MEHARA ROTHILA RANAWAKA

AI/ML Engineer

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Colombo, Western Province, Sri Lanka

OBJECTIVE

B.Sc.(Hons.) IT & Management student at University of Moratuwa. Experienced in machine learning, fraud detection, and data analytics with DAX and KQL. Microsoft Certified Fabric Analytics Engineer with a focus on explainable AI and interpretable solutions. Founded and led Team "Xforce" - a competitive programming and development team achieving consistent success across multiple inter-university competitions.

EXPERIENCE

- **ExcellyGen** — *Oct 2024 - Sep 2025*
  Software Engineering Trainee — Colombo, Sri Lanka
  - Learning industry best practices for software development lifecycle and project management

EDUCATION

- **University of Moratuwa - Faculty of Information Technology** — *Jul 2023 - Jul 2027*
  B.Sc.(Hons.) in Information Technology and Management — Moratuwa, Sri Lanka

PROJECTS

- **Lung Cancer Patient Survival Prediction - Idealize 2025 Datathon** — *Jul 2025 - Aug 2025*
  Python, LightGBM, XGBoost, CatBoost, Scikit-learn, Pandas, NumPy, Jupyter [ ]
  - **Achievement:** 2nd place winner in Idealize 2025 Kaggle competition for lung cancer patient survival prediction
  - **Technical Excellence:** Engineered comprehensive healthcare features including BMI calculations, comorbidity scoring, treatment response metrics, and temporal analysis
  - **Machine Learning:** Implemented stacked ensemble with meta-learning using 10-fold stratified cross-validation and dynamic threshold optimization
  - **Clinical Innovation:** Developed health index combining lifestyle factors, created geographic intelligence features, and advanced statistical aggregations with temporal analysis
  - **Methodology:** Processed 50,000+ patient records with 30+ engineered features, achieving top-tier F1-score through rigorous 10-fold validation
  - **Impact:** Built production-ready healthcare ML system supporting clinical decision-making for patient risk stratification with ethical AI considerations, HIPAA-compliant data handling, and interpretable feature importance

- **Climate Prediction System with Ensemble ML for Agricultural Decision Support** — *May 2025 - Jun 2025*
  Python, XGBoost, LightGBM, Scikit-learn, Pandas, NumPy [ ] [ ]
  - **Achievement:** 3rd place in Data Crunch Kaggle competition for climate forecasting, predicting 5 agricultural variables across multiple regions with 36.8 sMAPE score
  - **Technical Innovation:** Developed novel trigonometric decomposition for circular wind data, variable-specific ensemble optimization, and 88 engineered temporal-spatial features
  - **Feature Engineering:** Implemented cyclical encoding and geographic transformations for comprehensive environmental modeling
  - **Impact:** Production-ready climate prediction system for agricultural planning and resource allocation
  - **Competition Performance:** Successfully competed in "The Future of Harveston" challenge with advanced ensemble ML techniques

- **Advanced Ensemble ML System - Insurance Agent Sales Risk Prediction** — *Apr 2025 - Jun 2025*
  Python, XGBoost, CatBoost, Scikit-learn, Optuna, SMOTE, Pandas, NumPy [ ] [ ]
  - **Achievement:** Achieved leading 94.6% accuracy in Data Storm v6.0 Kaggle competition predicting insurance agent sales risk
  - **Architecture:** Developed progressive three-model architecture with 503 engineered features, segment-specific calibration, SMOTE augmentation
  - **Optimization:** Implemented Optuna optimization, business rule integration, and pattern-specific agent modeling
  - **Advanced Techniques:** Used sophisticated feature engineering and dynamic threshold optimization for ensemble ML
  - **Production Impact:** Production dashboard deployment with real-time predictions for business decision support and agent risk intervention strategies

- **Agricultural Price Forecasting System - DataCrunch "The Freezer Gambit"** *Mar 2025 - May 2025*
  Python, LightGBM, FastAPI, Docker, Scikit-learn, Pandas, NumPy, Optuna [⌂]
  - **Competition:** DataCrunch Final Round predicting crop prices 4 weeks ahead for agricultural decision support
  - **Model Performance:** Achieved RMSE of 20.06 using LightGBM with advanced time series feature engineering
  - **Feature Engineering:** Developed 28+ features including price lags, rolling windows, seasonality patterns, and weather correlations
  - **Production Deployment:** Built containerized FastAPI application deployed on DigitalOcean with Swagger documentation
  - **Business Impact:** Enabled data-driven "sell vs. freeze" decisions for AgroChill strategy optimization
  - **Technical Architecture:** Modular Python pipeline with Optuna hyperparameter tuning and Docker containerization

SKILLS

- **Programming:** Python, TypeScript, JavaScript, C#, PHP
- **Frontend:** React.js, Next.js, HTML/CSS, TypeScript
- **Backend:** .NET, Node.js, Python, PHP, Express.js
- **Databases:** MongoDB, Microsoft SQL Server, MySQL
- **AI/ML Libraries:** TensorFlow, PyTorch, Scikit-learn, XGBoost, LightGBM, CatBoost, Optuna, SMOTE
- **Data Science:** Pandas, NumPy, Jupyter, DAX, KQL, Feature Engineering, Ensemble Methods
- **Cloud & Tools:** AWS, Firebase, JWT/OAuth2, Docker
- **Hardware & IoT:** Arduino, ESP32, PCB Design, Serial Communication
- **Architecture:** Microservices, Clean Architecture, RESTful APIs, Three-tier Architecture

HONORS AND AWARDS

View Certificates ⊕

- **1st Place - SpiritX 2025 Inter-University Development Competition** ∣ Team Leader ∣ MoraSpirit *2025*
- **Web App Excellence Award - Best Web App ∣ Idealize 2025** ∣ Team Leader ∣ AIESEC UOM *2025*
- **2nd Place - FIT CodeRush 2024 Intra-Faculty Hackathon** ∣ INTECS, University of Moratuwa *2024*
- **2nd Place - Idealize 2025 Datathon (Lung Cancer Survival Prediction)** ∣ Team Leader ∣ AIESEC UOM *2025*
- **2nd Place - Idealize 2025 Web App Competition** ∣ Team Leader ∣ AIESEC UOM *2025*
- **3rd Place - Devthon 2.0 Web Development** ∣ Team Leader ∣ Rotaract Club UOM *2025*
- **3rd Place - AWS Cloud Ideathon** ∣ Team Leader ∣ IEEE CS Chapter USJ *2025*
- **4th Place CodeX Track (Algorithms) - CodeJam 2025** ∣ Team Leader ∣ CSE Dept. UOM *2025*
- **Top 8 Finalist Data Crunch (Data Science) - CodeJam 2025** ∣ Team Leader ∣ CSE Dept. UOM *2025*
- **Top 10 Finalist - Data Storm 6.0 National Data Science Competition** ∣ Team Leader ∣ Rotaract UOM & UOC *2025*
- **Top 10 Finalist - CYPHER 3.0 National Coding & Data Security** ∣ Team Leader ∣ IEEE WIE KDU *2025*
- **Top 10 Finalist - Hacktivate 2025** ∣ Team Leader ∣ CCCI, Faculty of Computing, NSBM Green University *2025*
- **Top 10 Finalist - Algothon Contest (CODEFEST 2025)** ∣ Team Leader ∣ Faculty of Computing SLIIT *2025*
- **Top 10 Finalist - IASSL Fraud Detection Competition** ∣ International Statistics Conference *2025*

LEADERSHIP EXPERIENCE

- **Founder & Team Leader - Team "Xforce"** *2024 - Present*
  Competitive Programming and Development Team
  - Founded and led competitive programming team with multiple top-3 finishes across 15+ national competitions

CERTIFICATIONS

- **Microsoft Certified: Fabric Analytics Engineer Associate** *Oct 2024*
- **SLIIT:** AI/ML Engineer - Stage 2 *Oct 2024*

REFERENCES

Mrs. M. B. Mufitha
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