**2020 Goddard Keynote Scholarship Finalists**

The National Space Club & Foundation is pleased to share the eight finalists for the 2020 Goddard Keynote Scholarship. The leadership was both impressed and inspired by these excellent candidates - we consider them all a part of the Space Club family. If you are interested in contacting the candidates below for academic or employment opportunities, please reach out to info@spaceclub.org.

**Winner: Helen Buchanan**

Helen Buchanan is a freshman at UC Berkeley, studying Planetary Science. Growing up Helen had her head in the stars and her feet on the earth, fascinated by both rocks and space. She spent her elementary school years home schooling and travelling to national parks to learn about the local geology and to watch the night sky. During high school Helen found new passions in ballet and 4-H. She shared her love of dance by teaching both a teen and preschool ballet class, while preforming story ballets for her community. In 4-H she led her club as the president in her final year and helped grow her beekeeping project into a strong educational program. She used her extensive knowledge of bees to craft an engaging Girl Scout Gold Award project that taught elementary students the benefits of bees and how they could help sustain them. Helen completed all the science classes offered at her high school and in her senior year, Helen rediscovered her love for rocks and space through a community college astronomy class. After taking this class she was inspired to pursue her past dreams and study Planetary Science at UC Berkeley. Since then Helen has joined her department's Geology club, attended her first American Geophysical Union Conference in San Francisco, and was invited to pursue research in the Earth and Planetary Sciences Department. Helen dreams of being an astronaut and of sharing her love of rocks and space with new generations in hopes of inspiring them to preserve this tiny blue dot we live on.

**Finalist: Ragini Balachandran**

Ragini Balachandran is a first-year student at Cornell University, pursuing an undergraduate degree in the Sibley School of Mechanical and Aerospace Engineering. On-campus, she is actively involved in Cornell Venture Capital, Engineers Without Borders, and undergraduate research. Ragini's enthusiasm for space has been sparked by her experiences as a research assistant in the University of Maryland's Department of Astronomy, a Space Club Scholar at NASA Goddard, and an intern in the Alfred Gessow Rotorcraft Center. She has also communicated her space physics and aeronomy research findings at the 2018 and 2019 American Geophysical Union Fall Conferences. In high school, Ragini led a FIRST Tech Challenge robotics team and a UAS4STEM drone team. Under her leadership, both teams advanced to the highest levels of competition and received national and international recognition. In her free time, she likes to bike, read non-fiction, and support STEM initiatives by volunteering on behalf of the Rockville Science Center in Maryland at events such as the USA Science and Engineering Festival, Kidfest, and Rockville Science Day. After graduation, Ragini hopes to contribute to the design of future spacecraft and push the boundaries of human exploration of space.

**Finalist: Turner Bumbary**

Turner Bumbary is currently a senior at Thomas Jefferson High School for Science and Technology in Alexandria, Virginia. This fall, he plans to study mechanical engineering with an aerospace engineering specialization at the California Institute of Technology. In school, Turner is an avid researcher and leader, serving as a representative to the Fairfax County School Board and the team captain of his school's rocketry team. In 2018 he led his team to the national competition where they placed within the top 10% of 1,000 teams nationwide and secured over $1000 in funding from Lockheed Martin. Turner is also passionate about research, particularly CubeSats, and he has run numerous experiments with the SPIRE corporation which owns and operates over 80 nanosatellites. Turner's research with the SPIRE corporation has won accolades from NASA and the Naval Research Laboratory and placed third at the state science fair. Aside from academics, Turner is passionate about increasing access to STEM education. He volunteers for the LIFE organization, which serves aspiring students at local Title I schools. Furthermore, in 2018 he met with his senator, Tim Kaine, to discuss declining educational budgets and to provide input for new policies. At Caltech, he plans to pursue his interests in aerospace engineering by collaborating with researchers at the NASA Jet Propulsion Laboratory and Caltech Center for Autonomous Systems. Turner is passionate about space and intends to explore the unknown frontiers through his creations.

**Finalist: Katie Kolodner**

Katie Kolodner is a senior in the International Baccalaureate magnet program at Richard Montgomery High School in Rockville, Maryland. As outreach captain of her robotics team's non-profit organization, the Rockville-Montgomery Robotics Association, Katie has created custom curricula and taught hundreds of students in programs and workshops targeting underrepresented demographics. Over the past two summers at NASA Goddard as a National Space Club and Foundation Scholar, she worked in the Advanced Manufacturing Branch applying mechanical design and additive manufacturing techniques to 3D model fabrication for NASA mission flight proposals. Additionally, during her academic year ASPIRE internship in JHU/APL's Space Exploration Sector; Katie programmed 2D and 3D printing capabilities for a robotic arm. She is also a Cadet Chief Master Sergeant and serves as Cadet First Sergeant of the Civil Air Patrol (CAP) Bethesda-Chevy Chase Squadron, providing cadet support and guidance while learning aerospace under Air Force customs. Aligning with CAP's mission, her independent research projects have focused on emergency response, evaluating elevation data and causes of flooding in Houston after Hurricane Harvey and using smoke-penetrating satellite imagery over the California Camp Fire to assist in future wildfire search-and-rescue operations. In the future, Katie hopes to pursue a career in astrophysics or aerospace engineering, dedicated to creating beneficial change locally and globally through STEM.

**Finalist: Mary Minasyan**

Mary Minasyan is currently a senior at Herbert Hoover High School, a public school in Glendale, California. She received the Rensselaer Medal Award and Mathematics Department Award as a junior for her high achievement as a top science and math student in her class. Ms. Minasyan is also a National Merit Semifinalist and AP Capstone Diploma recipient, having evaluated potential light pollution regulation in her local community for her AP Research study. In school, she serves as the president of Hoover Key Club and one of the student co-directors of One Club, an initiative to mentor and provide enrichment opportunities for incoming freshmen. Ms. Minasyan competes annually with her school's Science Bowl team and will captain her team in the upcoming 2020 Los Angeles Regional Science Bowl held at the Jet Propulsion Laboratory. In her free time, Ms. Minasyan enjoys playing the violin, practicing modern brush calligraphy, and tending to her school's garden beds through Keep Hoover Beautiful Club. She plans to pursue an undergraduate degree in Astronomy and continue her studies to the doctoral level so she can uncover the many mysteries of the cosmos.

**Finalist: Michael Nguyen**

Michael Nguyen is a Senior at South Forsyth High School, a public school in Cumming, Georgia. He is also enrolled in the Distance Math Program at the Georgia Institute of Technology. In Summer 2019, Michael worked as an Intern at the Center for Space Research at UT Austin, where he did research relating to the ICESat-1 and ICESat-2 missions. Serving as Captain of his school's VEX Robotics Team, Michael's team has consistently qualified for the World Championship since 2016, ranking 4$^{th}$ in the High School Technology Division in 2019. He is also the Founder and President of his school's Physics club, where Michael has worked to provide tutoring and coursework to make physics and physics competition more accessible. He also serves as Secretary of his school's Technology Student Association (TSA) Chapter. Michael placed first at the TSA State Leadership Conference in Electrical Applications, Software Development, and Robotics. Michael is currently undertaking research concerning the possible correlation between computer complexity and laptop stability under Cosmic Radiation. Outside of academics, Michael is an Eagle Scout from Troop 207, —his Eagle Project was concerned with the repopulation of the Relict Trillium, a federally endangered species—and he works as a Robotics Instructor at Genius Hangouts, an afterschool program where he shares his passion for robotics and scientific research with Elementary and Middle School students. After graduation, Michael plans to pursue an undergraduate degree in Electrical Engineering with the hopes he will develop technologies that expand scientific understanding of Earth and Space.

**Finalist: Esther Putman**

Esther Putman is a graduate student at the University of Colorado at Boulder, pursuing a master's degree in Aerospace Engineering with a focus in Bioastronautics. After a summer astronomy program in high school, she knew right away that she wanted to pursue a career studying our species' exploration beyond Earth. She began to explore this passion as a biological research and design intern with Space Tango, a commercial hardware provider for research and manufacturing on the International Space Station. She spent the summer of 2017 as an intern in NASA's Space Life Sciences Training program, where she explored bone marrow stem cell differentiation after exposure to spaceflight stressors to further our understanding of how to prevent astronaut bone density loss in spaceflight. Esther was selected as a 2018 Brooke Owens Fellow, where she worked as a space systems intern at Vulcan Inc. At Vulcan, she utilized satellite Earth observations to develop monitoring, modeling, and prediction technologies aimed towards addressing large-scale global issues such as illegal fishing activity, poaching of elephants, and coral reef conservation. She was named a 2018 Women in Aerospace Foundation Scholar, a 2018 Astronaut Scholar, and an AIAA Diversity Scholar. She served as the student board president for the American Society for Gravitational and Space Research from 2018-2019. Through this position she developed space life science curriculum, participated in classroom visits and STEM outreach events, and educated policymakers and representatives in Washington, D.C. about the value of space-based research. Esther is passionate about using her education and experiences to show the world how access to space impacts life here on Earth.

**Finalist: Aliyah Weaver**

Aliyah Weaver is a senior at Central Magnet School, a competitive public magnet school in Murfreesboro, Tennessee. She plans to study applied and pure mathematics at Vanderbilt University in the 2020 fall semester. Aliyah has expressed her academic interests through competitions and honor societies. For seven years, Aliyah has participated avidly on her Science Olympiad team, competing in both testing and building events on the regional and state levels; and she is the current president of her Science Olympiad team. Aliyah is the Vice-President of her school's Science National Honors Society and Mu Alpha Theta chapters. She has competed enthusiastically on the math team for four years, and has attended and medalled at competitions on both the regional and state level. Aliyah has cultivated her interest in mathematics through various summer programs. She has taken classes in both Combinatorics and Abstract Mathematics at the Vanderbilt Summer Academy; she was also selected to attend the highly competitive Tennessee Governor's School for the Sciences and Engineering, where she enrolled in an interdisciplinary mathematics class for college credit at the University of Tennessee in Knoxville. Aliyah is currently working on a book called *Mathemantics: The Applications of Discrete Mathematics and Theory in Chemistry*, which serves as an introductory-level summarization of both basic discrete mathematical concepts and their applications to collegiate chemistry. With this book, Aliyah aims to bridge the gap between highly complex academic resources and the bounds of traditional high-school curricula. Aliyah wants to encourage both non-STEM undergraduate students and high-school students with high mathematical aptitudes to venture beyond the material readily available to them. In college, Aliyah hopes to continue this project of relating higher-level mathematics to other natural sciences like biology or physics.