

# Aswin Arumugam

arumugaa@oregonstate.edu | +1 4582724884 | Corvallis, Oregon | [linkedin.com/in/aswin0305](https://www.linkedin.com/in/aswin0305) | [github.com/Aswin0305](https://github.com/Aswin0305)

## EDUCATION

### Master of Science, Robotics

Sep 2025 - Present

Oregon State University, Corvallis, Oregon, United States

### Bachelor of Engineering, Electrical and Electronics

Jul 2015 - May 2019

St. Joseph's College of Engineering, Chennai, India [Anna University]

GPA: 7.22

## EXPERIENCE

### Engineer II - Software Development, Microchip Technologies

Mar 2023 - Present

- Contributed to the development and software releases of the **META-DX2** family of 1.6 Terabit Ethernet PHYs: **Plus** (32 and 48 SerDes) and **Lite**.
- Developed APIs for device diagnostics and added features such as **Transport Mode** of operation in **IPSec**, lane swap handling for 32 SerDes variants, null channel mapping for **MACSec** and context migration code for a particular release.
- Designed and implemented firmware fixes and optimizations, including debugging unexpected PCS PMON values, and updating PHY RX provisioning.
- Enhanced error handling by addressing defects such as latency measurement issues, slice power-down failures, and channel deprovisioning errors and resolved critical bugs, including issues with SerDes trained status, consequential actions in DLOS **improving serdes defects dlos reporting by 100% for certain scenarios**, and firmware crashes during provisioning, and verified fixes across multiple datapaths, modes, and configurations.
- Delivered thorough documentation, test plans, and defect analysis, ensuring reliability in high-performance Ethernet configurations.

### Engineer I - Software Development, Microchip Technologies

Jul 2021 - Feb 2023

- Developed firmware and SDK software for **META-DX2** family of 1.6 Terabit Ethernet PHYs: **Plus** (32 and 48 SerDes) and **Lite**.
- Added key features such as MAC Runtime, Global VLAN, and CA Force Configurations, implemented PHY runtime APIs and optimized Slice Bring-Up.
- Designed error injection mechanisms and latency management strategies **improving measurement efficiency between 7% to 9% for different configurations** to enhance device performance and reliability.
- Delivered Google test suites, examples, and documentation to support verification in board and Protium environments.
- Identified and resolved bugs, ensuring system scalability and robustness.

### Embedded Professional Trainee, Emertxe

Jan 2021 - Jul 2021

Attended Emertxe Certified Embedded Professional (ECEP) hands-on technical training program.

### Hardware Engineer, VVDN Technologies

Sep 2019 - Jul 2020

- Executed PCB testing and debugging, product testing, prepared test certification documents for Pre-Compliance testing and block diagrams, provided testing support for Thermal Validation, validated board schematics for a **Network Security Appliance**.
- Conducted DC analysis, component selection, BoM optimization **reducing the cost by 25%**, speaker wattage and performance testing, PTS design and verification, preparation of block diagrams, manuals and guidelines, component selection and schematic design, implementation and tuning of IRLED Validation circuit for a **Remote Monitoring Camera**.
- Optimized BoM for production boards **reducing the cost by 30%**, performed market analysis for a 5G router, proposed a USB Type C design solution required for a **360 Degree Camera**.

### Hardware Engineer Trainee, VVDN Technologies

Jan 2019 - Aug 2019

- Learned schematics part and PCB decal creation, hardware design and schematics drafting
- Created part and decal, as well as drafted schematics for a general purpose small scale processing development board.

## PROJECTS

### Autonomous Garbage Collecting Smart Robot [Senior Year Project]

Built an autonomous robot collecting garbage, door by door following a painted path and sends SMS notification when the bin is full.

- Arduino was the main controller board, with GSM module for sending SMS notifications, Motor Driver for driving the motors and a Servo motor for lid position control.
- Ultrasonic, IR and Passive IR sensors were used for detection purposes.

### IOT based Air Pollution Monitoring and Alert System [Smart India Hackathon Hardware Edition 2018]

Developed an air pollution monitoring system to measure pollutants.

- MQ135, MQ2, DHT11 sensors were used to measure CO, CO2, LPG, Temperature and Humidity levels.
- The data was uploaded to Firebase through the in-built Wi-Fi module of ESP32 Microcontroller.

## Mobile Controlled Robot

- Built a robot that can be controlled with the help of mobile communication using a transmitter mobile, a receiver mobile and a DTMF decoder.
- [Project Video 1](#)

## Gesture Based Robot

- Developed a robot that can be steered with the help of specific hand gestures using an accelerometer sensor detecting the motion caused by those gestures.
- [Project Video 2](#)

## SKILLS

---

**Programming Languages:** Advanced C, C++, Shell Scripting, Embedded C, Python, Java

**Design Tools:** Cadence Schematic Capture, Allegro, Altium

**Microcontrollers and Boards:** 8051, PIC, ESP32, Arduino

**Other systems, tools and frameworks:** Git, Jira, Google Test, Keil uVision, Flash Center, Arduino IDE, MPLAB X IDE, PICSimLab, GDB, Linux systems and internals, Networking

**Hardware Design, Testing and Debugging:** Schematic Drafting, Part Creation, Decal Creation, Board Bringup, Design Validation Testing, Thermal Validation Testing

## CO-CURRICULAR ACTIVITIES

---

- Best Paper Award for Paper titled Gesture Controlled Robotics at National Conference on Electrical, Communication and Applied Electronics Engineering (NCECAE 18)
- Winner of Code Quest conducted by Sathyabama Institute of Science and Technology
- Runner Up of Crime Scene Investigation conducted by Sathyabama Institute of Science and Technology
- Second Prize in Circuit Debugging at St. Joseph's College of Engineering
- Second Prize in Electronics Art at St. Joseph's College of Engineering
- Workshop on PLC in Industrial Applications at St. Joseph's College of Engineering

## SPORTS ACHIEVEMENTS

---

- Runner Up of Men's Chess in the Intramural Sports Tournament
- Under 15 category Chennai District Level Chess Bronze Medalist