Varsha L. Thirumalai

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EDUCATION

San Jose State University **August 2022-Present**
Masters of Science in Electrical Engineering Expected Graduation: May 2024
Subjects Taken: Computer Architecture, Embedded SOC, Intelligent Autonomous Sys, Neural Networks GPA: 3.54/4

PES University **August 2015-May 2019**
Bachelor of Engineering in Electronics and Communications GPA: 3.02/4

SKILLS

- Programming Languages: Python, C, C++
- SOC Design Fundamentals, Xilinx FPGA, Vivado, Raspberry Pi. Sensor Integration
- Protocols: CAN, I2C, SPI, AXI, ANB
- Tools: Git, Jira, Confluence, Slash Framework, Agile, Lean, NumPy. Pandas, Matplotlib, Scikit-Learn

WORK EXPERIENCE

Wipro Technologies- Client: Ford Motors **Jan 2020–May 2022**
Software Engineer Bangalore, India

- Project Related Training-Automation: Integration Testing and Unit Testing on the Car Infotainment System, python scripting using OOPs concept.
- Accumulated hands-on experience with building test Automation Scripts for the Body Control Systems, focusing on motor control, sensing, and actuation in embedded environments. Developed firmware in C and validation tests in Python for components like windows, mirrors, wipers, seat control and latches. The Project allowed me to develop a deeper understanding of the automotive industry and gain insights on the broader disciplines in this domain.
- Experienced on Script development, Test cases Analysis, Making test plans, writing tests, bug fixing, API development using Python and C.
- Improved the test result efficiency by creating a system plan before Regression Testing by 65%.
- Performed in the lab to schedule test runs and perform Regression Testing.
- Wrote a script that would detect bugs during regression testing that would give an immediate notification in case of system failure or setup issues. Saved 2 days which decreased the false failure results by 50%.
- Accomplished cumulative achievement of KPI for every quarter and achieved 89% accuracy in the test results.
- Developed lean and agile methodology skills which made me realize the importance of precise communication to meet client needs and ever-changing client and user expectations.
- Mentored and guided 3 new joiners in the team in initial work and process, and helped them ramp up in 1 months' time and briefly explained them the test-automation-pyramid.

PROJECTS

- **MIPS ISA dot product programming with "forward chaining and branch prediction"**
  • Developed python code that demonstrates forward chaining and branch prediction in MIPS architecture as well as implementations to find the dot product of two vectors depicting multiple stages of data transfer and storing and various ALU operations used in the process.
  • There was an improvement in the performance when forward chaining was implemented compared to it not being implemented by about 75%.
- **Tic-tac-toe on VGA Peripheral Interface Integration with Cortex M0**
  •Engineered a system that incorporated a Cortex-M0 processor, AHB-Lite bus, AHB VGA peripherals, and internal memory, all deployed on an Artix A7 FPGA board.
  • Utilized Keil Software to craft test programs in C, showcasing the tic-tac-toe mechanics. This effectively highlighted the seamless hardware-software interplay within the embedded system, with simulations and verifications carried out. Building upon this foundational program, I devised the logic for a two-player snake game and successfully executed it on the board.
- **Linked list implementation**- Music player for practical demonstration. Implemented search, delete, swap, reverse mechanism on the music files based on user input.
- **Designed an IoT-driven vending machine for a lab equipment** -Vending machine using Arm Cortex M3, integrated cash transaction mechanism and RFID. Used DC motors instead of Stepper thereby reducing equipment costs by 30% and prevented wastage of components by 18% through precise dispensing mechanisms.