# Ryan Ma

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## Education

**University of California, Berkeley** — Berkeley, CA
*Bachelor of Arts in Computer Science* — *May 2024*

- Relevant Courses: Data Structures, Computer Architecture, Digital Logic Design, Databases, Computer Security, Microelectronics, Signal Processing
- GPA: 3.6

## Experience

**Systems Design Engineer Intern** — May 2023 – August 2023
*Advanced Micro Devices, Functional Safety Infrastructure Team* — *San Jose, CA*

- Developed automated end-to-end testing suite with Pytest and GitHub Actions for FMEDA metrics analysis tool
- Implemented concurrent processing and code optimizations for 12x speedup versus previous code
- Worked on feature development and understanding parts of the FMEDA process
- Enhanced PrimeTime Netlist area extraction scripts for self-check capabilities

**Software Engineer Intern** — June 2022 – May 2023
*Instapath Inc. (YC 19)* — *Houston, TX*

- Architected Django backend for CPU-intenstive pathology image processing and computer vision annotations
- Boosted processing speeds by 10x using multithreaded processing using RabbitMQ and Celery
- Streamlined CD/CD deployment using Docker, Linode, GitHub Actions, and AWS with a 50% cut to hosting costs

**Software Engineer** — January 2021 – June 2022
*Tecmend LLC* — *Houston, TX*

- Tripled development speed by standardizing the process of building custom API integrations in Python
- Led API integration efforts and product development with React/Django/MySQL in an agile environment, slashing CRM costs for over 100 small and medium businesses

**Lab Teaching Assistant** — August 2022 – Present
*Berkeley EECS Department* — *Berkeley, CA*

- Taught weekly lab sections to classes of 30-50 students, graded lab reports, and debugged student circuits
- Developed new lab content, notes, and lab reports for use in classes of 450-800 students

## Projects

**Pipelined RISC-V CPU** | *Verilog, Vivado, FPGAs* — November 2022

- Designed and created a 3-stage pipelined RISC-V CPU in Verilog and programmed PYNQ-Z1 FPGA
- Implemented FIFO, UART, BHT predictor, forwarding logic, and direct mapped cache

**Handheld Game Console PCB** | *KiCad, Arduino, ESP32, C* — May 2022

- Designed PCB for a simple handheld game console in KiCad. Soldered and tested final PCB design
- Developed a Pong game for ESP32 in C, interfacing with GPIO pins and the LCD

**SIXT33N Voice Activated Car** | *Breadboarding, Circuit Design, Control Systems, Microcontrollers* — May 2022

- Built voice-activated car with microphone band-pass filter and amplifier, voltage regulation circuits, feedback control, BIBO stability, and k-means classification for voice recognition
- Designed and tuned a joystick controlled reversible motor system using H-bridges, NPN and PNP BJTs, and programmed firmware logic on a Texas Instruments MSP 430 microcontroller

## Technical Skills

**Languages**: Python, Java, JavaScript, C, SQL, Verilog, Assembly (RISC-V and x86), Golang, TCL
**Technologies**: Django, Docker, AWS, Node.js, MongoDB, PostgreSQL, APIs, FPGAs
**Developer Tools**: Linux, Bash, Git, Postman, Perforce, VS Code, KiCad, LTSpice