

Shiyamaladevi R S

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EDUCATION

Vellore Institute of Technology

India

Bachelor of Technology in Electronics and Communication Engineering

Relevant Coursework: Machine Learning, Digital Signal Processing, Digital System Design, Digital Communication, Information Theory, IoT, Computer Networks.

HONORS & AWARDS

Best Paper Award | *IEEE ICCCSMD 2024*

Dec 2024

- Presented research paper “Alleviating Muscle Fatigue in Robotic Prosthetic Arms Through Multi-Sensor Fusion and Adaptive Real-Time Grip Assistance” at IEEE - International Conference on Communication, Computing, Smart Materials and Devices 2024 and received the Best Paper Award.

PATENTS & PUBLICATIONS

A System for Prosthetic Arm with Non-Invasive Sensory Regeneration (PATENT) Issued Feb 14, 2025

- Restores sense of temperature and grip force in prosthetic arm users without surgical implants using EMG signals to bridge the gap between human sensation and assistive technology.

Shiyamaladevi R S, Swaroop S Kaimal, Jeetashree Aparajeeta. *Security Auditing and Ultra-Strict Malicious Client Blocking in Federated EEG Seizure Detection*. Presented at **IEEE ICCIDS 2026**.

DOI:10.1109/ICCIDS69108.2026.11407536

Shiyamaladevi R S. *Swara-Net: A Deep Learning Baseline and Curated Dataset for Five Under-Represented Carnatic Ragas*. Presented at **IEEE INDICON 2025**. DOI: 10.1109/INDICON68490.2025.11393037

Manimaran, P., Ashwin, J. B., Swaroop, S. K., **Shiyamaladevi R S**. (2024). *Alleviating Muscle Fatigue in Robotic Prosthetic Arms Through Multi-Sensor Fusion...* **IEEE ICCCSMD 2024** DOI:10.1109/ICCCSMD63546.2024.11015135

Shiyamaladevi R S, Jeetashree Aparajeeta. *Automated Classification of E-Commerce Packaging for Open Box Delivery...* TechRxiv. DOI: 10.36227/techrxiv.176281084.44193627/v1

TECHNICAL SKILLS

Hardware & Telecom: IoT Architecture (Raspberry Pi, ESP32, Arduino), Edge AI / TinyML, Sensor Data Processing, Instrumentation, RF Engineering

Networking & Cloud: Distributed Systems, Secure Telemetry (HMAC-SHA256, AES-256), AWS (EC2, RDS, Lambda, CloudWatch)

Programming & Computation: Python, MATLAB, C, SQL, Linux

R&D Tools: TensorFlow, PyTorch, Git, Ansys HFSS

EXPERIENCE

Summer Research Assistant

May 2025 – Aug 2025

Center for Neuroinformatics, Vellore Institute of Technology

Chennai, India

- Architected HIPAA/GDPR-compliant federated learning framework with HMAC-SHA256/AES-256 encryption across 2 realtime + 23 simulated medical devices.
- Built a 0.54 MB (140K param) CNN for Raspberry Pi, achieving <15 ms latency and 98%+ accuracy for real-time seizure detection.

Supply Chain Machine Learning Intern

Feb 2025 – Jun 2025

Flipkart

Chennai, India

- Engineered Python pipeline processing 1.3M records, cutting compute time from 5 hours to 200s (99.8% reduction, 432× faster).
- Deployed ResNet50 image classification pipeline for quality assurance, achieving 89% accuracy and 96% recall on low-quality images and automated quality-check workflows via Google Sheets integration, reducing manual inspection overhead by 60%.