Rashmi Paboda Munasingha Vithanage

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Summary

Computer Science & Engineering undergraduate at the University of Moratuwa with experience building backend systems, cloud-native applications, and applied AI/ML solutions. Developed healthcare-focused platforms and clinical risk prediction models alongside production-oriented systems using Python, FastAPI, TypeScript, Next.js, PostgreSQL, Docker, and AWS. Interested in building reliable AI-powered software for real-world applications.

Education

University of Moratuwa – Sri Lanka March 2024 – Ongoing

B.Sc. Eng. (Hons) in Computer Science & Engineering

- Coursework: Program Construction, Computer Organization and Digital Design, Data Structures and Algorithms, Theory of Electricity, Methods of Mathematics, Data Communication and Networking, Operating Systems, Computer Architecture, Database Systems, Introduction to Artificial Intelligence, Differential Equations, Applied Statistics, Fundamentals of Engineering Thermodynamics and Applications, Software Engineering, Computer Networks, Theory of Computing, IoT Devices and Applications, Programming Languages, Linear Algebra, Graph Theory
- CGPA: 3.52

Projects

AutoVault LK – Intelligent Search & Automated Inventory Processing *(Jun 2026 – Present)*

- Architected a serverless, AWS-native marketplace of five services (Auth & User, Marketplace, Ingestion & ETL, Admin, Notification) built with **NestJS, React, AWS Lambda, and Terraform**, enabling dealers to bulk-upload inventory and buyers to run hybrid filter, natural-language, and semantic vehicle search.
- Designed an AWS Step Functions ETL pipeline (11 per-stage Lambdas) with rules-first normalization, Groq LLM fallback for low-confidence fields, and a human-in-the-loop dealer review gate before listings go live.
- Authored the Software Architecture Document for a second-hand vehicle marketplace with five NestJS services and hybrid search over **PostgreSQL, pgvector, and pg_trgm**.

VerifyShelf – AI-Powered Brand Protection Platform *(Jun 2026 – Present)*

- Developed a full-stack marketplace monitoring platform using **FastAPI, Next.js, MySQL, Redis, Docker, and Celery** to detect MAP (Minimum Advertised Price) violations across third-party e-commerce marketplaces.
- Built a distributed crawling pipeline with residential proxy routing, background task scheduling, XGBoost-based violation classification, and sentence-transformer embeddings for seller fingerprinting.
- Implemented AI-generated enforcement reports, automated Slack/Email alerts, role-based authentication, and PDF report generation with 40+ backend unit tests.

BloomCare – AI Maternal Healthcare Platform (AITHON 2026) *(Jan 2026 – Mar 2026)*

- Developed an AI-assisted maternal healthcare platform using **Next.js, FastAPI, SQLAlchemy, and Python**, supporting patients, clinicians, frontline staff, and administrators.
- Implemented offline-first screening workflows, multilingual support (English, Sinhala, Tamil), appointment scheduling, longitudinal patient tracking, and role-based access control.
- Integrated explainable machine learning models for pregnancy risk assessment with AWS-based cloud deployment for demonstration.

MODEL-X – National Risk Intelligence Platform *(Dec 2025 – Jan 2026)*

- Built a real-time risk intelligence platform using **Python, Streamlit, SQLite, and NLP** by aggregating data from RSS feeds, Reddit, GDELT, and World Bank APIs.
- Implemented deterministic risk scoring, anomaly detection, forecasting, automated data collection pipelines, and interactive geospatial dashboards.
- Developed background data collectors with retry mechanisms, deduplication, health monitoring, and CSV export capabilities for operational analytics.

Preeclampsia Risk Assessment System – BioFusion Hackathon Winner 2026 *(Nov 2025 - Dec 2026)*

- Designed a dual-model, clinically guided ML framework for preeclampsia risk assessment: a supervised neural network (BioFusion-NN) for high-sensitivity patient screening, and an unsupervised clustering + Random Forest pipeline (PE-PhenoRisk) for clinician-facing phenotype-driven risk stratification.
- Engineered domain-informed features (Mean Arterial Pressure, synthetic heat-exposure and air-pollution risk factors) and built a SHAP-based explainability layer with a Random Forest surrogate for global feature importance.
- Built patient and doctor dashboards serving risk scores, action plans, and phenotype/cluster insights from the two deployed models, achieving **∼0.96 ROC-AUC** on clinical risk stratification.

Stroke Prediction Model – DataExplore Competition (Stage 01 Top 10) *(may 2026 – June 2026)*

- Built a leakage-safe stroke-prediction pipeline on an imbalanced clinical dataset (4.87% prevalence), with grouped-median imputation, clinically informed interaction features, and a label-shuffle sanity check to rule out target leakage.
- Trained and combined **Logistic Regression, Random Forest, and XGBoost** via soft voting and stacking, applying SMOTE on training folds only and tuning decision thresholds for high-sensitivity and balanced screening modes.
- Reached **0.838 ROC-AUC** with the stacking ensemble on an untouched test set (0.92 recall in high-sensitivity mode), and generated a full EDA and model-evaluation visual report.

PawMatch – Devthon 3.0 (Top 10 Finalists) *(Dec 2025 – Feb 2026)*
- Collaborated in a team to develop a full-stack pet adoption platform using **Next.js, Express.js, MySQL, JWT Authentication, and Cloudinary**.
- Designed a compatibility-based recommendation system to improve adopter-pet matching using lifestyle and behavioral scoring.
- Implemented identity verification, foster-to-adopt workflows, welfare tracking, and community reporting features.

Skills and Technologies

Programming Languages: Python, JavaScript, TypeScript, Go, SQL, HTML, CSS
Frameworks & Libraries: FastAPI, Next.js, React, Node.js, Express.js, Streamlit, SQLAlchemy, Tailwind CSS, scikit-learn, XGBoost, Pandas, NumPy
Databases: MySQL, SQLite, Redis
Cloud & DevOps: Docker, Docker Compose, Celery, Git, GitHub, Linux, AWS (EC2), REST APIs
AI/ML: Machine Learning, NLP, Sentence Transformers, SHAP, Feature Engineering, Model Evaluation, RAG, LLM Integration
Tools: Postman, Figma, Canva, Playwright
Languages: English (Professional Working Proficiency), Sinhala (Native)

Achievements

Proxy Maze '26 Innovation Challenge – Top 10 Finalist *(2026)*
- Selected among the Top 10 teams (200+ registrations) for developing VerifyShelf, an AI-powered brand protection and MAP violation detection platform.

BioFusion Hackathon 2026 – First Place (AI/ML) *(2026)*
- Won 1st place for designing a dual-model AI system for early preeclampsia risk assessment and clinical decision support.

AITHON 2026 – Top 30 Finalist *(2026)*
- Selected among the Top 30 teams for BloomCare, an AI-powered maternal healthcare platform.

Devthon 3.0 – Top 10 Finalist *(2026)*
- Reached the Top 10 for PawMatch, an intelligent pet adoption and compatibility matching platform.

MODEL-X National Hackathon – Round 2 Qualifier *(2025)*
- Advanced to Round 2 after winning the initial stage with an AI-based dementia risk prediction solution.

Certifications

- AWS Cloud Computing Trainee (2026)
- Front-End Web Development – Open Learning Platform, University of Moratuwa

Leadership & Activities

- Design Committee Member – **Hit the Grounds 2026**, Department of Computer Science & Engineering, University of Moratuwa
- Design Committee Member – **CSE Career Fair 2026**, Department of Computer Science & Engineering, University of Moratuwa
- Co-Chair – IEEE Women's Day Webinar Session (2025)
- Publicity & Visibility Committee Member – IEEE Robotics and Automation Society, Robotics Day 2025
- Design Committee Member – IEEE Power & Energy Society (2025)

Extracurricular Activities

- Senior percussionist representing Rippon Girls' College; secured 3rd place at the All Island Western Brass Band Competition (2020).

References

Prof. Dulani Meedeniya
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University of Moratuwa
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Current Semester Supervisor