

Aragya Goyal

Linkedin: [linkedin.com/in/aragya-goyal/](https://www.linkedin.com/in/aragya-goyal/)

Github: github.com/Aragya1642

Mobile: +1-610-615-7007

Email: agoyal1642@gmail.com

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.

OTHER 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 Robotics** **Exton, PA**
 - Team Captain/Design Lead (Student Led Organization)* *January 2020 - June 2022*
 - Led a team of 40 students and qualified for the Worlds level of competition, the highest win percentage since 2005, and a top 5% ranking globally. (Link: <https://tinyurl.com/dewbot17>)
 - Utilized Solidworks to design and develop competition and award-winning robots.
 - VEX Robotics** **Royersford, PA**
 - Team Captain (Student Led Organization)* *August 2018 - June 2022*
 - Organized VEX robotics competition event for 60+ teams, hosted workshops to teach CAD to fellow club members, and received recognition for outstanding leadership. (Link: <https://bit.ly/3w7a6b1>)
 - Qualified for the State's level of competition for all 4 years of high school.

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>)

CMU Research



Figure 1: Underwater Snake Robot

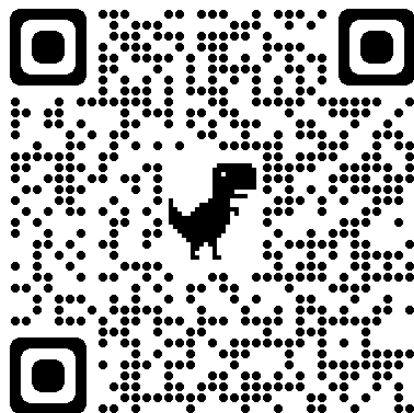


Figure 2: Apple Recycling Video

Finished Projects

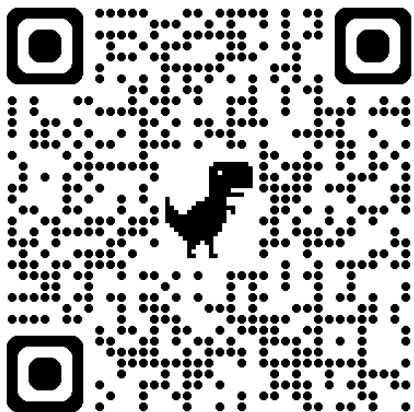


Figure 3: STM32 Elevator Simulator

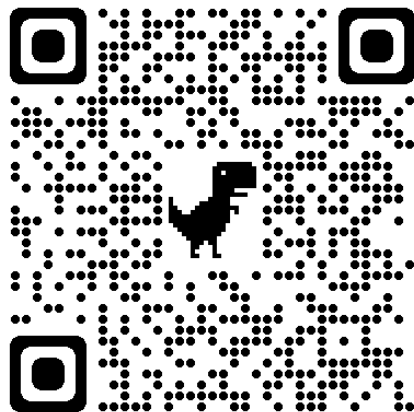


Figure 4: Custom Cane

High School Robotics

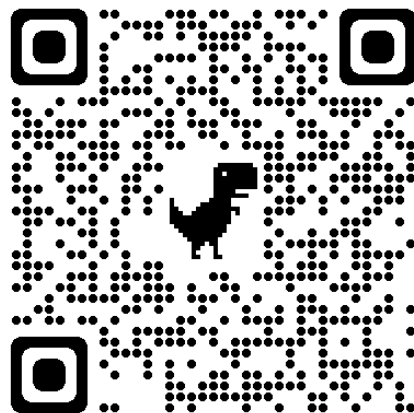


Figure 5: Dewbot XVII

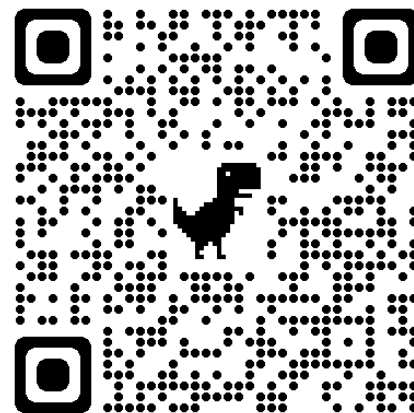


Figure 6: VEX Robotics