# 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 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 and 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.