

Ziang Tan

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Education

University of Washington

B.S. Electrical & Computer Engineering
B.S. Applied Mathematics: Data Science
GPA: 3.75

Seattle, WA

Expected June 2027

Work Experience

University of Washington

Undergraduate Teaching Assistant, EE/CSE 474: Embedded Systems

- Support 100+ students in embedded systems labs involving FreeRTOS scheduling, I2C communication, and ESP32-S3 programming
- Hold weekly office hours assisting with hardware debugging and firmware development
- Assist instructors with grading lab reports and maintaining course documentation

Seattle, WA

Sep 2025 – Present

Shenzhen Volcos Technology Co., Ltd.

Engineering Intern

- Developed wind-speed measurement module integrating humidity and temperature sensors
- Prototyped smart self-cleaning cat litter box using motor control and ultrasonic sensing
- Designed PCB layouts in Altium Designer and programmed microcontrollers using Keil5

Shenzhen, China

Jul 2025 – Sep 2025

EMA Yingma Tech Co., Ltd.

Engineering Intern (Field Application Engineer)

- Tested accelerated graphics cards to evaluate functionality and performance
- Identified and troubleshoot hardware and software bugs during development
- Researched application markets and explored international buyers

Guangzhou, China

Jul 2024 – Sep 2024

Syron Intelligent Lock Co., Ltd.

Engineering Intern

- Assisted in design and assembly of OEM smart lock systems
- Performed functionality and reliability testing on smart lock devices

Zhongshan, China

Jul 2022 – Aug 2022

Project Experience

Robotic Arm Kinematics and Trajectory Control

Python | Robot Kinematics | Numerical Optimization

- Implemented Denavit–Hartenberg (DH) parameterization to model a 6-DOF robotic manipulator
- Derived forward kinematics to compute end-effector position and orientation
- Developed numerical inverse kinematics using SciPy optimization methods
- Generated joint-space trajectories for robotic arm pick-and-place tasks
- Validated robot motion in simulation and analyzed kinematic constraints

Feb 2026 – Present

Autonomous Embedded Cat Care System

ESP32-S3 | C | Interrupt-Driven Firmware

- Implemented GPIO interrupt service routines for ultrasonic sensor event detection
- Designed circular buffer architecture preventing sensor data overwrite
- Configured ESP32 hardware timers for deterministic sampling intervals
- Developed state-machine-based motor control for automated feeding and cleaning cycles
- Prevented race conditions using volatile variables and critical sections

May 2025 – Jun 2025

Activities

Husky Robotics Club

Sensor Subteam Member

- Participated in University Rover Challenge sensor development
- Integrated and calibrated environmental sensing modules
- Designed and 3D printed sensor enclosures for field testing

Seattle, WA

Dec 2023 – Present

Skills

Programming: C, C++, Python, Java

Embedded: ESP32, FreeRTOS, I2C, Interrupt Programming

Tools: Altium Designer, Keil5, SolidWorks, AutoCAD, Git, Linux

Other: PCB Design, Circuit Testing, Sensor Integration