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 ECE Lab** | Santa Barbara, CA Oct. 2024 - Present

- Automated Probabilistic bit & Chaotic bit Ising Machines through Python translation and pandas to efficiently collect data with various initial conditions
- Experimented with phase randomization in Chaotic ising machines.

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 implemented STM32 based FDCAN nodes to receive sensory input to CAN data, improving data throughput by 350%.
- Recorded 39 typical and niche car modules such as tire pressure, GPS, ride height suspension shocks, and strain gauges to enable torque vectoring, autonomous regulation, and warning systems.
- Analyzed data and validated 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* Dec. 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.