Varsha Kumbenahally Roopeshkumar

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EDUCATION

New York University, Master of Science, Cybersecurity — Expected: May 2027

Relevant Coursework: Network Security, Applied Cryptography, Computer Networking, Information Security and Privacy, Application Security

PES University, B.Tech. Computer Science — May 2024

Relevant Coursework: Design and Analysis of Algorithms, Python for computational problem solving, Problem-solving with C, Data Structures and its Applications, Object Oriented Analysis and Design with Java, Automata Formal Languages and Logic, Network Security, Applied Cryptography, Information Security, Blockchain, Ethical Hacking

TECHNICAL SKILLS

Programming Languages: Python, C, Java, Node JS, MATLAB, HTML5 and JavaScript, Laravel PHP, R
Tools: GIT, Jenkins, Kubernetes, Docker, Plastic scm, Gerrit

PROFESSIONAL EXPERIENCE

Cybersecurity Engineer, **APTIV;** *Bangalore, India* — Jun.2024- Jun.2025

- Upgraded radar systems (**SRR500 → SRR700**) by integrating **AES encryption, digital signatures, MACs, and RSA-based authentication**, strengthening data integrity and secure communication.
- Designed and implemented a **key management framework** and customized **signature verification algorithms** to ensure robust in-vehicle cybersecurity.

Technical Intern, **APTIV;** *Bangalore, India* — Jan.2024- Jun.2024

- Implemented and tested **software updates** for automotive infotainment systems, ensuring integrity and performance.
- Programmed **Jacinto J6** and **RH850 microcontrollers** using **SPI** and **UART protocols** for hardware integration.

Research Assistant, **PES University**; *Bangalore, India* — Jun.2023-Aug.2023

- Designed **smart contracts in Solidity** for decentralized insurance data storage, boosting efficiency and transparency.
- Collaborated with healthcare providers and insurers, reducing **claim processing time by 20%** through process optimization using Blockchain.

ACADEMIC PROJECTS

Load Balancing-Based Scheduling for Mixed Real-Time Tasks on Multicore Systems | 2023

- Engineered a Python-based simulator to optimize task scheduling in multicore systems through load-balancing techniques, improving resource utilization and meeting real-time constraints.
- Designed strategies to distribute workloads across cores, reducing latency and boosting system performance for periodic and aperiodic tasks**.**

Network Scanner | 2023

- Built a network scanning tool leveraging TCP ports and an ARP scanner to identify active hosts with their IP and MAC addresses.
- Enhanced network visibility and management through Python and Scapy.

Heart Disease Prediction Using Data Mining and PCA | 2022

- Evaluated multiple data mining models to optimize prediction accuracy for heart disease diagnosis.
- Applied Principal Component Analysis (PCA) in Python to extract key insights and improve model performance.

PUBLICATIONS

• **A comprehensive study of load balancing approaches in real-time multi-core systems for mixed real-time tasks**
(Published in IEEE Access, vol. 12, pp. 53373-53395, 2024, doi: 10.1109/ACCESS.2024.3388291)
https://ieeexplore.ieee.org/document/1049760

• **Load Balancing based Scheduling for Mixed Real Time Tasks on Multicore Systems**
(Published in IEEE Access, 2024, pp. 70-77, doi: 10.1109/PDGC64653.2024.10984400**)**
https://ieeexplore.ieee.org/document/10984400