

Nuwantha Siriwardhana

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PROFILE

Software Engineer with experience in full-stack development and applied machine learning. Skilled in building secure, scalable applications using React, Angular, Node.js and developing ML and NLP solutions with Python. Strong in API design, performance optimization, and integrating AI models into practical software systems. Focused on delivering clean, reliable, and intelligent applications.

EDUCATION

B.Sc. in Computer Engineering Nov 2019 – Oct 2025
University of Jaffna, Faculty of Engineering Ariviyal Nagar, Sri Lanka

TECHNICAL SKILLS

Programming Languages: Java, JavaScript, TypeScript, Python, C, C++
Web Development: React, Angular, Node.js, HTML, CSS, MongoDB, MySQL, SQLite
Developer Tools: Git, Postman, Jira, Figma, Pycharm, Docker, Github Actions
AI / ML: TensorFlow, PyTorch, Hugging Face Transformers, LangGraph, LangChain, Groq Cloud

WORK EXPERIENCE

Software Engineering Intern Feb 2025 – Aug 2025
Sri Lanka Port Authority – Mahapola and Maritime Academy (MPMA) Colombo

- Contributed to implement secure and scalable web application features using Node.js, React, and MySQL.
- Implemented trainee payment workflow by automating payment calculation and slip generation, reducing payment delays by more than 30 days.
- Improved attendance data uploads by using batch inserts and asynchronous operations which reduced processing time by more than 80% and prevented server timeouts.
- Boosted database performance by archiving high-volume tables, lowering query latency and reducing overall system load.
- Mitigated SQL-injection vulnerabilities by transitioning backend queries to Sequelize ORM, improving security and maintainability.

PROJECTS

On-the-Job-Training (OJT) Management System for MPMA Full-Stack Web Application
Role: Full-Stack Developer (Group Project)

- Developed a full-stack OJT management system for Sri Lanka Ports Authority Mahapola Division using React js, Node.js and Sequelize ORM.
- Implemented interview management module and integrated Microsoft Graph API to automate trainee email notifications.
- Enhanced system security by deploying SSL certificates for encrypted communication.
- Delivered major performance gains by automating payments, reducing attendance upload time by more than 80%, and archiving large tables to reduce DB latency.

AI Agent App Builder

AI / ML Application

Role: AI/ML Developer (Individual Project)

- Built an AI-powered system converting natural-language prompts into working codebases using Planner → Architect → Coder multi-agent workflow.
- Integrated Groq-hosted LLM (ChatGroq) with a tool-using ReAct executor for structured code generation.
- Tech stack: Python, LangGraph, LangChain, openai/gpt-oss-120b model & Groq Cloud.

Sinhala Spell and Grammar Checker

AI / ML Application

Role: AI/ML Developer (Individual Project)

- Developed a Python application to correct spelling and grammatical errors in the Sinhala.
- Utilized a dictionary-based method for spell checking and fine-tuned an XLM-RoBERTa transformer model for grammar correction.
- Leveraged Scikit-learn for data processing and Hugging Face Trainer API for model training and evaluation.

Computer Lab Booking System

Full-Stack Web Application

Role: Full-Stack Developer & UI/UX Designer (Group Project)

- Designed and developed a web-based system to manage and schedule computer lab bookings for university students.
- Built a RESTful API with Node.js and MongoDB for handling booking logic and user data.
- Created a responsive and intuitive user interface with React and designed mockups in Figma.

Molecular Data in the Diagnosis of Tuberculosis

Machine Learning Research Project

- Built a 3-level hierarchical ML system using Python and Scikit-learn for TB diagnosis with gene expression data:
 - Level 1 (XGBoost – TB Status): 79.05%
 - Level 2 (SVM – TB Stage): 90.61%
 - Level 3 (XGBoost – TB Type): 81.48%
- Integrated 8 GEO datasets (2,745 samples) and applied Gradient Boosting feature selection to reduce 18,018 genes to 231 key features.
- Delivered a real-time diagnostic GUI tool for TB prediction.

CERTIFICATIONS

Professional Practice in Software Development – University of Moratuwa

Server-Side Web Programming – University of Moratuwa

Front End Web Development – University of Moratuwa

Python Programming – University of Moratuwa

LANGUAGES

Sinhala (Native) | English (Professional Working Proficiency)

REFERENCES

Dr. J. Jarachanthan

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Faculty of Engineering, University of Jaffna

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