RAHUL A. MENON

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EDUCATION

Virginia Tech | Blacksburg, VA **May 2024**
Bachelor of Science (B.S.) in Computer & Electrical Engineering (Graduated with Double Major)
Focus: *Controls, Robotics, Autonomy* | Minor: *Computer Science*

WORK EXPERIENCE

Systems Integration Lead | **(Project Sponsor: BOEING & NAVAIR)** August 2023 – May 2024
Blacksburg, Virginia

- Constructed, and rigorously tested an autonomous robot, securing 3rd position among 52 teams at IEEE SoutheastCon 2024, an IEEE flagship conference
- Directed the integration of a system enabling the vehicle to autonomously start upon detection of a green light, achieving 99% reliability
- Managed design timelines & Verification Testing, improving project efficiency by 15% & reducing costs by 10%
- Developed and presented 3+ innovative design proposals and technical presentations at Virginia Tech and NAVAIR expos, featuring interactive Q&A with judging committees
- Compiled and presented in-depth weekly progress summaries to BOEING, NAVAIR, and Virginia Tech, detailing project milestones, potential risks, and implementation status, ensuring all teams remained informed and aligned with project goals

Software Developer Intern | **Siemens Digital** June 2022 – August 2022
Abu Dhabi, United Arab Emirates

- Orchestrated comprehensive software solutions using Siemens' MindSphere API, enabling real-time analysis
- Engineered Python programs to pull and process over 100,000 data points from MindSphere cloud API, facilitating time series analysis for operational insights.
- Devised full-stack Python solutions for industry clients, crafting interactive dashboards that enhance data visualization and support robust decision-making

Software Architect Intern | **Telinstra** January 2020 – May 2020
Dubai, United Arab Emirates

- Improved runtime performance by 5% through resolving efficiency bottlenecks in the code base, focusing on algorithmic enhancements and streamlined resource utilization
- Implemented JUnit and PyTest for integration testing, pinpointing logic errors and edge-case bugs for enhanced system functionality
- Formulated a robust infrastructure for seamless data migration of oil and gas control systems; decreased data transfer time and reduced errors

PROJECTS

Automated Recognition of Indian Vehicle Number Plates October 2023 – December 2023

- Innovated an ANPR system using Python and OpenCV, achieving a 95% accuracy in extracting Indian vehicle registration numbers
- Bolstered image preprocessing that improved image clarity by 20%, ensuring accurate detection of plates in various conditions

Autonomous-Tractor January 2023 – May 2023

- Constructed an autonomous tractor interfaced using an Arduino, 5+ sensors and an optimized MPU6050 Gyroscope for course correction and reliable navigational accuracy
- Deployed a PyGame GUI using BLE (Bluetooth Low Energy) for real-time sensor data, boosting operational efficiency by 25%

Music Genre Classification Project October 2022 – December 2022

- Trained and tested K-Nearest Neighbors and SVM algorithms to classify music genres using the "GTZAN Dataset"
- Created and fine-tuned Python scripts for data preprocessing and performance evaluation, achieving improvement in model accuracy and reduction in processing time.

Embedded Space Invaders Game Development March 2021 – April 2021

- Developed "Space Invaders" game using MSP432 microcontroller and joystick/button peripherals, showcasing advanced skills in embedded systems and game development
- Engineered comprehensive player controls, enemy AI, and screen transitions using HAL libraries, ensuring smooth gameplay and user engagement

TECHNICAL SKILLS

Programming Languages: Java, Python, C/C++, SQL, MATLAB, MIPS Assembly
Software Technologies: Git Version Control, VS Code, PyCharm, IntelliJ, Eclipse, Code Composer Studio, , Arduino IDE
Low-level Technologies: Verilog, Assembly Programming (MIPS), Arduino, Raspberry Pi, Intel Quartus
Libraries: pandas, BLEAK, scikit-learn, Keras, Arduino Libraries, PyTorch, TensorFlow, PyGUI, Numpy