

# Henry Chen

Atlanta, GA | [pchen432@gatech.edu](mailto:pchen432@gatech.edu) | [henrychen.me](http://henrychen.me) | F-1 Visa

## Education

**Georgia Institute of Technology | Atlanta, GA**

*August 2024 – Present*

Bachelor of Science in Computer Engineering, GPA 4.0

Expected Graduation, May 2027

**Relevant Coursework:** Data Structures & Algorithms, Discrete Math for CS, Digital Design Lab, Programming HW/SW systems, Circuit Analysis, Linear Algebra, Differential Equations, Digital System Design, Objected Oriented Programming, Physics E&M

## Skills

**Programming:** C++, C, Python, Java, JavaScript, Node.js

**Hardware:** Inertial sensors, Encoders, 3D printing, Milling, CNC, Microcontrollers

**Software:** SolidWorks, OpenCV, GitHub, Git, Autodesk Inventor, ROS2, Linux, Docker

**Languages:** English (native), Chinese (native)

## Projects

**VEX Robotics Team 980S | Skywalker Robotics**

*August 2018 – Present*

**Captain, Robot Designer, Programmer**

- Implemented motion profiling with feedforward velocity control, boosting movement accuracy by 99.5% and reliability by 80%, achieving an 80% improvement in smoothness compared to traditional PID control.
- Developed a library of 6+ autonomous control algorithms, including odometry, pure pursuit, path generation and path tracking, using embedded C++ and OOP, reducing programming time by 60%.
- Enhanced performance and reliability by utilizing RTOS-based multi-threading, finite state machines, and mutexes for concurrent robot subsystem control, eliminating race conditions.

**Drone Assisted Water Sampling | Macronix Science Award**

*September 2022 – June 2023*

**Researcher**

- Designed and built a 3D-printed quadcopter with a retractable water collection payload, enabling targeted sampling at specific depths and GPS locations, reducing water sampling time by up to 50%.

## Experience

**Skywalker Robotics Club | Auckland, New Zealand**

*August 2018 – Present*

**Founder**

- Established a community-based club for motivated teenagers without access to robotics in school in New Zealand.
- Hosted 7 outreach workshops with 1000+ attendees to promote STEM Education in New Zealand.
- Taught 650+ hrs of CAD & programming, provided troubleshooting consultation and competition tips to teams in New Zealand, Taiwan, Australia and United States both in person and online.
- Mentored 10+ teams, leading to a score increase of 150% and qualifying to the Vex World Championship 8 times.

## Leadership and Activities

**RoboRacing @ GT RoboJackets | Software Team**

*January 2025 – Present*

- Developed and tested autonomous navigation algorithms in a simulated F1TENTH environment using ROS2 in Docker on Linux. Implemented SLAM and a wall-following controller, visualized results in RViz, and began integrating RRT and pure pursuit for improved path planning and tracking.

**GT Medical Robotics | Software Team**

*August 2024 – January 2025*

- Implemented a Mediapipe-based Python pipeline to extract hand landmarks and convert them into arrays of joint curvature values representing hand openness. Collaborated on mapping these gestures to EMG signals as a first step toward translating muscle activity into prosthetic hand motor commands.

**Mingdao High School First Robotics Team 7130 | Technical Captain, Programming Leader**

*February 2022 – January 2024*

- Spearheaded subsystem integration. Designed and manufactured drivetrain and intake using Solidworks and CNC, ensuring seamless control and hardware integration.
- Designed, built, and tested a 120-pound competition robot in six weeks, implementing inverse kinematics and gyroscope-based orientation control to enable omnidirectional movement and precise navigation in dynamic environments.