Rahul Rajesh Kanna

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Career Objective

Enthusiastic electronics and communication engineering student with a keen eye for real-world challenges. Possessing a strong foundation in coding, I thrive on analyzing complex problems and developing practical solutions. Through rigorous project experience and a deep dive into real-time examples, I aim to bridge the gap between theory and application.

Education

Velammal College of Engineering and Technology, Madurai, India **Nov 2021 – May 2025**
B.E of ECE, Honors with specialization in Signal and Image Processing *CGPA: 7.85*

Relevant Coursework: VLSI Design, Digital Electronics, Analog Electronics, Signal Processing, Image Processing, Circuit Analysis, Communications, Linear Integrated Circuit

CEOA Matriculation Higher Secondary School, Madurai, India **Jun 2020 – Apr 2021**
Higher Secondary School (HSC) *Percentage: 83.69*

Experience

Indian Telecommunication Industry, Bangalore **Aug 2023**
Telecommunication and Electronics Internship *Bangalore, India*

- Gained good understanding with hands-on experience in 3D printing, focusing on reliability testing and power supply unit development.
- Grasp in projects like EVM, DMR, and IRNSS, and the application and functionality of CAD in circuit design, visited experiments in EMC labs and PCB design.

J.K.Fenner (India) Pvt. Ltd. **Jul 2023**
Automation systems and ERP internship *Madurai, India*

- Gained knowledge in power transmission systems, including designing and optimizing belt and pulley systems, R and D for product enhancement, and supporting ERP implementation and e-business strategies for supply chain integration.
- understand the projects in R and D for product enhancement, and supporting ERP implementation and e-business strategies for supply chain integration.

Projects

Enhanced Attack Detection in Cognitive Radio using LIBESN | *Python, Deep Learning* **Mar 2025**

- Cognitive Radio Networks (CRNs) enhance spectrum use but face threats like jamming, PUEA, and sensing falsification. We propose a Leaky Integrated Bidirectional Echo State Network (LIBESN) for attack detection. LIBESN captures temporal patterns via bidirectional flow and leaky integration, enabling efficient long-range learning. It requires minimal training and achieved 0.9467 accuracy, outperforming other models. LIBESN is scalable, robust, and suitable for real-time CRN security.

Ransomware Attack Detection | *Python, Machine Learning* **May 2024**

- Developed a CNN-LSTM model achieving percentage of 98.73 accuracy in ransomware detection, leveraging CNN for feature extraction and LSTM for sequence learning, with high precision, recall, and F1-scores (¿0.98) and minimal false positives for real-world applicability.

Prediction and Analysis of Air Quality | *Python, Deep Learning* **Jan 2024**

- Designed air quality prediction models using ANN and CNN in PyCharm, analyzing data to predict AQI and support environmental monitoring and public health initiatives.

Fire Sprinkler System | *MATLAB, Sensors* **Jan 2023**

- The system simulated fire detection by monitoring temperature and smoke levels. When these exceeded thresholds, the sprinkler was activated. MATLAB was used to control the system and visualize sensor data in real-time.

Smoke Detector | *Arduino, Sensors* **Sep 2023**

- Designed and built a smoke detector using Arduino. The project utilized an MQ sensor to detect smoke presence, triggering an alarm (LED and buzzer) when smoke levels exceeded a safe threshold.

Technical Skills

Languages: Python, C++, C, HTML/CSS, JavaScript, SQL
Software: Matlab, Arduino IDE, Pspice, Pycharm, Xilinx Vivado, Verilog

Certification Course

NIELIT Calicut: VLSI for Beginners
NPTEL: Electronics - Digital VLSI System Design, VLSI Design Flow: RTL to GDS, Signal Processing Techniques and its Applications, Real-Time Digital Signal Processing, Simulation of Communication Systems Using MATLAB
Udemy: Become a Good Matlab Programmer in 30 days
Coursera + Google: Foundation of Cyber Security
Coursera: Hardware Description Languages for FPGA Design

Extra Curricular

Organizing Member, System Development and Management Team **March 03 & 05**
International Conference on Innovation in Computing and Communication' 25 (ICICC'25)

Volunteer and Finance Team **May 17 & 18**
Velammal International Conference on Engineering'24

Coordinator of IETE Students' Forum **Jun 2023 - May 2024**
Organized STATE-LEVEL Project and Idea Contest, Developed IETE Students' Forum Website.