

Robin Gong

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Education

Tsinghua University — Beijing, China

Graduated June 2026

Bachelor of Engineering in Vehicle Engineering

Honors: Ranked **1st of 127** undergraduate theses in Vehicle Engineering

Tsinghua University Outstanding Undergraduate Thesis Award (top 3%)

The Bishop's School — La Jolla, CA

Graduated May 2021

Experience

Panbotica [Project Page](#) — **commercial service robots**

Dec 2025 – Apr 2026

Robotics Systems Engineering Intern

Shenzhen, China

- Deployed a fail-closed YOLO + VLM workspace guard across a 150-unit robotic barista fleet; verified object placement and detected foreign objects between arm-motion steps, cutting collision-related support calls by 80% (5 to 1 per week).
- Architected and deployed a customer-facing edge-to-cloud ASR/LLM/TTS pipeline with function calling for voice ordering, FAQ responses, and POS payment QR-code display.

Zerith Robotics [Project Page](#) — **embodied AI humanoid robots**

Jun 2025 – Nov 2025

Mechanical Engineering Intern

Shenzhen, China

- Redesigned chassis motor mounts for a humanoid service robot in 200+ units/month production, eliminating 5-axis undercut features to enable standard 3-axis CNC manufacturing and broaden the supplier pool.
- Integrated a 6-axis wrist force sensor for force-touch; fixed tolerance-stack assembly failures through interface redesign and GD&T.
- Co-designed a thin 3-DOF neck under strict packaging constraints; produced engineering drawings supporting a patent filing.

BYD — commercial electric vehicles

Sep 2021 – Jan 2022

Manufacturing Engineering Intern

Lancaster, CA

- Standardized EV-bus assembly work instructions and diagnosed electrical faults across multi-node CAN networks.

Projects

Zero-Carbon Power System for Long-Endurance UAVs [Project Page](#) — **Senior Thesis, Tsinghua**

Sep 2025 – Jun 2026

1st Prize, Tsinghua 44th Challenge Cup | 2nd Prize, Tsinghua–Toyota Future Mobility Innovation Challenge

- Developed the first known running prototype of an ammonia-fueled two-stroke aviation engine for carbon-free UAV power.
- Redesigned the stock gasoline-engine cylinder head in SolidWorks from 3D scans, raising compression from $\sim 10:1$ to $\sim 17:1$.
- Built custom two-stroke CONVERGE CFD models for three ignition architectures, defining piston-port boundaries and selecting dual-spark ignition from pressure and heat-release traces.
- Manufactured and dyno-tested the dual-spark head, demonstrating pure-ammonia operation at $\sim 2000\text{--}2500$ r/min.

THU Racing Formula SAE (FSAE) Team [Project Page](#) — **Electrical Systems Engineer**

Sep 2024 – Jun 2026

- Designed and built a 600 V-to-24 V, 450 W DC-DC converter PCB in Altium with $\sim 93\%$ simulated efficiency under racing loads.
- Reduced total wiring length by >10 m by integrating the VCU, fuse box, and low-voltage battery into one module.

Automated Modular Cooking Robot [Project Page](#) — **Lead Mechatronics Engineer**

Sep 2024 – Jun 2026

- Built a Cartesian tool changer that automatically swaps food-processor blades for slicing, dicing, chopping, and julienne cuts.
- Designed an Altium PCB for ESP32 stepper control; implemented PID and ROS inverse kinematics for a 3-DOF peeling arm.

Mars Exploration Robot — National 2nd Prize, China-US Young Maker Competition

Mar 2024 – Aug 2024

- Implemented autonomous navigation and sampling-tool switching for a four-legged Mars robot using LiDAR–inertial SLAM.
- Designed and 3D-printed the chassis and legs; integrated an EEG interface for tool selection, sampling, and manual takeover.

Box Truck Conversion

Nov 2020 – Sep 2021

- Retrofitted a box truck into a motorhome, completing engine repair, electrical, solar, plumbing, furniture, and metal fabrication.

Skills

CAD / Simulation: SolidWorks, Siemens NX, CATIA, ANSYS, CONVERGE CFD, MATLAB/Simulink, GD&T, DFMA

Robotics / Controls: ROS 2, CAN Bus, CAN Logging, PID, Motor Control, Inverse Kinematics

Embedded / Hardware: ESP32, Raspberry Pi, Altium Designer, Schematic Capture, PCB Layout, Oscilloscope

Software / AI: Python, C++, Linux, Git, Docker, YOLO, Vision-Language Models

Fabrication: CNC Machining, 3D Printing, Welding, Soldering, Lathe