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

- Develop STM32-compatible CAN driver in C using STM32Cube IDE and logic analyzer for bus analysis, wrapped with user-friendly library for PCB designers to easily send telemetry on bus
- Collaborate with other design teams to determine mounting and voltage constraints for sensor network
- Select components, design testbenches, and draft project templates for new sensors (e.g. GPS, hall effect sensor), providing members hands-on embedded systems experience and greatly expanding DAQ scope
- Lead migration of PCBs from RP2040 to STM32 platform, involve teaching members to use STM32Cube IDE, work with HAL, and repurpose Arduino code to efficiently develop new firmware

YearbookPro Remote
Web Development Engineer February 2025 – September 2025

- Develop end user experience of product, using Svelte & Tailwind to create aesthetic digital yearbook purchasing and viewing interface
- Integrate API requests using TypeScript for dynamic page generation and user interaction, including searchbar, event timeline, custom colors, community photowall, and live voting features
- Work with sales team to mockup product additions and marketing materials to optimize lead conversion, leading to first partner school within 3 months of beta launch

Projects

ESP32 Karaoke Machine Demo: github.com/rk097/karaokemachineesp32

- Use following ESP-IDF APIs: ADC, I2S for audio processing; Bluetooth A2DP to play backing tracks
- Work with FreeRTOS queues and ringbuffers to manage thread-safe data sharing between dual input streams, audio processing, and speaker output tasks
- Create 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 debugging purposes
- Achieve glitchless microphone playback and simultaneous Bluetooth audio streaming on ESP32

Skills

Languages C, C++, Python, Java
Embedded Systems ADC, I2S, SPI, I2C, UART, CAN, Bluetooth A2DP, Arduino, Platform.io, ESP-IDF, FreeRTOS, STM32Cube IDE
Hardware Breadboarding, KiCad, LTSpice, oscilloscopes, soldering, logic analyzer
Fullstack HTML, CSS, JavaScript, TypeScript, Tailwind, nodeJS, Express, React, Astro, Svelte(Kit), Firebase
Misc git, GitHub, DaVinci Resolve, Korean & Mandarin (working prof.)