

Keijay Huang

714-651-3683 | keijayhuang8@gmail.com | keijay.me | linkedin.com/in/keijay/

EDUCATION

Georgia Institute of Technology

Bachelor of Science in Computer Engineering

- GPA: 4.0

Atlanta, Georgia

Expected 2028

University of Oxford

Study Abroad Semester

- GPA: 4.0

Oxford, England

Fall 2025

EXPERIENCE

Engineering Intern

Esquare Technologies

- Built client-facing web applications to monitor disconnection rates of 3000+ battery-swapping cabinets worldwide
- Analyzed hardware telemetry data to identify failure patterns, enabling faster fault detection and preventive maintenance

Shenzhen, China

Nov. 2025 - Present

Robotics Competition Team Coach

Rolling Robots

- Led 6 teams to qualify for the VEX Robotics World Championship (Top 16% of 10,000+)
- Mentored 50+ students in mechanical design, fabrication, and embedded C++ programming for autonomous robot control
- Designed and manufactured parts using lathes, drill presses, and CNC mills, ensuring parts met design specifications

Irvine, California

2022 - 2025

Robotics Team Captain

VEX Robotics

- #1 Teleop Rank in 2023 among 10,000+ teams, #6 Overall Rank in the world in 2024
- Led end-to-end hardware design, development, and integration of mechanical, electrical, and software systems
- Automated control using a finite state machine, integrating inertial, laser, and color sensors, improving efficiency by 200%
- Created mechanical assemblies in Fusion 360 (drivetrain, linkages, etc), iterating hundreds of times per season
- Developed advanced embedded control systems for autonomous robots, including navigation, sensor processing, and PID-based motor control—leading to top rankings in global competitions

Irvine, California

2019 - 2025

PROJECTS

KeejLib

Robotics Programming library for VEX V5

C++, Embedded Systems

- Developed an open source C++ library enabling advanced and competitive autonomous programs for VEX V5 robots
- Implemented position tracking algorithms for accurate robot localization, including odometry with sensor fusion
- Tested and iterated control algorithms using physical robots, optimizing speed and accuracy by 140%
- Built hardware abstraction layers for different configurations, enabling modular integration across 5+ robot architectures

Mars-rs

Rust-based robot simulator

Rust, Control Systems

- Built a simulator for differential-drive robots with 2D path planning, velocity profiling, and path-following algorithms
- Validated simulations by transferring motion profiles to physical hardware, achieving highly repeatable autonomous behavior
- Optimized error to be less than 5% across 10 movements, improving significantly over previous methods

Motion Control Research

Asymmetrical trapezoidal velocity generator with velocity control

Algorithm Design,

Control Theory

- Independently researched and wrote a white paper on asymmetrical trapezoidal velocity profiling for autonomous robots
- Implemented algorithms in C++ to optimize wheeled robot control based on adherence to physical constraints on a wheeled robot, increasing precision by ~200% over traditional methods for select applications

RELEVANT SKILLS

Languages: C++, Python, TypeScript, Java, Rust, SQL

Hardware & CAD: Fusion 360 (CAD/CAM), SolidWorks, 3D Printing, CNC Milling, Laser Cutting, Prototyping

Embedded Systems: Microcontrollers, IMU, Optical Encoders, ToF Sensors, Motor Control, Real-Time Systems, VEX V5

Robotics & Controls: PID Control, Motion Profiling, Odometry, Sensor Fusion, Trajectory Planning, State Machines