# RYAN MA

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## EDUCATION

**UC Berkeley** — Bachelor of Arts, Computer Science — ~May 2024

Relevant courses: Data Structures, Artificial Intelligence, Microelectronics, Computer Security, Digital IC Design, Computer Systems and Architecture

**GPA:** 3.61

## EXPERIENCE

**Tecmend LLC** – *Software Engineer;* Houston, TX — January 2021 – Present

- Streamlined the process of building custom API integrations for professional applications using **Django** and **MySQL**.
- Debugged, developed, and improved existing company software products including an LMS, sales analysis application, and manufacturing downtime calculator using **React/Django/MySQL** in a fast-paced **agile** startup environment
- Helped over 100 small and medium businesses automate their data flow and reduce CRM resources

**Instapath Inc** – *Software Engineer Intern;* Houston, TX — June 2022 – Present

- Developed Django API to view, process, share, and store Deep Zoom pathology images with **computer vision** annotations
- Incorporated a **multithreaded** CPU intensive processing and image tiling process with 300% speedup from previous software
- Applied **RabbitMQ** and **Celery** to Django to effectively schedule **asynchronous** workloads to increase system stability
- Created an automated **CI/CD** deployment system for the webapp using **Docker**, Linode, GitHub actions, **AWS**, and **Nginx**

## ACTIVITIES/TEACHING

**IEEE Berkeley Student Branch** – *Officer* — Fall 2021 – Present

- Revamped and rebuilt the organization-wide Startup Fair website using React, **Node**, and **MongoDB**
- Led student projects and taught GitHub development flows, basic **MERN** application design, and software development

**EECS 16A** – *Lab ASE, Course Staff* — Fall 2022

- Helped teach lab sections, attend weekly trainings, and check students' work at the end of lab
- Developed course lab materials. Created and brought-up new lab procedures involving basic circuit design and linear algebra

**CS61B: Data Structures** – *Lab Assistant* — Spring 2022

- Assisted students in completing lab assignments and provide conceptual help during project office hours alongside other TAs

## PROJECTS

**Three-Stage Pipelined RISC-V CPU** – *EECS 151: Digital Design and Integrated Circuits* — Fall 2022

- Designed and built a three-stage pipelined **RV32I CPU** in Verilog. Programmed on Xilinx PYNQ-Z1 **FPGA** and reached 60 MHz.
- Implemented a branch predictor with a direct-mapped cache and saturating counter. Created pipeline with ALU-ALU, MEM-ALU forwarding, efficient branch flushing, and no stalled cycles. Implemented **UART** ready-valid handshake.

**Handheld Game Console** – *EE198: Hands on PCB Engineering* — Spring 2022

- Designed and routed the **PCB** for a simple handheld game console using KiCad. Soldered and tested final PCB design
- Programmed the **ESP32** using C and wrote a basic version of Pong to interact with GPIO pins and the LCD screen

**S1XT33N Voice-Activated Car** – *EECS16B: Designing Information Devices and Systems II* — Spring 2022

- Built voice-activated car with low-pass filter, power regulation circuits, feedback control, and **k-means** voice classification
- Designed and tuned a joystick controlled reversible motor system using H-bridges and programmed the logic on a MSP430

**Gitlet** – *CS61B: Data Structures* — Fall 2021

- Implemented a Java-based version control system using knowledge of **OOP**, **graphs**, and **data serialization**

**On the Fly POS Connector** – *Tecmend LLC* — Summer 2021

- Developed a custom integration for client API and QuickBooks Online API and created a user dashboard to view linked data
- Created a **SSO** system between client application, QuickBooks, and the connector's app dashboard with QuickBooks **OAuth**

**Senmonni** – *Tecmend LLC* — Spring 2021

- Engineered a MERN e-wallet MVP for client in Belize and learned basic full stack development with MERN and React Native
- Developed a customer-facing API with token authentication, CSRF prevention, KYC, and secure banking APIs

## ADDITIONAL INFORMATION

**Programming Languages** (years of experience)**:** Java (6), Python (5), JavaScript (4), RISC-V (1), C (1), Verilog (1), Go, Chisel

**Technologies/Skills**: Windows, Linux, Firebase, Git, MongoDB, MySQL, GraphQL, Django, APIs, Docker, AWS, React/Nodejs, FPGA, KiCad, Xilinx Vivado, LTSpice, Object Oriented Programming, Data Structures

**Languages:** Fluent in English and Mandarin

**GitHub:** @goblinrum. Private share links to projects will be provided upon request.