

MOHAMED ASLAM

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Professional Summary

Final-year Electrical and Information Engineering undergraduate with a broad technical foundation spanning power systems, electronics, embedded design, cloud computing, and AI/ML. Adaptable and eager to apply strong fundamentals and hands-on project experience to real-world engineering challenges. Seeking a three-month industrial training internship starting September 2026.

Technical Skills

Cloud & DevOps: AWS (VPC, EC2, S3, IAM, ECR, ECS, CodeBuild, CodeDeploy, CodeArtifact, CloudWatch), Docker, Docker Compose, Kubernetes/Minikube, GitHub Actions, CI/CD.

Embedded & IoT: ESP32 firmware development, AVR (ATmega328P) and PIC16F84A assembly programming, FreeRTOS, MQTT, FPGA design with SystemVerilog and Xilinx Vivado.

AI/ML & Computer Vision: Python, scikit-learn, LSTM/RNN fundamentals, RetinaFace, ArcFace.

Programming Languages: Python, Java, C/C++, C#, JavaScript (Node.js), SystemVerilog, MATLAB

Security: IAM policy design, Security Groups, Network ACLs, CTF problem-solving.

Experience

Electrical Engineer Intern

Aug 2025 – Oct 2025

Central Engineering Services Pvt. Ltd. (CESL)

- Supported senior engineers in technical operations, testing, and documentation in a professional engineering environment.

Projects

FSM-Based Electronic Combination Lock – SystemVerilog, FPGA, Xilinx Vivado

- Collaborated in a 2-member team to design and deploy a digital combination lock onto an FPGA board, translating behavioral SystemVerilog models into functional hardware.
- Designed and synthesized a Finite State Machine (FSM) in Vivado to process real-time sequential inputs via onboard switches and manage system state transitions.
- Mapped I/O peripherals and verified hardware logic, demonstrating a 3-attempt security lockout mechanism with physical alarm triggers.

ElderGuard – Embedded Health Monitoring Wearable

- Designed an ESP32-based wearable using MPU-6050 and MAX30102 sensors with FreeRTOS dual-task firmware for real-time fall detection and vitals monitoring.
- Implemented MQTT-based data transmission (HiveMQ) to a Firebase backend, paired with a Flutter companion app for live monitoring and alerts.

AWS VPC Networking & Flow Log Monitoring

github.com/AslamEl/aws-cloud-networking-projects

- Built a dual-VPC architecture with peering, custom IAM trust policies, and bidirectional routing; published VPC Flow Logs to CloudWatch Logs Insights for traffic analysis and anomaly detection.
- Containerized and deployed an application to AWS ECS via ECR with private subnets, NAT gateways, and Security Groups.

Human Activity Recognition (HAR) – LSTM-Based Classification

- Built an LSTM-based deep learning model to classify human activities from time-series accelerometer data (5 sensors, 15 features per sample, 40 Hz sampling rate).
- Generated sequential windows of consecutive readings, extending snapshot-based classical ML approaches to sequence classification, and tuned window size to optimize performance.

Celebrity Look-Alike System – REXTRO '25 Exhibition

- Engineered a real-time computer vision pipeline (RetinaFace + ArcFace + cosine similarity) matching users across 333 identities; achieved a 70% encoding speedup via Python multithreading.
- Deployed as a Flask web application with a responsive HTML/CSS/JavaScript frontend.

AI Background Removal Web App – Full Stack

- Built a Spring Boot backend (Dockerized on Railway) with a React.js frontend (Netlify), PostgreSQL, Clerk authentication, JWT-protected routes, and CI/CD via GitHub Actions.

Education

B.Sc. in Electrical and Information Engineering

University of Ruhuna, Faculty of Engineering

2023 – Present

GPA: 3.66 / 4.00

Relevant coursework: Embedded Systems, Digital Systems Design, Artificial Intelligence, Hardware Description Language, Information Security, Digital Signal Processing, Data Structures & Algorithms

Certifications

AWS AI Practitioner – Udacity | Docker for Absolute Beginners – CoDeKu DevOps Academy | Introduction to Containerization – CoDeKu DevOps Academy | Cloud Computing for Absolute Beginners – CoDeKu DevOps Academy | Version Controlling 101 – CoDeKu DevOps Academy | Python for Beginners – University of Moratuwa

Extracurricular Activities & Leadership

- **Captain, Faculty of Engineering Hockey Team, University of Ruhuna** – Progressed from team member to captain; awarded University Colors in 2023 and 2024; contributed to an inter-university championship win and represented the faculty in multiple tournaments across Sri Lanka.
- **CTF Competitor, Team CodeCrackers** – Competes in Capture The Flag cybersecurity competitions, including Red Cypher 3.0 (IEEE Computer Society, University of Ruhuna), strengthening cybersecurity and problem-solving skills.

References

Dr. Nadeesha Sandamali

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