

Ruzaini Ahmedh

+94 77 101 2347 | ruzainia.23@cse.mrt.ac.lk | [Portfolio](#) | [LinkedIn](#) | [GitHub](#)

SUMMARY

3rd year Computer Science & Engineering undergraduate interested in Agentic AI, Machine Learning, and Software Engineering. I prefer learning the fundamentals and staying open to different technologies rather than focusing on a single stack. I adapt quickly to new concepts and technologies, starting from the problem and learning the tools needed to build an appropriate solution.

EDUCATION

University of Moratuwa

Bachelor of Science in Computer Science and Engineering — CGPA: 3.67

Semester 1 SGPA: 3.94 — Dean's List

Moratuwa, Sri Lanka

March 2024 – Present

Badulla Central College

G.C.E. Advanced Level – Physical Science — Z-Score: 2.2384

Badulla, Sri Lanka

Aug. 2020 – Dec. 2022

SELECTED PROJECTS

Nexus – Trilingual voice-based agentic support | *FAISS + BM25, MiniLM, mMARCO CE, LangChain* | **Live** | **Repo**

- Implemented semantic chunking, cross-encoder ranking, hybrid search, and to improve relevance and reduce latency for RAG knowledge base retrieval .
- Included agentic workflow components for multi-step reasoning and context-aware response generation.
- Added guardrails for input validation, prompt safety, and policy-aware output handling.

Attendligo – Student Trip Safety | *Computer Vision, DeepFace, FaceNet, Python, GPS, SMS APIs* | **Live** | **Repo**

- Engineered a multi-modal attendance workflow combining face recognition, voice-based marking, and self-check-in to enable rapid student verification during trips.
- Integrated SOS GPS location sharing and parent SMS notifications to support student safety during trips.
- Implemented group-wise student management and automated attendance report generation for easier trip coordination and record tracking.

Fluventa – Pipeline Anomaly Detection(In-progress) | *FastAPI, LSTM Autoencoder, React, Python* | **Site** | **Repo**

- Designed an LSTM Autoencoder for multivariate pipeline sensor anomaly detection using pressure, temperature, flow rate, and vibration signals.
- Implemented slow-degradation detection using aggregated readings, trend gradients, and persistence logic.
- Added contextual suppression logic for known operating conditions such as bottle jams, preventing unnecessary anomaly alerts.

Multi-Tenant RAG Agent Framework | *FastAPI, LangChain, FAISS, MiniLM, Llama 3.3 70B* | **Repo**

- Architected a domain-agnostic, multi-tenant RAG framework with isolated document collections, vector stores, configurations, and agent roles per client.
- Designed pluggable document-aware chunking and hybrid retrieval strategies, allowing each domain to optimize context construction without modifying the core framework.
- Built Government Information Center and software-documentation assistants on the framework, demonstrating reuse across structurally different knowledge domains.

CourtBooker – Sports Court Booking Platform | *Next.js, PostgreSQL, Docker, MinIO, GitHub Actions* | **Live** | **Repo**

- Built a production CI/CD architecture with develop, staging deployments, PR-gated **main** production releases, SHA-versioned Docker images, migrations, health checks, and automatic rollback.
- Designed an event-driven notification pipeline using PostgreSQL LISTEN/NOTIFY for real-time SSE booking updates and asynchronous SMS confirmations and cancellations without a separate message broker.
- Built and later re-architected it from Supabase-backed services to a self-hosted PostgreSQL, NextAuth, MinIO, and Docker stack for greater infrastructure control and reduced vendor dependence.

SL Disaster Portal – Emergency Response | *React, PostgreSQL, REST APIs, Leaflet, Gemini API* | **Live** | **Repo**

- Built a centralized real-time platform for disaster, missing-person, animal-rescue, and camp-request reporting, with admin-verified camp registrations and AI-driven incident prioritization and resource recommendations.
- Enabled multilingual SMS reporting with offline support for reliable incident submission in low-connectivity situations.

- Automated call transcription and incident report generation using AI to reduce manual reporting overhead.

CallRoster Pro – Workforce Scheduling | *FastAPI, PostgreSQL, OR-Tools CP-SAT, React* | **Live** | **Repo**

- Built one-click roster generation with explainable denials, conflict visibility, and auditable employee appeals rather than receiving opaque assignments.
- Designed coverage using high-penalty shortfall variables, allowing the to degrade gracefully during unavoidable understaffing instead of making the entire scheduling problem infeasible.
- Combined weighted priorities, minimax fairness, and FCFS tie-breaking to distribute denied requests fairly.

FloodSense – Multi-Station Flood Forecasting | *XGBoost, Pandas, Scikit-learn* | **Repo**

- Built a station-aware feature pipeline using sensor data from relevant upstream stations for flood prediction.
- Designed distance-based lag features to capture flood movement: target-station readings at $t/t - 1$, one upstream station at $t - 2/t - 3$, and two upstream stations at $t - 3/t - 5$.
- Trained separate XGBoost models for multiple forecast horizons using time-ordered train, validation, and test splits with early stopping.

Birthday Bot – Zero-Cost Automation Pipeline | *Python, OpenCV, GitHub Actions, Chatbot APIs* | **Repo**

- Designed dynamic face-aware flyer generation that preserves surrounding visual context instead of relying on fixed image crops.
- Automated the full pipeline from person identification to flyer creation and Discord/Telegram delivery, replacing manual design and reminders.
- Achieved zero hosting cost by running the entire pipeline as a scheduled GitHub Actions workflow instead of an always-on server.

ViewCastLK – YouTube Forecasting & Insights (In-progress) | *XGBoost, YouTube Data API, PostgreSQL, Next.js* | **Repo**

- Engineered pre-publication features by combining structured video and channel metadata with LLM-derived title semantic scores for urgency, emotional appeal, and curiosity gap.
- Designed an actionable insights layer using historical channel and category patterns to recommend publishing time, title framing, video duration, and format.

CrisisRIG – Multimodal Crisis Classification (In-progress) | *PyTorch, MiniLM, MobileNetV3* | **Repo**

- Built a multimodal classifier for humanitarian crisis posts, combining social-media text and images to identify actionable disaster information.
- Designed reliability-aware fusion to dynamically down-weight noisy or missing modalities instead of relying on fixed text-image fusion.
- Chose lightweight pretrained encoders and event-held-out evaluation to balance compute efficiency with cross-disaster generalization.

RESEARCH PUBLICATIONS

Monsoon Mayhem to Market Waves: Fisheries Resilience in Sri Lanka | *MERCon 2026* | **arXiv** Jun 2026

- Developed a data analytics and forecasting framework examining how climate variability and major disruptions influenced Sri Lanka's fisheries sector between 2019–2025.
- Applied STL decomposition, Spearman lag correlation, ITS regression, SARIMAX forecasting, and hotspot detection to uncover patterns, forecast production and prices, and support data-driven policy decisions.

TECHNICAL SKILLS

Languages: Python, TypeScript, SQL, VHDL, HTML/CSS

Web: FastAPI, React, Next.js

Databases: PostgreSQL, Supabase, SQLite, ChromaDB, MongoDB

AI/ML Engineering: Scikit-learn, PyTorch, Ensemble Learning, DNN, Pandas, LangChain, FAISS, BM25, MiniLM, Cross-Encoders

Other: Docker, Git, CI/CD, GCP, Digital Ocean

EXPERIENCE

Call Center Executive

May 2023 – Feb 2024

FBC Asia (Client: Mobitel)

Badulla, Sri Lanka

- Entrusted to serve as the sole on-site Mobitel representative during selected overnight shifts in a large call center operation.
- Independently handled time-critical operational issues and coordinated immediate responses when required.
- Strengthened communication, decision-making, adaptability, and composure under pressure in a high-volume customer service environment.

Finance and Office Administrator

Aug. 2020 – June 2022

Baithuz-Zakath

Badulla, Sri Lanka

- Maintained responsibility for donation accounting, cash records, and financial documentation, ensuring accurate tracking and proper handling of funds with confidentiality
- Coordinated the distribution of charitable assistance to verified recipients and maintained supporting records for accountability.

SELECTED CERTIFICATIONS

Claude 101

Jul 2026

Anthropic Education

Claude Code 101

Jul 2026

Anthropic Education

LEADERSHIP & VOLUNTEERING

Department Representative

Semesters 04, 05 & 06

Department of Computer Science & Engineering, UOM – 23rd Batch

- Elected by peers to represent the batch in departmental affairs across three consecutive semesters.

Partnership Development Lead

2026

Aurelia 2026 – CSE Department Gala Night

- Led partnership development and sponsorship coordination for the flagship departmental Gala event.

Company Handling Coordinator

2026

CSE Career Fair – Company Coordination

- Managed company liaisons for Sysco Labs, Iron One, Synergen, and CodeGen at the Department of CSE Career Fair.

REFERENCES

Prof. Dulani Meedeniya

PhD (St Andrews), MSc (Moratuwa), BSc (Peradeniya)
Senior Lecturer, Dept. of Computer Science & Engineering
University of Moratuwa
dulanim@cse.mrt.ac.lk | +94 71 393 5801

Dr. Kutila Gunasekera

PhD (Monash), MSc (Moratuwa), BSc (Moratuwa)
Senior Lecturer, Dept. of Computer Science & Engineering
University of Moratuwa
kutila@cse.mrt.ac.lk