RYAN MA

832.289.2466 | ryan.ma3011@berkeley.edu | linkedin.com/in/ryan-ma-30 | github.com/goblinrum

EDUCATION

University of California, Berkeley   Berkeley, CA
Bachelor of Arts in Computer Science, Minor in Electrical Engineering   *May 2024*
- Relevant Courses: Data Structures, Computer Architecture, Digital Logic Design, Databases, Computer Security, Microelectronics, Signal Processing, Linear IC Design, Embedded Systems

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-intensive 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

Satellite Tracking Antenna | *ESP32, Circuit Design, Controls, Embedded Systems, Flask*   November 2023
- Developed firmware for an ESP32-based satellite tracking antenna to following any satellite using NORAD data and real-time prediction algorithms
- Incorporated GPS, magnetic encoders, and PWM motors with PID control for accurate antenna positioning
- Implemented communication protocols including I2C, UART, and USB, and designed a Flask server to facilitate data transfer and visualization on a computer, ensuring efficient and reliable data flow for satellite tracking operations

Pipelined RISC-V CPU | *Verilog, Vivado, Xilinx 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, efficient forwarding logic, and direct mapped cache

Handheld Game Console PCB | *PCB Design, 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, 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 TI MP430

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, C/C++, SQL, Verilog, Assembly (RISC-V and x86), Golang, TCL
Technologies: Django, Docker, AWS, Node.js, MongoDB, PostgreSQL, APIs, FPGAs, Arduino, ESP32
Developer Tools: Linux, Bash, Git, Postman, Perforce, VS Code, KiCad, LTSpice