Ryan Kim

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Education

University of California, Los Angeles
Computer Engineering B.S.—2nd Year (3.9 GPA) December 2027
Relevant Coursework: Digital Logic Design, Assembly & Operating Systems, Intro to EE (Circuits, Lab Skills), Object Oriented Programming, Data Structures & Algorithms, Physics E&M, Physics Optics

Experience

Bruin Supermileage Los Angeles, CA
Data Acquisition Lead May 2025 – Present

- (Ongoing) CAN driver development with STM32Cube IDE for inter-PCB communication
- Research, design and draft project proposals for new sensors to integrate into car system
- Migrate existing sensor software from the Arduino-style RP2040 to the STM32
- Mentor and support team members in embedded systems development

YearbookPro Remote
Web Development Engineer February 2025 – September 2025

- Startup developing novel start-to-end affordable online yearbook creation and distribution platform
- UI/UX design and component design of frontend with SvelteKit for routing and Tailwind for design
- API and features integration using TypeScript, including events timeline and live superlative voting
- Pitch new features such as community photowall and yearbook customization to improve marketability

Projects

ESP32 Karaoke Machine June 2025 – August 2025

- Created block diagrams and schematics in KiCad for clear documentation and project planning
- Read hardware datasheets to verify functional requirements, understand timing logic, and reference pinout mappings of components for part selection and debugging purposes during development
- Worked with APIs in ESP-IDF for ADC, I2S, and Bluetooth A2DP for clear microphone passthrough and backing track playback
- Utilized FreeRTOS queues and ringbuffers to manage thread-safe data sharing between dual input streams, audio processing, and speaker output tasks.
- Achieved glitch-free microphone playback and Bluetooth audio streaming. Learn more (demo here!): https://github.com/rk097/karaokemachineesp32

OPS (UCLA IEEE) October 2024 – May 2025

- Built Tic-Tac-Toe game using Arduino, OLED and joystick controller connected over SPI
- Make several other projects throughout the year involving circuit analysis and breadboarding

Leadership and Activities

PioneerHacks Sunnyvale, CA
Head Organizer (2024), Head of Technology (2022-2023) March 2022 – May 2024

- Grew PioneerHacks V as Head Organizer by ~100% to 170+ participants and 40+ teams (compared to PioneerHacks IV year-over-year)
- Work with companies such as Juniper Networks for event logistics at Aspiration Dome, involving sponsorship coordination, judge/mentor outreach, event promotion, budgeting and team leadership
- Developed hackathon PioneerHacks promotional website; manage Devpost page, hacker resources, and project verification; create judging algorithm/tableau and coordinate remote event infrastructure

Skills

Software C, C++, Python, Java
Embedded Systems ADC, I2S, SPI, I2C, UART, CAN, Bluetooth A2DP, Arduino, Platform.io, ESP-IDF, FreeRTOS
Hardware Breadboarding, KiCad, LTSpice, oscilloscopes, soldering

Fullstack HTML/CSS, JavaScript, TypeScript, Tailwind, nodeJS, Express, React, Astro, Svelte(Kit), Firebase