Vin Shin

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EDUCATION

University of California, Santa Barbara — June 2028
B.S. Electrical Engineering — *GPA: 4.00*

COURSEWORK

Courses: Physics C: Mechanics, Physics C: E&M, Calculus 2, Linear Algebra, Differential Equations, Python for Engineers, Introduction to Arduino Projects

TECHNICAL SKILLS

Technologies: CAD (Fusion, Inventor Professional), Circuit Design (KiCAD, Fusion), Version control (Git), Microcontrollers (ATmega328, STM32, ARM Cortex-M), Raspberry Pi, Jetson Nano
Tools: 3D Printing (Prusaslicer, Bambu Studio), CNC (Tormach), Laser-Cutting (UCP)
Languages: Python, MATLAB, C/C++, Java, JavaScript/TypeScript, HTML/CSS, LaTeX
Libraries: pandas, NumPy, Matplotlib, PyTorch

PROFESSIONAL EXPERIENCE

Undergraduate Research Assistant | UCSB OPUS Lab | Santa Barbara, CA — Oct. 2024 - Present
- Automated and translated rudimentary Ising Machines in Python, improving data collection and analysis processing.
- Experimented with phase randomization in Chaotic ising machines.
- Developed specific algorithms for rudimentary Ising machines to observe its performance time in Spinglass Models.

Engineering Intern | Arcadia Tractor Corporation | San Jose, CA — Nov. 2022 - Jan. 2024
- Improved ball-collection performance by an estimated 20% by designing a compact ball collection hopper with Fusion.
- Developed an automatic recharging circuit independent of tractor communication, allowing full autonomy utilizing KiCAD, Arduino, and linear motor actuators.
- Prototyped ball-deflectors, reducing damage-costs subsequent tractor operation with Fusion and design iteration.
- Monitored autonomous behaviors and managed data collection of prototype tractor.

Lead PCB Designer | Nize Systems | Pleasanton, CA — Feb. 2023 - Apr. 2024
- Designed and constructed a bridge PCB connector between RFID RC522 and Arduino Nano, decreasing production times by an estimated 50% utilizing KiCAD.
- Designed scanner PCBs utilizing ESP-32 and ATmega architectures, RGB lighting, RFID & NFC modules.
- Consulted for engineering interns planning microcontroller system designs.

PROJECTS

Telecommunications Sensor Nodes | *UCSB Gaucho Racing* — Nov. 2024

- Designed and manufactured STM32 based FDCAN sensor nodes to convert sensory input to CAN data, improving data throughput by 350% compared to previous sensor arrays.
- Configured 39 typical and niche car modules such as tire pressure, GPS, ride height, suspension shock travel, and strain gauges through various communication protocols (i2c, SPI, PWM, analog) to enable torque vectoring, autonomous regulation, and warning systems.
- Analyzed data and validating aerodynamic, suspension, and motor performance, and provided useful feedback for future revisions of Gaucho Racing's FSAE Electric racecar.

CV Classification Robot Frog | *UCSB ECE 5* — Nov. 2024

- Designed a robotic frog with similar leg jumping mechanics of a typical frog.
- Implemented IoT publishing to run inference model on local machine given an ESP32Cam broadcast.
- Identifies faces through object detection and interacts with the environment accordingly.