

Dawei Cai

Electrical and Computer Engineering Student
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EDUCATION

University of Washington

B.S. in Electrical and Computer Engineering

Seattle, WA

Expected June 2027

PROJECT EXPERIENCE

FPGA Digital Systems Design Suite

Jan. 2026 – Present

SystemVerilog, Quartus, ModelSim, DE1-SoC

- Designed modular FPGA systems in SystemVerilog, including FSM controllers, datapaths, VGA display logic, audio processing, and binary-search acceleration.
- Implemented VGA graphics output and audio-processing pipelines, then synthesized, assigned pins, and tested designs on DE1-SoC hardware.
- Verified state transitions, timing behavior, and signal synchronization using ModelSim waveform simulation and board-level debugging.

Embedded Line-Following Robotic System

Jan. 2026 – Present

Arduino, PCB Design, Fusion 360, 3D Printing

- Designed an autonomous line-following robot integrating sensors, motor drivers, embedded control logic, PCB hardware, and mechanical structure.
- Implemented real-time path recognition and sensor-feedback control, improving line-following accuracy to 95%.
- Designed and soldered custom PCB circuits, modeled 3D-printed components in Fusion 360, and assembled the full electromechanical prototype.

Husky Maps Custom Collections

2025

Java, Graph Algorithms, Web Mapping

- Extended a Java map application with search autocomplete, location markers, shortest-path visualization, and custom collection features.
- Implemented map interaction logic around graph algorithms, data structures, validation rules, and defensive copying.
- Added tests for normal, invalid, and edge-case workflows to improve reliability of search, routing, and collection updates.

RESEARCH EXPERIENCE

IEEE RO-MAN 2026 Late Breaking Report

June 2026 – Present

First Author / Poster Presenter

- Evaluated LocateAnything as a language-guided pre-grasp perception module for humanoid robot object localization.
- Built 39 image-prompt samples and achieved 76.9% success rate with 0.646 mean IoU using annotated ground-truth boxes.

INTERNSHIP EXPERIENCE

Yilin Clothing Co., Ltd.

June 2022 – Sep. 2022

Supply Chain Intern

- Used Excel to organize sales, inventory, and production data for routine reporting and issue tracking.

ACTIVITIES

The Fifth Annual Conference of China Robotics Society

Aug. 2024

Volunteer and Participant

- Supported robotics demonstrations and technical communication for industry, healthcare, and service-system exhibits.

TECHNICAL SKILLS

Programming: SystemVerilog, Python, Java (OOP)

Robotics : ROS 2, Arduino, Sensor Integration, Embedded Control

Hardware : FPGA (DE1-SoC), Arduino, Digital Logic Design, FSM, Datapath Design

Tools : Quartus, ModelSim, Git, Fusion 360, AutoCAD, Excel

Engineering : PCB Design, Circuit Soldering, Waveform Debugging, System Integration

Languages : Chinese (Native), English (TOEFL 106)