and National Science Foundation Fellow in mechanical and aerospace engineering at Syracuse University. Her research in computational fluid dynamics centers on active flow control of complex supersonic flows using data-driven methods and reduced-order models. Specifically, she investigates how small perturbations, introduced through active flow control, can be used to manipulate aerodynamic flows within a supersonic multi-stream rectangular nozzle, improving performance even under off-design conditions.

While input-output methods exist to optimize control strategies, they often demand high computational power and access to high-fidelity solvers, limiting their use in experimental settings. Ms. Yeung is working to improve the predictive capabilities of data-driven input-output analysis, making these tools more accessible for both computational and experimental applications. She is also developing adaptive feedback control systems that rely on reduced-order models, which update in real time using limited sensor data. This enables more accurate future-state predictions and real-time adjustments that optimize energy use and system performance.

Following her Ph.D., Ms. Yeung hopes to advance aerospace systems at institutions like NASA or the Air Force Research Laboratory, contributing to the development of more efficient and accessible air transportation. She is also committed to mentoring young women in engineering and diversifying the field. Outside of her academic pursuits, she enjoys painting and playing the piano.

Soha Yusuf

Citizenship: Pakistan

Proposed Program: Mechanical Engineering at Rensselaer Polytechnic Institute, USA

Soha Yusuf is a doctoral student in mechanical engineering at Rensselaer Polytechnic Institute, where she conducts advanced research in computational fluid dynamics and artificial intelligence. The goal of her doctoral research is to enhance the efficiency of numerical simulations in aerospace engineering by integrating advanced machine-learning techniques. She specifically focuses on accelerating the preconditioning process in computational fluid dynamics using machine learning algorithms, particularly graph neural networks and reinforcement learning.

Ms. Yusuf earned her bachelor's degree in mechanical engineering from the National University of Sciences and Technology in Pakistan, where she graduated with a silver medal. During her undergraduate studies, she was selected for the U.S. Department of State's Global Undergraduate Exchange Program at Western Carolina University, an experience that strengthened her academic foundation and fostered international collaboration.

Originally from Jhang, Pakistan, Ms. Yusuf grew up in a close-knit community that instilled in her a deep appreciation for community and perseverance. At the age of 16, she co-founded Little Wings Tuition Center to provide education for underprivileged children in her hometown. She continues this spirit of mentorship as a teaching assistant, supporting undergraduate students in core engineering courses.

In recognition of her academic excellence and collaborative spirit, Ms. Yusuf was awarded the Founders Award of Excellence in 2024 at Rensselaer. She hopes to continue her work at the intersection of fluid dynamics and machine learning to enhance aerospace innovation.

Outside of her academic work, Ms. Yusuf enjoys painting landscapes and writing stories, creative outlets that bring fresh perspectives to her academic work.

2025 Amelia Earhart Fellow

Fatima Zaidouni

Citizenship: Morocco

Proposed Program: Physics at Massachusetts Institute of Technology, USA

Fatima Zaidouni is a Ph.D. candidate in physics at the Massachusetts Institute of Technology (MIT), where she studies the environments surrounding supermassive black holes using high-resolution X-ray spectroscopy. Her research focuses on modeling the signatures of outflows in active galactic nuclei to better understand how black holes influence the evolution of their host galaxies. She uses state-of-the-art X-ray telescopes—including XRISM, XMM-Newton and NuSTAR to explore the physics of highly ionized gas near black holes.

Before beginning her doctoral studies at MIT, Ms. Zaidouni earned a master's degree in astrophysics from the University of Cambridge as a Gates Cambridge Scholar. Her work there centered on analyzing high-frequency X-ray variability in black holes using data from NASA's NICER telescope. She completed her undergraduate degree in physics and astronomy at the University of Rochester, where she conducted research in computational cosmology.

Ms. Zaidouni has also held research appointments at institutions including UC Berkeley, Princeton University and Google, working on topics ranging from void-finding algorithms and microlensing modeling to rare-event and outlier detection using machine learning. In summer 2025, she joined the AstroAI Institute at the Center for Astrophysics at Harvard, where she worked on developing multimodal deep learning models to predict outflow properties from spectral and temporal data in black hole systems.

Outside of academia, Ms. Zaidouni is passionate about helping students from underrepresented backgrounds to navigate research careers. She mentors high school and undergraduate students in astronomy and scientific computing, and is dedicated to promoting accessibility and equity in science.

ZONTA INTERNATIONAL

zonta.org/AEFellowship