



# RASARA THATHSARANA

BSc Eng Hons, Computer Science & Engineering  
(Undergraduate)

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📍 483/24, Uswaththa, Gonawala, Kelaniya

## About Me

Ambitious undergraduate pursuing a B.Sc. Engineering Honours degree in Computer Science and Engineering at the University of Moratuwa, with a deep passion for machine learning and data science. Excelling under pressure and adapting to dynamic challenges, combined with strong self-management skills, continuous learning, and teamwork, aiming to contribute meaningfully to the field of computer science and technology and make a positive impact on society.

## Technical Skills

- **Programming Languages**  
Python | Java | JavaScript | C++
- **Database**  
SQL | MySQL
- **Frameworks & Libraries**  
Scikit Learn | Pytorch | Langchain | HuggingFace | OpenCV | Detectron2 | SHAP | TSFEL | Albumentations | Hyperopt | React | Next.js
- **Tools**  
Git | GitHub | Docker | VSCode | AWS Sagemaker | Jira | Azure | Arduino | Power BI

## Certifications

- AWS Academy Machine Learning Foundations
- Intro to Machine Learning (Kaggle)
- Neural Networks and Deep Learning (DeepLearning.AI)

## Experience

IronOne Technologies (Pvt) Limited

2024 Dec - 2025 Jun

### Intern Machine Learning Engineer

- Worked on developing an explainable credit scoring model for a financial client, covering the full ML workflow from data preparation to model training, validation, and evaluation, while ensuring transparent and reliable credit-risk insights.
- Conducted R&D to enhance model performance and interpretability using ML, deep learning, time-series modeling, and advanced feature engineering.
- Contributed to production-level model documentation, including performance evaluation, financial impact analysis, and comparative model assessment.

## Education

- **University of Moratuwa** 2022 - 2026  
B.Sc. Engineering (Hons) CGPA: 3.71
  - Specialization - Computer Science & Engineering
  - Stream - Data Science & Engineering
- **Sri Dharmaloka College, Kelaniya** 2006 - 2019  
G.C.E. A/L's 2020 - Physical Science Stream - 3A's  
G.C.E. O/L's 2016 - 8 A's, B

## Projects

- **Vision Transformer based Pan-Arctic Feature Detection with Data Fusion** 2025 Jun - Ongoing  
*Python | PyTorch | Vision Transformers | CNN | Detectron2 | QGIS*
  - Addressing the problem of underutilizing rich satellite data (multispectral bands, DEM, location, and metadata) to improve downstream task performance.
  - Developing a unified ViT-CNN hybrid framework with context-aware patchification and multimodal data fusion to enhance pan-Arctic feature detection.
- **PhysioNet - Digitization of ECG Images** 2025 Nov - Ongoing  
*Python | Pytorch | OpenCV | CNN | Transformer | UNet*
  - Developed an automated computer vision pipeline to recover clinical time-series data from scanned paper electrocardiograms (ECGs).

- Developing LLM Application with LangChain (Datacamp)
- Google Cloud AI Infrastructure Specialization

## Academic Interests

- Machine Learning
- Deep Learning
- Data Science
- Computer Vision
- Time Series Forecasting
- Natural Language Processing

## Personal Interests

- Trekking & Hiking
- Photography
- Movies & TV series
- Novels

## References

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**Enhancing Wav2Vec2 with Inter-Codebook Diversity and Residual Quantization** (GitHub) 2025 Jul - 2025 Oct

*Python / PyTorch / Wav2Vec2 Base Model / HuggingFace*

- Improved Wav2Vec2 pretraining by introducing Inter-Codebook Similarity Loss to enhance model performance.
- Improved fine-tuning process to achieve faster convergence and better adaptability for low-resource languages using Residual Vector Quantization.

**Crypto Currency Price Prediction & Portfolio Management Tool** (GitHub) 2024 Jul - 2024 Nov

*Python / SARIMAX / LSTM / Next.js / TypeScript*

- Developed deep learning models for crypto price forecasting and risk assessment.
- Built a web-based interface featuring portfolio management tools, forecasting visualizations, and end-to-end risk assessment and management features.

**Home Credit - Credit Risk Model Stability** (GitHub) 2024 Mar - 2024 May

*Python / Polars / XGBoost / RandomForest / Ensemble models*

- Developed a stable and reliable loan default prediction model, achieving strong performance on the Kaggle Home Credit dataset.

**ML Olympiad - Sustainable Urban Living** (GitHub) 2024 Feb - 2024 Mar

*Linear Regression / XGBoost / RandomForest / SV / KNN Regressor*

- Developed a machine learning model to predict the Sustainable Habitability Score of properties based on various features by comparing, visualizing, and analyzing the performance of different models.

**Smart Wearable for Workplace Safety** (GitHub) 2023 Dec - 2024 Feb (Team Leader, Semifinalist)

*NodeMCU / IOT / NodeRed / MQTT / MySQL / React / Express*

- Led the development of a wearable and stationary device system that communicated to monitor vital signs and environmental conditions, ensuring worker safety in critical environments.
- Recognized as a semifinalist in the SLIoT 2023 competition.

**RPAL Interpreter** (GitHub) 2024 Mar - 2024 May

*Python / RPAL*

- Developed a Python-based interpreter for the RPAL language, featuring a Lexical Analyzer, Parser, AST Generator, Standardizer, and CSE machine.
- Added functionality to view intermediate stages of the interpretation process.

## Competitions

- Finalist - Enigma 2024
- Semifinalist - SLIoT Industry 4.0 2023
- Participant in MoraXtreme 8.0 2023
- 20<sup>th</sup> place in ML Olympiad - Sustainable Urban Living 2024
- Participant in Home Credit - Credit Risk Model Stability 2024

## Extra-Curricular

- Senior Prefect & Junior Head Prefect—Sri Dharmaloka College, Kelaniya (2015–2019)
- Student Member—Institution of Engineers, Sri Lanka (IESL) (2024–Present)
- Associate Member—School Hockey & Athletic Teams, Sri Dharmaloka College (2011–2019)