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

Software Engineering Trainee

Oct 2024 - Sep 2025

Colombo, Sri Lanka

• Learning industry best practices for software development lifecycle and project management

EDUCATION

• University of Moratuwa - Faculty of Information Technology B.Sc.(Hons.) in Information Technology and Management

Jul 2023 - Jul 2027 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

[(1) [(2)]

- **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

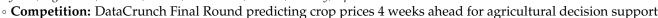
Apr 2025 - Jun 2025

Python, XGBoost, CatBoost, Scikit-learn, Optuna, SMOTE, Pandas, NumPy

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- 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

Python, LightGBM, FastAPI, Docker, Scikit-learn, Pandas, NumPy, Optuna



- 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 UO	OM 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	rsity 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

Senior Lecturer / Student Counselor Head of the Department Department of Interdisciplinary Studies Faculty of Information Technology University of Moratuwa

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Relationship: Academic Supervisor

Mr. Ashan Withana

Software Engineer

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Relationship: Professional Reference