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
- Implemented and translated rudimentary Ising Machines to Python, improving data collection and analysis processing.
- Developed specific algorithms for rudimentary Ising systems 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.

Food Service Assistant | **De La Guerra Dining Commons** | Santa Barbara, CA Aug. 2024 - Present
- Worked in a high-pressure, fast-paced environment as a team.
- Improved communication skills and teamwork skills.

Projects

Autonomous Shopping Cart | *PLTW CTE Presentation* Feb. 2024

- Utilized brushless hub motors, hall effects, RC & PWM communications, Raspberry Pi, LiDAR, cameras, and ROS to construct a remote control shopping cart
- Improved safety and storage capabilities (rated to move at 25 mph max, and up to 300 pounds of load).
- Showcased to 300 people and rpesented in a conference for technological mobility.

Trash Collection Rover | *Project Bonsai* Jun. 2024

- Designed a multipurpose rover with Raspberry Pi, Dynamixel Motors, LiDAR, and ROS capable of detecting and manipulating, storing, and clearing trash.
- Implemented map scanning and localization through SLAM, ensuring optimal traversal and collection efficiency.
- Capable of scanning and clearing rooms (100 sq ft) in 3 minutes.