Linuk Perera

ELECTRICAL AND ELECTRONICS ENGINEER

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Professional Summary

First Class Electrical & Electronics Engineer blending deep technical fluency with a bias for impact. I design embedded, AI-powered, and energy-efficient systems that don't just function — they perform under pressure. From building a smart IoT system that helped Sri Lankan Airlines reduce environmental monitoring overhead by thousands of dollars annually, to developing portable diagnostic tools that replace bulky lab equipment at a fraction of the cost, I turn complex specs into scalable, high-value solutions. With 10+ cross-disciplinary projects behind me and a Master's in progress, I bring the mindset of an engineer who's trained, tested, and ready to deliver from day one, not just with code or circuits, but with end-to-end thinking that powers innovation.

Experience

Idea8 | Intern Electronics Engineer | Kottawa — Sep 2025 – Present

- Led CPU optimization and memory management for custom hardware, delivering 43% system optimization.
- Developed novel object segmentation methodology leveraging Fourier Loss achieving 96% DICE factor.

Sri Lanka Telecom | Intern Machine Learning Engineer | Colombo — July 2025 – Present

- Developed an AI-powered digital twin for telecom operations using machine learning, signal processing, predictive modeling, and real-time data analytics, enhancing network adaptability, optimization, and compliance while improving efficiency by 28%. Maintained effective communication across multiple layers of management for optimal feedback.

Asha Securities | Intern AI & Data Analytics | Work-from-Home — May 2025 – August 2025

- Developed quantitative forecast models using machine learning, mathematical modelling and Data Science with direct involvement from the Chairman of the Colombo Stock Exchange, increasing stock prediction accuracy by 24% and reducing research time by 30% the data strategy was data integration across multiple data platforms mined ethically and securely.
- Designed and implemented a collaborative financial data visualization platform that cut multi-company comparison time by 90%, enhancing team workflow and decision-making, directly accelerating advisory reports and client servicing.
- Led development of an LLM-based solution that autonomously handled 40% of portfolio queries, reducing advisor workload by 35% and supporting scalable client interaction.

Sri Lankan Airlines | On-the-job Trainee Engineer | BIA — June 2024 – January 2025

- Led business process re-engineering initiatives for Sri Lankan Airlines' Engineering Department, resulting in a 20% reduction in audit preparation time and 15% improvement in compliance traceability.
- Designed and implemented a computerized Environmental Monitoring System that eliminated 100% of manual data evaluations, reducing report generation time by 80% and improving regulatory transparency.
- Developed a DFDR/QAR (Blackbox) Readout Framework that enabled efficient post-flight diagnostics, reducing data extraction time by 50%.
- Engineered a solid-state Onboard Digital Publication Acquisition and Control System that improved document retrieval speed by 10% and reduced paper-based referencing.
- Built a web-based system for Engineering Digital Publications that decreased version control errors by 70% and improved accessibility across the engineering team by 50%.

Education

Master of Science in Electronic and Electrical Engineering — 2027
Anglia Ruskin University
School of Engineering and the Built Environment - Faculty of Science & Engineering
Professional Registration: MIET, MIEEE (CEng applicant)

Bachelor of Engineering in Electrical and Electronics – First Class Honors — 2025
University of Hertfordshire
School of Physics, Engineering and Computer Science - Department Engineering and Computer Science

Professional Graduate Diploma in Information Technology — 2024
British Computer Society - Chartered Institute for Information Technology
Majored in Computer Science and Software Engineering Minored in Data Bases and MIS
Professional Registration: MBCS (CITP applicant)

Projects

- **Environment Monitoring and Infographics System for Sri Lankan Airlines (2024, R&D Project):** Led the development of an AI-enhanced IoT system for real-time environmental monitoring, achieving an 80% reduction in data processing time. Engineered both hardware (custom voltage regulation drives) and software (infographic reporting, live sensor warnings), ensuring safety standards and automation compliance. Tools: Python, C++, C, Java, JavaScript, Node.js, React.js, HTML, KiCad, MATLAB, LabVIEW, ANSYS.
- **Wireless Frequency Monitor – Hardware & AI WebApp Integration (2024, R&D Project):** Designed and developed a portable wireless oscilloscope for low-voltage ramp signal and frequency monitoring, integrating Bluetooth and custom PCB designs. Built a machine learning web app using TensorFlow and PyTorch to predict frequency trends from historical signal data, improving accuracy by 20%. Enabled real-time analytics, embedded device interfacing, and seamless C++ backend to Python frontend integration. Tools: C, C++, Python, TensorFlow, PyTorch, scikit-learn, KiCad, CSS,
- **Power Electronics DC Motor Control System (2024):** Designed a variable speed drive (VSD) using an H-Bridge configuration, modeling DC motor current-speed characteristics. Implemented PWM control circuitry and simulated power electronics behavior under varying loads to validate system efficiency. Tools: C, C++, MATLAB, Proteus.
- **Digital Mirror for Telco Operations – Load Simulation System (2025, Research):** Developed an AI-powered digital twin for telecom infrastructure using Transformers-LLM models, enhancing network load analytics and efficiency by 28%. Implemented a physical simulation system with Raspberry Pi and ESP32 devices to emulate real-world load distribution across cell towers, validated using actual telecom data. Designed signal strength prediction models using PyTorch and TensorFlow, and built a real-time dashboard using Python and React.js. Ensured compliance with telecom regulations in collaboration with senior engineers at SLT Digital Lab. Tools: Python, PyTorch, TensorFlow, MATLAB, LabVIEW, JavaScript, React.js, AWS Lambda, AWS TwinMaker.
- **Neural Network Driven Augmented Reality for Gesture Control (2024–2025, Research):** Developed an AI-powered gesture control system using LSTM, Dense-NN, and ST-GCN, achieving 97.14% accuracy in real-time inference. Led data engineering pipelines, built robust models using MATLAB, Simulink, and implemented real-time gesture interfaces with C# and Python. Tools: TensorFlow, PyTorch, MATLAB, Simulink, pandas, NumPy, scikit-learn, Visual Studio.
- **Smart IoT Buoy for Oceanic Debris Monitoring (2025, R&D Project):** Designed and implemented an autonomous, solar-powered smart buoy system capable of real-time oceanic data collection and debris detection. Deployed edge AI inference on an ESP32 using a mathematically optimized FOMO model (<751ms, <124KB RAM), enabling efficient onboard object detection. Integrated LoRa communication (10+ KM range) for long-distance data transmission, and developed a differential thrust propulsion mechanism for agile navigation. Built a researcher-facing web app with real-time database connectivity for live monitoring and analytics. Tools: C++, Python, TensorFlow Lite, KiCad, ESP-IDF, Node.js, React.js, Firebase, MATLAB.
- **Audio to MIDI Converter and Web App (2023–2024):** Created a signal processing system that converts audio (MP3/WAV) to MIDI using Fast Fourier Transform (FFT) and custom matrix convolution logic. Achieved 40% improvement in audio analysis speed through optimized Python arrays. Tools: Python, C++, CSS, Visual Studio, Jupyter Notebook.
- **Colour Generation and Detection System (2024):** Designed an embedded color detection system using the TCS3200 sensor, interfaced with Mbed NXP LPC1768 and Arduino Uno microcontrollers. Built and tested real-time detection logic to support industrial automation use cases. Tools: C, C++, Arduino IDE, Keil uVision, Mbed.
- **Acoustic Camera Trigger System (2023):** Engineered an analog trigger circuit using AC-coupled amplifiers, op-amp precision rectifiers, and Schmitt triggers for sound-activated camera systems. Integrated opto-isolators and custom voltage regulation for electrical isolation and safety. Tools: Multisim, Proteus, C.
- **Smart Load Balancer for Microgrids (2024, Research Prototype):** Developed a smart AI-driven load balancing system for microgrids using real-time current, voltage, and demand sensing. Deployed regression-based forecasting models in a microcontroller environment, ensuring optimal energy distribution across variable loads. Achieved a 15% improvement in power delivery efficiency under test conditions. Tools: Python, C++, MATLAB, Simulink, TensorFlow Lite, ESP32, LabVIEW.
- **Quantitative Forecast Model for Asha Securities (2025, Research):** Built a machine learning-based financial forecast model using TensorFlow, PyTorch, scikit-learn, improving prediction accuracy by 30%. Designed data pipelines for research analysts, ensuring compliance and alignment with investment goals. Tools: Python, Seaborn, pandas, NumPy.
- **LLM & Financial Data Visualization for Asha Securities (2025, Research):** Developed a Transformers-LLM powered data visualization system to assist investment advisors with personalized feedback. Increased advisory productivity by 25%, integrating PCA-based dimensionality reduction with real-time visual dashboards. Tools: TensorFlow, PyTorch, React, JavaScript, pandas, NumPy, Visual Studio, Colab.
- **Business Processes Re-Engineering for Sri Lankan Airlines (2024):** Led a digital transformation initiative to re-engineer engineering workflows, resulting in streamlined documentation and improved inter-departmental coordination. Authored detailed Process Manuals and visual maps using PowerBI and Visio. Tools: PowerBI, Microsoft Visio, Excel, Word.

Certifications

Machine Learning Specialization | Stanford University | February 2025

- Coursework: Supervised and Unsupervised Learning and Advanced Learning Algorithms, Data Science and AI

Computer Science 50 (CS50) | Harvard University | December 2024

- Coursework: C, Python, SQL, HTML, CSS, GitHub, 9 Problem sets and a Final Project

Finance & Quantitative Modeling for Analysts | University of Pennsylvania | May 2025

- Coursework: Quantitative Modeling, Corporate Finance, Mathematical Modeling

Financial Markets | Yale University | March 2025

- Coursework: Behavioral Finance, 25 Assignments

Economics of Money and Banking | Columbia University | July 2025

- Coursework: Banking Systems 11 Assignments and Final Exam

Extra-Curricular Activities

- Chairman - Institution of Engineering and Technology on Campus NIT Chapter (IET on Campus SLTMNIT)
- Sri Lankan Delegate - Future Technology Congress, Bangalore India
- Secretary - UH Students Council
- Active Member of the Rotaract Club of SLTTC
- Active Member of the Toast Masters Club of SLT

Awards and Achievements

- Volunteer of the Year 2024 - Institution of Engineering and Technology SLN YP (IET YP SLN)
- Conference Presenter - IET Annual Technical Conference - (3 more pending research publications)
- First Runner Up – SLIIT Code Fest All National Hackathon – Innov IOT Competition

Skills & abilities

Languages: English (Fluent), Sinhala (Fluent), Korean (Basic), Japanese (Basic)

Programming Languages: C, C++, Python, Java, JavaScript, MATLAB, C#, CSS, SQL

Electronic Product Design: Embedded Systems (ESP32, Arduino, Mbed, Raspberry Pi), PCB Design and Layout (KiCad, TinkerCAD, Proteus), Power Electronics (PWM, H-Bridge), Voltage Regulation Circuits, Analog & Digital Circuit Design

Machine Learning & Data Science: TensorFlow, PyTorch, scikit-learn, TensorFlow Lite, pandas, NumPy, Seaborn, Fast Fourier Transform (FFT), LSTM, Dense Neural Networks, ST-GCN, PCA, Regression Models, Image Segmentation, Large Language Models (LLMs), FinBERT, Computer Vision (CV), Convolutional Neural Networks (CNN), Transfer Learning, Fine-tuning, End-to-end ML Pipelines

Circuit Design and Simulation: Multisim, Proteus, ANSYS, LabVIEW, MATLAB Simulink, Keil uVision

FPGA & HDL: VHDL, HDL (hardware description languages) for FPGA design and implementation

Other Tools & Technologies: Microsoft Office Suite (Word, Excel, PowerPoint, Project), LaTeX, Canva, AWS (Lambda, TwinMaker), Firebase, Node.js, React.js, HTML, IoT Communication Protocols (LoRa, Bluetooth), Real-time Data Processing, Database Management, Signal Processing

Interpersonal & Professional Skills:

- Machine Learning & Data Science
- Team collaboration
- Embedded Systems
- Circuit Design and Optimization
- Computer Vision
- Project Management and Leadership
- Technical Presentations
- Communication
- Problem Solving & Adaptability

References

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