Aragya Goyal

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EDUCATION

- **University of Pittsburgh (Swanson School of Engineering)**   **Pittsburgh, PA**
  B.S. - Computer Engineering (Autonomous Systems Focus); **GPA: 3.99**   *August 2022 - April 2026*

SKILLS AND AWARDS

- **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

- **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

- **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)
  - Quickly established oneself as a valuable contributor to the team's efforts, taking on a lead role in the development of the robotic hand using pneumatic technology. (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

- **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)