# Zimeng Xiong

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## WORK EXPERIENCE

### CAMBRIAN EXPLORER EDUCATION | Intern -> Teaching Lead

August 2024, August 2025 | San Jose, CA

- Proposed, developed, and taught a week-long 3D Printing and Additive Manufacturing curriculum for children aged 8-11.
- Developed company IP beyond curriculum scope, including 3D models of the company logo, artwork, and GSuite automation scripts for student enrollment and tracking.
- Deployed and managed outdoor 5G-backed WiFi infrastructure in a custom mini rack, providing filtered internet for 10+ laptops.
- Constructed a desktop injection molding machine and fabricated custom tooling using high-temperature resin.

### ROBOTICS TUTOR

1 Event, June 2025 | San Jose, CA

- Temporary substitute tutor on software development for a team of 6 middle schoolers for the VEX Robotics competition. Taught version control practices with git and github, as well as developing basic odometry and movement.

### FREELANCE WEB DESIGN | SWE

February 2024, June-present 2025 | San Jose, CA

- Built an MVP website for a real estate client, integrating a GSuite-based CMS and lead management automation.
- Generated over 100 leads in 6 months before client transitioned to a full Salesforce CRM and website solution.
- Client reached out after a year, now engaged in ongoing IT management, including kvCore brokerage CRM automation and Google Business profiles.

## PROJECTS

### FOSS AND PRINTABLES CONTRIBUTIONS

2020-Present, San Jose, CA

- I actively contribute to FOSS projects on GitHub (2.3k commits, 70+ stars, 14 accepted PRs) and frequently publish 3D models on Printables.com (1.3k+ saves & likes, 1.3k+ downloads).

### NEURAL NETWORK FROM SCRATCH

June-August 2025

- Implemented a 3-layer neural network from scratch in Python and NumPy to classify MNIST handwritten digits, referencing only Wikipedia.
- Trained the model using gradient descent with stochastic manual backpropagation and cross-entropy loss.
- Achieved high classification accuracy on test images with a fully self-contained implementation.

### MAKERCHIP ASIC DESIGN SHOWDOWN

June-August 2025

- Collaborated on a team to design and implement a TL-Verilog circuit for a competitive event, placing 3rd overall against international collegiate teams.

## EDUCATION

### DE ANZA COLLEGE

Dual Enrollment

### BASIS INDEPENDENT SILICON VALLEY

Distinguished Honor Roll
National Honors Society Qualifier
1530 SAT 3.98/4.00 GPA

### MIT LL BWSI

Dr. Bob Berman Award for Disruptive Engineering (14/ 400)

## SKILLS

5+ years • Python • Markdown
2+ years • C++ • LaTeX
1+ years • Rust • Matlab • Swift

***(SWE)*** Git • Debian/Arch/Nix • OSX • Markdown
***(EE)*** Microcontrollers • SBCs • EasyEDA • Xilinx Vivado • Vitis HLS • OpenFlow
***(Design Through Fabrication)*** Onshape • Orca/SuperSlicer • Klipper • CNC • 3D Printing
***(Machine Learning)*** Pytorch • YoloV2 • Numpy

## COURSEWORK

### ADVANCED PLACEMENT

***(All Fives)***
Calculus AB
Statistics
Physics I
Chemistry
Computer Science Principles

### CURRENT

Dual Enrollment Calculus III
Linear Algebra
AP Physics C Electricity and Magnetism
Organic and Biochemistry

### BWSI

Intro to ASICs • Embedded Hardware and Hacking, Python, and Github Prerequisites

## CLUBS/OTHER

Founder, President, 3D Printing Design and Mechanics
VP, Mathematical Modeling
Engineering&Design Lead, VEX Robotics

# PROJECTS

## PROTOBOT REBUILT FOR MACOS

June-August 2025

- Community maintainer/co-creator for the port of protobot-rebuilt, a VEX Robotics design software, to macOS. Fixed various incompatibility issues w.r.t keyboard shortcuts and Unity rendering for macOS. Recommended by the developer behind protobot-rebuilt as the ”macOS version”.

## IEEE SCSS ARDUINO CONTEST

August 2025

- Led mechanical design for a 3-person team to build an accessibility guidance, using CAD to integrate slip rings for continuous rotation and hall effect sensors for calibration.
- Implemented multi-threading on an ESP32-S3 to maintain precise stepper motor timing while processing input from a head-mounted ultrasonic sensor and foot-mounted object detection camera using a self trained Edge Impulse model.

## MIT BEAVERWORKS SUMMER INSTITUTE

July 2025 | Cambridge, MA

- Deployed and maintained containerized ARM-based Ubuntu VMs with VLSI tools for coursework, providing support for all 15 macOS users in the course.
- Collaborated to develop a ray-traced animation of a planetary system, implemented on an FPGA using Vitis HLS and a custom Verilog VGA controller.
- Gained hands-on fabrication experience in MIT Nano, using maskless photolithography and photoresist etching on silicon wafers–not an extensive research enviorment but more of a tour.

## MACOS APP, RIGHT CLICK MENUBAR

May-June 2025 | San Jose, CA

- Developed an open-source native Swift app to display the macOS menu bar in a context menu at the current cursor position, achieving 32k+ reach, 500+ downloads, 19 stars, and 2 forks on GitHub.

## ARDUINO MCP

May-June 2025 | San Jose, CA

- Created an MCP connector for Arduino enabling direct GPIO control via Large Language Models, gaining 25k+ views on social media and leading to an ongoing community collaboration.

## CNC

May-June 2025 | San Jose, CA

- Designed and built a belt-driven CNC machine from scratch using repurposed 3D printer components, involving 80+ hours of CAD.
- Developed Python scripts to process DXF files and post-process Carbide Create G-code for compatibility with Klipper firmware, which was modified to add spindle and custom axis control. Published design on Printables, with 800+ saves/likes and an in-progress community user build.

## 3D PRINTER DESIGN, ASSEMBLY, AND MODIFICATION (VZBOT, VORON)

2022 – 2024 | San Jose, CA & Shenzhen, China

- Sourced all components and built multiple 3D printers from scratch (Vz330, Vz235, Voron 0.1/0.2), earning official VzBot serial numbers 26 and 262.
- Designed custom parts to integrate non-standard electronics and improve frame alignment; contributed an alignment tool to the official VzBot UserMods, one of the first VzBots built in North America, contributed to initial design of Vz330

## 3D PRINTER COMMUNITY FIRMWARE AND DOCUMENTATION

March 2020 - April 2021 | San Jose, CA

- Provided custom-compiled Marlin firmware for a Discord community, tailoring configurations and adding personalized bootscreens for members.
- Authored extensive documentation on topics from calibration to advanced firmware customization, read by 1k+ server members.
- Co-developed a Python ticket-management bot for the community server.