

Shyamal Singh

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EDUCATION

Portland State University

Sep 2019 - June 2023

Bachelor of Science in Electrical Engineering

GPA: 3.89/4.0

Westview High School

Sep 2015 - June 2019

GPA: 4.10/4.0

RELEVANT UNIVERSITY COURSEWORK

Courses: Signals and Systems (I, II, III), Electromagnetism (I, II), Communication Systems Design, Digital IC Design, Electronics (I, II), Circuits Design, Microprocessors, Computer System Organization

Awards: Magna Cum Laude, Presidents List, Dean's List.

EXPERIENCE

Eaton Corporation | *Hardware and Software Engineering Intern*

June 2023 – Present

- Developed control board **integrating ARM** based 32-bit M3 Microcontroller with driver circuitry for a power distribution test module, **doubling** number of testable outputs available from previous design.
- Developed original and **contemporary GUI application** integrating Controller Area Network (**CAN**) addressing to communicate with STM32 microcontroller in Python, reducing complexity of use of Power Distribution test module for other users.
- Updated firmware in **C** for future design iterations.
- Assisted in board bring up and rework for Flex Power Distribution Unit (PDU), which manages and protects all power distributed to power electronics in electrical system for commercial vehicles.

Ampere Computing | *Hardware Platform Architecture Engineering Intern*

March 2022 – Sep 2022

- Led development (schematics and layout) for Printed Circuit Board (PCB) used to interface between power supplies and Ampere's new SOC thermal test chip. Coordinated work with 8 engineers across 2 time zones (Portland and Ho Chi Minh City), saving building cost per unit up to **thousands of dollars**.
- Developed Python scripts to streamline data entry into company first PCBA motherboard BOM's within nascent **PLM** tool, storing all silicon validation platforms and reference boards for Ampere SOC's.
- Developed cost model of validation systems, synthesizing cost data to an **adaptive cost model** allowing engineers and buyers to configure and accurately predict the most effective systems.

SKILLS

Languages: C/C++, Python, MATLAB, JavaScript, HTML/CSS, \LaTeX

Tools/Frameworks: JUCE API, Max/MSP, Textualize/Rich, Git, Simulink, Xcode, Visual Studio, Github Actions

Skills: PCB Design (Altium, Cadence), Circuit Design, Soldering, Oscilloscope, Firmware

PROJECTS

Room Acoustics Simulator | *Lead Developer*

Fall 2023

- Developed a standalone application in MATLAB capable of simulating custom and real acoustic environments from dozens of locations around the world.
- Combined impulse response and image-source signal processing techniques to generate realistic auralization of user-defined configurations.

Smart Stethoscope | *Lead Developer*

Winter 2022 - Summer 2023

- Cooperated with Oregon Health & Sciences University and Galois Inc. to develop algorithms to help physicians better detect heart murmurs using advanced digital signal processing to enhance collected data.
- Developed algorithms in Python to combine contact/acoustic microphones to implement Active Noise Cancellation (ANC) to cancel various types of interference.
- Developed mathematical algorithms in Python to apply Beamforming techniques for sound localization of heart sounds.