

Aragya Goyal

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EDUCATION

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- University of Pittsburgh (Swanson School of Engineering)** **Pittsburgh, PA**
 - B.S. - Computer Engineering (Autonomous Systems Focus); GPA: 3.99* *August 2022 - April 2026*
 - Courses:** Data Structures and Algorithms, Embedded Processors, Microelectronics, Digital Circuits

SKILLS AND AWARDS

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- Languages:** Python, C++, ARM Assembly
 - Technologies:** Linux, ROS, Github, Solidworks, MATLAB, Microsoft Products, Arduino, Raspberry Pi, OpenCV
 - Manufacturing:** Milling, Soldering, Laser Cutting, General Shop Tools
 - General Awards:** Dean's Honor List (2021-Present), Honor List (2021-Present), Eagle Scout
 - Engineering Awards:** FSAE Innovation Award, FIRST Chairman's, FIRST Excellence in Engineering, FIRST Industrial Design Award, VEX Judges Award

PROFESSIONAL EXPERIENCE

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- Carnegie Mellon University Robotics Institute (Biorobotics Lab)** **Pittsburgh, PA**
 - Undergraduate Research Intern (Part-Time)* *April 2023 - Present*
 - Underwater Snake Robot:** (Link: <http://tinyurl.com/humrsCMU>)
 - Implemented High-Frequency Injection methods in BLDC thrusters to achieve control at low/zero speeds.
 - Working to implement station-keeping feature using AprilTags and IMU readings.
 - Apple's E-Waste Recycling Project:** (Link: <https://tinyurl.com/applecmu>)
 - Created large datasets for Machine Learning Models to detect screws in e-waste images.
 - Integrated ROS and Python packages to track ArucoTags using a Realsense camera for localization of robotic arm.
 - Manufactured custom AprilTags using lasercutters and sheet metal manufacturing methods.

RELATED EXPERIENCE

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- Society of Astronautics and Rocketry** **Pittsburgh, PA**
 - Chief Engineer (Student Led Organization)* *August 2022 - Present*
 - Leading a group of approx. 30 students to design and fabricate a rover to participate in the University Rover Challenge. (Link: <https://tinyurl.com/roverimages>)
 - Led the development of a prototype robotic hand using pneumatics. (Link: <https://tinyurl.com/hydraarm>)
 - FIRST and VEX Robotics** **Royersford, PA**
 - Team Captain/Design Lead (Student Led Organization)* *August 2018 - June 2022*
 - Designed six robots in **Solidworks** across four years. All robots qualified for higher level of competition.
 - Taught younger students about robot design and manufacturing through workshops and general building.
 - Won the VEX Judges Award, FIRST Excellence in Engineering Award, FIRST Industrial Design Award, and the FIRST Chairman's Award.

PROJECTS

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- STM-32 Elevator Simulator (ARM Assembly, Project Integration):** Designed and Implemented software architecture in ARM Assembly to operate a physical elevator simulator PCB. (Link: <https://tinyurl.com/stmelevator>)
 - Custom Cane (Human Centered Design, Solidworks, Presentation):** Designed and manufactured a Walker-Cane Fusion to make bathrooms more accessible for wheelchair users. The project won first place at the Senior Design Expo within its category. (Link: <https://tinyurl.com/CustomCane>)
 - Formula SAE E-Brake Bias (Solidworks):** Developed an award winning e-brake bias system for a formula style racecar, utilizing Solidworks and 3D printing technology to enhance performance and usability. (Link: <https://tinyurl.com/ebrakeb>)
 - String Art Generator and Optimizer (Research, Python):** Developed an innovative string art optimization tools and GUI using Python programming to improve upon existing string art generators. (Link: <https://tinyurl.com/goyalstring>)
 - Silicon Prosthetic Hand (Research, Solidworks):** Designed and Manufactured prototype prosthetic hand with silicone soft actuators and tested with human participants for AP Research Project. (Link: <https://tinyurl.com/myprosthetic>)
 - Bird Sanctuary Restoration (Eagle Scout Project, Volunteering):** Organized a project to restore parts of the Audubon Bird Sanctuary by painting fences, guardrails, and small buildings. (Link: <https://tinyurl.com/goyaleagle>)