

Akindu Delgahagoda

Undergraduate Student

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PERSONAL STATEMENT

Engineering undergraduate with a specialized focus on robotics and distributed systems architecture. Proficient in bridging the gap between embedded hardware and cloud services to create cohesive intelligent solutions. Brings a rigorous, analytical approach to system design, combining theoretical depth with the practical expertise needed to deliver robust, full-stack engineering projects.

EDUCATION

University of Moratuwa

*BSc Eng Hons, Computer Science and Engineering
Stream - Integrated Computer Engineering | CGPA - 3.5*

Bandaranayake Mawatha, Moratuwa 10400

2022 - 2026

Sabaragamuwa University of Sri Lanka

Diploma in English | Credit Pass

Belihuloya, Ratnapura

2021 - 2022

Sivali Central College

*GCE A/L 2020 | Physical Science Stream | 3A Passes
GCE O/L 2017 | 9A Passes*

Hidellana, Ratnapura

2007 - 2020

PROFESSIONAL EXPERIENCE

WSO2

Intern Software Engineer, Digital Transformation Team

105, Bauddhaloka Mawatha, Colombo 4

Jan 2025 - Jun 2025

- Developed "Infra Portal," a full-stack infrastructure automation platform using **Ballerina**, **React** and **MySQL** to replace legacy manual workflows, streamlining GitHub repository provisioning across the company.
- Upgraded and optimized existing internal middleware services to facilitate seamless integration with the GitHub API using **GraphQL**, ensuring robust communication between the new portal and external providers.
- Architected the solution to be extensible beyond GitHub, designing a scalable foundation to support future infrastructure automation requirements.
- Implemented secure authentication using **Asgardeo** and deployed the production-ready containerized application on **Choreo** for internal organizational use.

SKILLS

Programming Languages: Python | C/C++ | C# | VHDL | Java | JavaScript | Ballerina

Database: MySQL | SQLite

Frameworks and Libraries: OpenCV | ROS | React | Node-RED | FastAPI | Streamlit | PyQt | TensorFlow | PyTorch

Tools: Git | GitHub | Docker | Xilinx Vivado

Technical Fields: Embedded Systems | Robotics | IoT | Machine Learning | Computer Vision | DevOps

Hardware Platforms: Arduino | ESP32 | Raspberry Pi | STM32 | Nvidia Jetson Orin

PROJECTS

JetVIO

Python | C++ | ROS

July 2025 – Ongoing

Final Year Project (Group)

- Development of a visual-inertial navigation system for autonomous UAV operation in GPS-denied environments.
- Assembled the UAV platform and initiated simulation-based testing to evaluate system behavior and identify key limitations.
- Targeting a validated UAV capable of stable state estimation and autonomous navigation without GPS.

FPGA Audio Spectrum Analyzer

VHDL | Xilinx Vivado | Nexys A7 FPGA

Jul 2025 – Dec 2025

Module Project (Group)

- Real-time hardware-accelerated audio visualizer performing FFT analysis and VGA rendering on an FPGA.
- Experimented with audio input subsystem using UART and I2S protocols.
- Deployed on Nexys A7 FPGA Board and achieved low-latency signal processing and synchronized playback.

QUOT3D – Automating 3D Printing Quotation

Python | FastAPI | Docker | Git

Jan 2025 – Jun 2025
Module Project (Group)

- Web-based platform for generating instant and accurate 3D printing quotations from uploaded 3D models by slicing the model.
- Developed the backend service to analyze 3D model files and extract pricing-related metrics.
- Enabled automated, vendor-configurable quotation generation, reducing manual communication overhead.

FazeTrak – Smart Webcam

Python | C++ | OpenCV | PyQt | ESP32

Jul 2024 – Nov 2024
Semester Project (Individual)

- Smart webcam system with face recognition and gesture-based face locking and tracking.
- Implemented computer vision pipeline, servo control logic, and desktop application for hardware integration.
- Achieved real-time face tracking with pan-tilt control and streaming video for usage of other applications via OBS Virtual Camera Driver.

MinerShield

C++ | JavaScript | ESP32 | Node-RED

Jul 2024 – Oct 2024
Competition Project (Group)

- IoT-based wireless monitoring system for miner safety in underground environments.
- Contributed to embedded system integration, IoT workflow development and frontend development.
- Demonstrated reliable environmental and miner-status monitoring through a prototype sensor network.

MechaPulse

C++ | ESP32 | Raspberry Pi | Python | FastAPI

Jan 2024 – May 2024
Competition Project (Group)

- Industrial IoT system for machinery fault detection using acoustic signal analysis via Machine Learning.
- Led the deployment of ML models on Raspberry Pi and managed embedded system integration.
- Validated fault detection of a drill machine using the prototype system.

Smart MediBox

Arduino | ESP32 | IoT | PCB Design

Jan 2024 – Mar 2024
Module Project (Individual)

- Smart medicine container for indicating scheduled medicine intake times.
- Designed embedded firmware, IoT connectivity, and Node-RED based control dashboard.
- Delivered a functional prototype supporting remote monitoring and timely medication alerts.

AspireTrust – Bank Transaction and Loan Processing System

MySQL | HTML | CSS | Git

Sep 2023 – Nov 2023
Module Project (Group)

- Database-driven banking system supporting transactions and loan processing.
- Contributed to database schema design and query implementation.
- Produced a simple prototype system demonstrating robust database management practices.

Nanoprocessor

VHDL | Xilinx Vivado | Basys3 FPGA

May 2023 – Jun 2023
Module Project (Group)

- Custom-designed 4-bit nanoprocessor implemented on FPGA hardware.
- Architected the top-level processor design and managed simulation workflows.
- Successfully deployed and validated the processor on a Basys3 FPGA board.

CERTIFICATIONS

Embedded AI

- Getting Started with Machine Learning at the Edge: *Arm* | Apr 2025 | ↗
 Computer Vision with Embedded Machine Learning: *Edge Impulse* | Mar 2025 | ↗
 Introduction to Embedded Machine Learning: *Edge Impulse* | Mar 2025 | ↗

Computer Vision & AI

- Vision Language Models Bootcamp: *OpenCV University* | Dec 2025 | ↗
 Fundamentals of Deep Learning: *NVIDIA DLI* | Dec 2025 | ↗
 Computer Vision: *Kaggle* | Dec 2024 | ↗
 Intro to Machine Learning: *Kaggle* | Jan 2024 | ↗

Embedded Systems

- Arm Cortex-M Architecture & Software Development: *Arm* | Apr 2025 | ↗
 Embedded Software & Hardware Architecture: *CU Boulder* | Mar 2025 | ↗

DevOps & Engineering

- GitHub Foundations: *GitHub* | Mar 2025 | ↗
 Docker Training for Absolute Beginners: *KodeKloud* | Feb 2025 | ↗

EXTRA CURRICULAR ACTIVITIES

IEEE Robotics and Automation Society Student Branch, UoM		
• Term 24/25 - Secretary	Oct 2024 – Oct 2025	
• Term 23/24 - Vice Chairman	Oct 2023 – Oct 2024	
• Term 22/23 - Member—Design Committee	Oct 2022 – Oct 2023	
• BotTalks 1.0 - Co Chair	Mar 2023 – Apr 2023	
IEEE Student Branch, University of Moratuwa		
• Term 23/24 - Member—Membership Development Committee	Nov 2023 – Nov 2024	
• IEEE Open Week - Volunteer—Chapter Coordination Committee	Feb 2024 – Mar 2024	
• MoraForesight 1.0 - Volunteer—Finance Committee,Design Committee	Mar 2023 – Aug 2023	
Mora Hiking Club, University of Moratuwa		
• Stridian 2025 - Media Team	July 2025 – Sep 2025	
• Stridian 2024 - Health Team	July 2024 – Sep 2024	
• Stridian 2023 - Participant	July 2023 – Sep 2023	
Department of Computer Science and Engineering, University of Moratuwa		
• CSE40 - Volunteer—Marketing Committee	Jan 2025 – May 2025	
• Hit The Grounds - Volunteer—Marketing Committee	Dec 2024 – Jan 2025	
• CSE Career Fair 2024 - Volunteer—Company Coordination Committee	Dec 2023 – Jan 2024	
Techno 2023 Exhibition, IESL IT and Computer Engineering		
• Graphic Designer	Sep 2023 – Oct 2023	
• Demonstrator	Sep 2023 – Oct 2023	
Exmo 2023 Exhibition, University of Moratuwa		
• Event Committee Member	Mar 2023 – Jul 2023	

AWARDS & ACHIEVEMENTS

Dean's List: Semester 6

Evolve IoT Mini Research Competition: 1st Place

SLIoT Challenge 2023: Semifinalists

President's Scout Award: Issued in 2019

National Junior Science Olympiad 2016: Gold Medal

International Mathematics and Science Olympiad 2013: Silver Medal

National Mathematics and Science Olympiad 2013: Bronze Medal

REFERENCES

Prof. Dulani Meedeniya

Department of CSE
University of Moratuwa.

Email: dulanim@cse.mrt.ac.lk

Dr. Sulochana Sooriyaarachchi

Department of CSE
University of Moratuwa.
Email: sulochanas@cse.mrt.ac.lk