Gary Wang

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SKILLS

- **Programming languages:** C, C++, Python, PLC, Assembly(MCS-51), Labview, HTML, CSS, JavaScript.
- **Frameworks&Tools:** ROS, Gazebo, SLAM, MATLAB, SolidWorks, OpenCV, ANSYS, RecurDyn, AWS, PyTorch, FreeRTOS, Git.

EDUCATION BACKGROUND

University of California, Berkeley | GPA: 3.73/4.0 **Aug. 2024 - May 2025**

Master of Engineering in Mechanical Engineering, Control of Robotic and Autonomous Systems

Hohai University | GPA: 3.6/4.0 **Sep. 2020 - Jun. 2024**

Bachelor of Engineering in Robotics Engineering

PROFESSIONAL EXPERIENCE

Computer Vision Engineer

TRINEAR Inc., Tokyo, Japan **Mar. 2025 - May 2025**

- Developed real-time thermal tracking pipeline in OpenCV, deployed on a tri-modal (RGB–NIR–FIR) fused vision system.

Data Science Engineer

Sharpen Minds, San Diego, CA, USA **Feb. 2025 - May 2025**

- Optimized pipeline, automating transcription and subtitles generation for 1,000+ videos using AWS Transcribe by Python.
- Trained all-MiniLM-L6-v2 to generate transcript embeddings, enabling video recommendations via cosine similarity.

Robotics Engineer

Changguangxi, Changzhou, China **May 2023 - Jun. 2023**

- Programmed CGXi 6-axis industrial robotics for automated cargo transport, palletizing, and alignment operations.

PROJECT EXPERIENCE

UAV Research Engineer, HiPeRLab [Github]

University of California, Berkeley, CA, USA **Aug. 2024 - May 2025**

- Extracted and classified UAV telemetry from ROS bag files, ensuring high-quality datasets for downstream applications.
- Trained multiple Neural Networks to identify the energy-optimal UAV trajectory, with the best achieving an MSE of 0.07.
- Rebuilt GRU Neural Network in C++ and integrated with custom polynomial planner for real-time UAV path optimization.
- Designed C++ embedded feedback controllers for autonomous UAV navigation, winning 1st place by algorithm optimization.

Lead Robotics Engineer, Autonomous Sound-Tracking & Obstacle-Avoidance Robot [Github]

University of California, Berkeley, CA, USA **Feb. 2025 - May 2025**

- Designed complete electrical wiring schematic and mechanical assembly for a custom-built robot entirely in SolidWorks.
- Developed real-time control system on ESP32 using FreeRTOS in C for autonomous sound tracking and obstacle avoidance.
- Integrated 1-D Kalman filter and ramped PWM control for stable, responsive motor behavior and noise minimization.
- Built PyQt-based GUI for real-time telemetry visualization and serial device control.

Researcher & Analyst, Weighted Voronoi-Based Task Allocation [Github]

University of California, Berkeley, CA, USA **Aug. 2024 - Dec. 2024**

- Enhanced Voronoi-based algorithms by introducing real-time adaptive weights for dynamic task allocation optimization.
- Built Python simulation scenarios to validate the enhanced Voronoi diagram algorithm under real-world constraints.
- Achieved ~57% task allocation efficiency improvement over traditional Voronoi method through performance metrics.

Mechanical & Electrical Engineer, Intelligent Rubik's Cube Solving Robot

Xuzhou, China **May 2023 - Aug. 2023**

- Implemented MCS-51 Assembly for precise stepper motor control, speed measurement, and visual feedback integration.
- Applied OpenCV-based color clustering algorithms for accurate Rubik's Cube state recognition and manipulation.
- Optimized image acquisition pipeline, eliminating color distortion and reducing capture time by ~1.5s.
- Designed mechanical structures and optimized dual-arm gripper assemblies in SolidWorks for competition readiness.

Robotics Engineer, SLAM Robot and 3D Visualization Lab

Hohai University, Changzhou, China **May 2022 - Jun. 2024**

- Designed and built a 1:1 Gazebo simulation environment, minimizing the simulation-to-reality gap.
- Leveraged Cartographer SLAM for robust mapping in both simulated (Gazebo) and physical laboratory environments.
- Tested and validated disinfection robot positioning accuracy against IMU-based error metrics in controlled environments.