Ishaan Salian

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Detail-oriented and adaptable Computer Engineering senior, proficient in Python and C, with a strong interest in embedded systems and PCB design. Seeking opportunities to apply my skills in dynamic engineering environments.

Education

University of Massachusetts Amherst **Amherst, MA**
Bachelor of Science in Computer Engineering **Expected May 2025**

- **Coursework:** Digital Design, Systems Programming, Synthesis and Verification of Digital Systems, Networked Embedded Systems, Security Engineering, Computer Architecture, Artificial Intelligence, Vulnerability Analysis

Technical Skills

Languages: Python, Java, Embedded C, C++, Verilog, RISC-V, MATLAB, R
Technologies: Arduino, BeagleBone, ATmega328P, Altera FPGAs, Wonderware, Altium, KiCad (PCB design), Unix, Linux
Tools: Soldering, Multimeters, Oscilloscopes, Quartus Prime, SPICE, GPIO, ADC, I2C, SPI, UART, Fusion 360, Git, Shell

Experience

Coherent Corp. **East Granby, CT**
Controls/Electrical Engineering Intern **June 2024 - August 2024**

- Assisted in complete controls upgrade of manufacturing equipment, resulting in improved operational efficiency
- Optimized Allen Bradley PLC programming, resolving length calculation discrepancies, reducing fiber wastage by 5%
- Collaborated with an interdisciplinary team of engineers to troubleshoot technical issues, ensuring minimal downtime

Department of Electrical and Computer Engineering **Amherst, MA**
Undergraduate Teaching Assistant - Security Engineering **August 2024 - Present**

- Assisting lab sessions for 120+ students on topics like cryptographic principles, secure coding, and hardware security

Projects

Workspace Wizard | *KiCad, Motors, BLE, Object Detection* **Senior Design Project**

- Designing a distributive system using object detection algorithm to autonomously organize a workspace
- Leading development of hardware solutions, including custom PCB, Bluetooth communication and motor control

TinyTemp - Digital Thermometer | *KiCad, Embedded C, ATtiny85* **March 2024**

- Designed a compact PCB using KiCad, reducing size by 33% to a compact 2-square-inch design
- Implemented power-saving algorithms in embedded C by sampling temperature values only when necessary
- Built the project at 76% of the cost requirements, demonstrating effective cost management and resource optimization

keyRING, a Smart Key Holder - HackUMASS XI | *Arduino Uno, Embedded C* **November 2023**

- Designed a system for sensing keys using a spring-like mechanical switch and sonar sensor for detecting door movement
- Programmed the ATmega328P using C to communicate with the switch to detect keys using digital interrupts
- Awarded "Cheapest Hardware Hack" for a cost-effective design with 97% positive feedback from 50+ students

RISC-V CPU Simulator | *RISC-V Assembly, Verilog, Quartus Prime* **December 2023**

- Developed a CPU simulator to execute RISC-V instructions and analyze cache performance with custom components
- Programmed key CPU components and created a matrix-multiplication program in RISC-V assembly
- Enhanced CPU simulator functionality with a 9-state Moore Machine to manage instruction flow

Email Spam Detection using Naive Bayes Algorithm | *Python, MATLAB* **April 2023**

- Developed a script utilizing scipy.io and NumPy libraries to implement a Naive Bayes classifier for spam detection
- Applied Bayesian principles to train the classifier on the training dataset to effectively calculate probabilities
- Achieved an accuracy rate of 94.1% with trained model on test data consisting of new, unseen emails

Organizations

Liaison - Institute of Electrical and Electronics Engineers (IEEE) **March 2024 - Present**

- Facilitating collaboration between engineering societies through joint events with 5 organizations

Electronics Co-Lead - UMass Mechatronics Team (ASME) **September 2023 - May 2024**

- Co-led electronics development for mini golf robot in 2024 ASME Student Design Competition, securing top 5 finish
- Utilized I2C for precise motor control with an Xbox controller through GPIO and Bluetooth modules