

### **2021 Goddard Keynote Scholarship Finalists**

The National Space Club & Foundation is pleased to share the nine finalists for the 2021 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](mailto:info@spaceclub.org).

#### **Winner: Yash Kadadi**



Yash Kadadi is a high-school senior at The Westminster Schools of Atlanta. He has a deep, lifelong passion for space exploration, and he is an active researcher in space weather forecasting technology at NASA Johnson Space Center. His project, SWIFT (Space Weather Imaging + Forecasting Tool), is a next-generation machine learning model that analyzes solar magnetograms and forecasts deadly solar weather (such as solar flares) that threaten both astronauts and modern infrastructure. Currently, he is working on integrating his code with NASA's operational toolkit for the Artemis Moon missions as well as future Mars missions. His research has made him a Regeneron Science Talent Search (STS) Top 300 Scholar, a Regeneron International Science and Engineering Fair (ISEF) Finalist, and a Davidson Fellows Scholarship Honorable Mention. Outside of his research, Yash is the VP of Business and STEM Outreach on his school's robotics team, The WiredCats, where he spearheads outreach and sustainability initiatives in his community. He also leads his school's Discovery outdoors program and award-winning filmmaking club (StudioW). In his free time, Yash enjoys music production, weight lifting, making YouTube videos, and cooking with his family. Studying Computer Science in college, Yash wants to explore how software can intertwine with aerospace engineering, astrophysics, and math to uncover the universe's deepest mysteries. Yash sees himself founding his own aerospace company one day to help colonize the Moon, Mars, and the solar system.

#### **Runner-Up: Eleanor Sigrest**



Eleanor Sigrest is a senior at the Governor's School @ Innovation Park and Forest Park High School in Prince William County, Virginia. She plans to dual major in Aerospace Engineering and Computer Science. Eleanor has a lifelong passion for space related research and is the 2016 Broadcom MASTERS Samueli Foundation Prize winner, the 2017 Virginia Junior Academy of Science Best of Symposium Award winner, a Regeneron International Science and Engineering Fair (ISEF) finalist, and a 2021 Regeneron Science Talent Search Top 40 Finalist. Eleanor is a budding microgravity researcher. She personally raised \$25,000 to fly her slosh experiment aboard a zero-gravity flight. Eleanor won the AIAA Design|Build|Launch competition and in 2021 will send her experiment

beyond the Kármán Line aboard Blue Origin's New Shepard. Her slosh mitigation technique is patent pending. Eleanor led her VEX robotics team to consecutive Virginia State Championships and World's Design awards. She has attended the Virginia NASA Residential Governor's School, and completed Private Pilot ground school. Eleanor's activities, including Russian language club, are focused on her goal to be the computer science specialist on the first mission to Mars. Eleanor loves performing violin trios with her two brothers, playing the ukulele with her two sisters, traditional loom weaving, and quilting. Eleanor advocates for greater female representation in STEM through her rocket workshops for middle school girls and international public speaking. Eleanor loves seeing the excitement as a middle schooler launches her first rocket. It reminds Eleanor of the encouragement that fuels her passion, and inspires her mission of promoting innovation from unexpected places, as she believes it is key to solving the challenges of interplanetary travel. Eleanor cannot wait for her next weightless adventure and aspires to be the first person on Mars.

#### **Finalist: Julien Kearns**



Julien Kearns is a senior at School Without Walls Senior High School and dually enrolled at George Washington University. He plans to pursue physics and astronomy in college and has aspirations to earn a PhD. His time in high school is representative of his deep passion for astrophysics and interest in other pursuits. He is an accomplished member of the school debate team, qualifying for the league's metrofinals tournament the last two years. A member of the rocketry team, he and his team built model rockets weekly in preparation for The American Rocketry Challenge. He has spent his summers broadening his scientific experiences and knowledge. Prior to high school, Julien spent a summer learning at the Green Bank Radio Observatory in West Virginia, and completing research on pulsars using radio data for the pulsar search collaborative. In 2019, Julien was selected as the Smithsonian's Shirley Ann Jackson Science Intern, where he worked at the Air and Space Museum, explaining complex concepts to thousands of visitors. As part of the Apollo 50 celebrations he presented at the National African American History and Culture Museum. This skill in explaining astronomy and physics to the curious persists, as he continues to hold talks for other young people in his community and beyond. In 2020 he was selected for Northwestern University's High School Summer Research Program and spent the summer learning Python. In his spare time Julien started a platform on YouTube to spread his own personal research project using Physics to explain comic books phenomena and share his ideas with anyone curious.

### **Finalist: Curtis Lawrence III**



Curtis Lawrence, III is a senior at School Without Walls High School, a selective magnet school in Washington, DC, and a dually-enrolled sophomore at George Washington University through the GW Early College Program. As a Dean's List student at GW, he has not only been able to take high-level courses such as Single-Variable Calculus I and II, but he has also had the opportunity to volunteer with Dr. Catherine Forster, a Geology professor, in her lab, identifying the fossils of a recently discovered dinosaur. He has served as Co-President of his school's STEAM Club, which worked to develop a STEAM room containing technology such as 3D printers, a laser cutter, and a CNC machine, for students to work on school and extracurricular projects while developing an interest in STEM. Outside of school, he is currently the captain and lead coder for his VEX Robotics team, which won the 2020 DC State Championship and advanced to the VEX Robotics World Championship; he is also captain of his Tri-Math-A-Lon Math Competition team, which placed 2nd in a national competition based on principles from Geometry thru Calculus. As the founding President of the DMV NSBE, Jr Chapter of the National Society of Black Engineers, Jr, he has led STEM outreach efforts to introduce underserved and minority elementary school students to STEM and the mission of NSBE. As a middle and high school math tutor, Curtis helps students rediscover a passion for math. Curtis also enjoys practicing the martial art of Capoeira, becoming more fluent in Mandarin, and reading sci-fi and fantasy novels. He plans to study biology and computer science and ultimately get his Ph.D. to become the 1st Black male paleontologist with a Ph.D.

### **Finalist: Elaine Swanson**



Elaine Swanson is a mathematical biology and botany post baccalaureate student at Oregon State University (OSU). Her future area of research involves modeling bioregenerative life support systems (BLSS) for human habitats and genetic research in photosynthesis. Elaine was a NASA intern with Kennedy Space Center's crop production team in the summer of 2018. Since then, she has established and led an Astrobotany Research Group (ARG) at OSU and currently works as the principal developer for the Science, Technology, and Astrobotany Research Room (STARR) located at Evergreen Aviation and Space Museum. A NASA funded project, STARR is an interactive exhibit and education center intended to extend the public's access to science education and environmental advocacy by way of sustainable food production methods. The two-time NASA Oregon Space Grant scholarship winner also works as a mathematics tutor and has been accepted for a research project with OSU's Ocean Color Group under Dr. Michael Behrenfeld. As a scuba diver, amateur sailor, farmer, and backpacker, Elaine has ambition to explore and recognize the many aspects of biological and biogeochemical systems on Earth. She intends to take the knowledge gained from studying the planet's processes and apply it to a dynamic career in the novel field of Astrobotany.

**Finalist: Nicole Swatton**



Nicole Swatton is currently a junior at Arizona State University studying electrical engineering with a focus in energy and power systems and a minor in sustainability. Nicole was a photovoltaic device testing intern at the NASA Glenn Research Center during the 2020 Spring and Summer sessions. During her time as an intern, she served as a peer mentor to fellow interns to foster community during the Pandemic and as the NASA Glenn Research Center Co-Chair for the NASA Pathways Cross Center Collaboration organization. At Arizona State University she serves as an ambassador for the school of Electrical Engineering. She is a Brooke Owens 2021 Fellow and has participated in various NASA design competitions. Nicole works at the DEFECT Laboratory on the ASU campus contributing to research on silicon wafer spalling. Outside of her academic pursuits, she has served as a teacher for four to seven year olds on engineering concepts as well as a mentor for high school students. She also dedicated two years as the Undergraduate Chair for the Institute of Electrical and Electronic Engineers (IEEE) and tripled undergraduate membership within the club. In her free time, she creates educational content through instagram providing resources for women in STEM and enjoys to play guitar and sing. After graduation, Nicole is excited to pursue a graduate degree in material science to further push the boundaries of solar energy within the aerospace industry.

**Finalist: Matthew Tan**



Matthew Tan is a sophomore at Stanford University studying Aerospace engineering. He is excited by the technological complexity of space flight and is deeply interested in aerospace research, having worked with Aurora Flight Sciences on high-speed pathfinding and LiDAR perception algorithms for autonomous Unmanned Aerial Vehicle (UAV) navigation, and the Air Force Research Lab developing machine learning models for real-time acoustic signature detection and classification of UAV systems. Matthew has also conducted research on generating Gaussian beams with high coherence using Fournier Optics in the Nir Davidson Lab: Cold Atoms and Laser Physics Group at the Weizmann Institute of Science in Israel, creating laser array coupling techniques for quantum and statistical mechanics research using a 4f telescope. Currently, he leads research teams with the Stanford Student Space Initiative (SSI) developing guided payload recovery systems for High Altitude Balloon (HAB) platforms, studying methods of using planetary regolith and protein polymer for in situ construction, and designing a system to launch large model rockets from HAB platforms in hopes of passing the Karman line. An alum of the Research Science Institute and the winner of the 2018 "Rickoid of the Year" award, Matthew continues to play an active role in mentoring high school students and promoting STEM education through programs spearheaded by the Center for Excellence in Education and the Department of Defense. In his spare time, he enjoys sailing, skiing, composing music, flying airplanes, and designing general aviation devices to modernize older airplanes. After earning a master's degree in aeronautics and



astronautics, Matthew hopes to work for a major aerospace company, having a hand in designing the next generation of air and space travel. A licensed pilot, he vows to one day build and fly his own airplane.

#### **Finalist: Eden Winga**



Eden Winga is a senior at Central High School, a public school in La Crosse, Wisconsin. Since attending a project-based learning middle school, she has developed a passion for making STEM education more interactive and personalized through “We are MARS,” an international organization she founded that works to empower future space explorers. She has enjoyed hosting “Earth and Space Days” at her local children’s museum online webinars with space professionals to get her online audience of over 600 students involved in space science. Eden’s pursuit of project-based learning led her to be chosen for the NASA STEM Enhancement and Earth Science Internship her sophomore year, where she collaborated with other students to CAD design and 3-D print a Martian habitat, which was published and recognized by NASA and Robert Zubrin, founder of The Mars Society. Eden’s additional interests include public speaking and mock trial. During all four years of high school, Eden has been the captain of her city’s mock trial team. Under her leadership, the team has won three regional championships and Eden has received the Wisconsin Mock Trial Attorney of the Year Award twice at the state competition. Eden plans to study planetary science with minors in entrepreneurship and education studies to one day become the first botanist on Mars and then return to found her own project-based learning school.

#### **Finalist: Rebecca Zurek**



Rebecca Zurek is a senior at Carmel Catholic College Preparatory High School, and plans to study aerospace engineering at Embry Riddle Aeronautical University/Daytona this fall. Ms. Zurek’s most notable honors include being a two-time National Association of Rocketry National Champion, a member of the United States FAI International Spacemodeling Team - where she will be representing the United States in Romania - and receiving both the Presidential and Women of Excellence in STEM Scholarships from Embry Riddle. Rebecca was also awarded a Physicists Inspiring the Next Generation Scholarship to study at the Green Bank Observatory, where she then became part of the Pulsar Search Collaboratory research project, furthering our knowledge of outer space. Ms. Zurek founded a rocketry club and competitive rocketry teams in her community; introducing younger children to STEM, teaching the basics of flight, and particularly focusing on applications in rocketry and space, and, in turn, bringing in many new rocketeers. Because of her Aerospace aspirations and excitement, Ms. Zurek was instrumental in bringing Project Lead the Way Aerospace Engineering to her high school; which has since inspired hundreds of new high school students to learn about & aspire to explore the skies. Rebecca is also a co-founder of her high school’s Society of

Women Engineers chapter – *“FemInSTEM”* and has introduced her school to the Illinois Junior Academy of Science; of which she has earned two gold medals in both the paper and poster sessions and whose research projects, like “The Shape of Fins to Come: What Fin Cross Section Would Have the Least Amount of Drag?” and “Hole-y Chutes! Does the Size of a Spill hole of a Parachute Affect the Duration of a Rocket Recovery?” have each been named the Best in Aerospace Science two times at the State level. Ms. Zurek has always been fascinated with space and thrives on introducing young people to all that space discovery holds. Because of her passion, commitment, and hard work, Rebecca has been invited to become a member of the National Association of Rocketry’s Inaugural Junior Advisory Board and will be helping to guide and encourage young people to explore model rocketry & the aerospace field. She has also been a 4-H Ambassador for 3 years introducing about 80 children, 23 of whom are girls, into rocketry and helping them become certified rocketeers. She loves helping younger students and also tutors in Science, Engineering, and Math. Rebecca is involved in numerous activities, honor societies, and leadership roles. She is hoping to use her education and research in areas of aerodynamics, to help develop and streamline the functionality and efficiency of space travel, particularly focusing on Mars and outer planets with a potential for life, security, and commerce. Rebecca aspires to help further a world where the sky is not the limit, but only the beginning.