

Senuja Yehen Asuramuni

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363/1, Galle Road, Kuda Waskaduwa, Waskaduwa, Kalutara.

EDUCATION

University of Moratuwa, Sri Lanka. Feb. 2023 – Present

B.Sc. Eng. (Hons.) in Electronic and Telecommunication Engineering

CGPA: 3.94/4.00

- Dean's List: Semester 1, 2, 3, 4, 5 (Semester 6 Ongoing)
- Core Studies: Computer Vision, Control Systems, Signal Processing, Communication Systems, Embedded Systems
- Research Focus: Human Computer Interaction, Computer Vision & Deep Learning, Digital Signal Processing

Wesley College, Colombo 09, Sri Lanka.

Graduated February 2022

G.C.E. Advanced Level - Physical Science Stream

Z-Score: 2.1511 (Top 1.5% Nationally)

- 4 distinction passes (A) in Combined Mathematics, Physics, Chemistry, and General English
- 9 distinction passes (A) at the G.C.E. Ordinary Level examinations | 2018

PROJECTS

Wireless ECG Acquisition System 🐙 | *BLE, nRF MCU, Altium Designer*

Nov. 2025 – Dec. 2025

- Designed a wireless ECG system for wearable devices, capturing low-amplitude biopotential signals using a differential analog front end and DRL circuitry.
- Implemented high-resolution ADC digitization and BLE-based wireless transmission for real-time monitoring.
- Optimized the PCB layout and power architecture for low-noise operation and accurate signal acquisition.
- **Contributions:** *PCB layout and design* ◦ *Component selection* ◦ *Component research*

Patch2Pix From Scratch 🐙 | *PyTorch, Deep Learning, Computer Vision*

Oct. 2025

- Reimplemented the core Patch2Pix epipolar-guided pixel correspondence module from scratch to understand and validate the methodology (CVPR 2021 Paper).
- Integrated pretrained weights for computationally heavy components and modified code to optimize inference time, enabling faster pixel-level correspondence evaluation.
- Tested and visualized results on sample datasets, overlaying applicable outputs to analyze accuracy and efficiency relative to the original implementation.
- **Contributions:** *Core algorithm implementation* ◦ *Code optimization for inference* ◦ *Result visualization and analysis*

GlycoIQ | Non-Invasive Smart Glucometer 🐙 | *Raspberry Pi, BLE, Flutter*

Feb. 2025 – May 2025

- Developed a **non-invasive glucose monitoring prototype** using a 650 nm red laser and image-based feature extraction, exploring feasibility despite limited predictive success.
- Designed and trained a **neural network** on blue-channel histogram features to evaluate non-invasive glucose estimation performance.
- Implemented an **IoT-enabled system** with BLE for real-time data transmission to a Flutter-based mobile app.
- **Contributions:** *Model research & evaluation* ◦ *Embedded system development* ◦ *BLE integration*

RoboHope | Autonomous Robot – SLRC Competition 🐙 | *Raspberry Pi, OpenCV, Python* Jan. 2025 – Mar. 2025

- Developed a **real-time vision system** on Raspberry Pi 4B for **ball detection**, **color classification**, and object identification using OpenCV.
- Optimized computer vision algorithms for **low-latency inference** within SLRC competition constraints and Raspberry Pi hardware limits.
- Implemented **AprilTag 16h5** detection and **serial communication** with an ESP32 to support autonomous navigation.
- **Contributions:** *Vision system development* ◦ *Algorithm optimization* ◦ *AprilTag integration* ◦ *Pi-ESP32 communication*

Tymato | *CNN-Based Plant Disease Detection* 🧠 | *PyTorch, FastAPI, ResNet-50* Dec. 2024 – Jan. 2025

- Independently developed an end-to-end plant disease detection system, leveraging a **Kaggle dataset** to train and benchmark multiple CNN architectures.
- Adopted a **pre-trained ResNet-50** through transfer learning after comparative analysis, achieving high classification accuracy across disease categories.
- Built a **FastAPI-based deployment backend**, enabling efficient model inference and demonstrating full-stack ML development as a self-driven project.

PulzMouse | *Micro-Mouse Design* | *STM32, C/C++, STM32Cube IDE* Oct. 2024 – Jan. 2025

- Developed a **micro-mouse** using STM32F103C8T6, programmed in low-level C/C++ with STM32Cube IDE for optimized real-time performance.
- Integrated **IR sensors** for wall detection and **encoder feedback** into a **PID control system**, achieving precise navigation with full maze completion.
- Implemented the **floodfill algorithm** and designed **acceleration profiles** for smooth, efficient movement and stable cornering.
- **Contributions:** *Maze navigation algorithm simulation, implementation, and integration* ◦ *Embedded system programming* ◦ *Sensor integration*

BladeLink | *Secure SDR Communication Platform* 🧠 | *BladeRF, GNU Radio, Python* Oct. 2024 – Dec. 2024

- Developed a **software-defined radio communication system** using BladeRF, supporting secure, high-speed file and video transfer with low latency.
- Implemented **AES-256 encryption** and **Forward Error Correction (FEC)** to ensure data security and reliability over noisy channels.
- Built a **Python-based GUI** for real-time monitoring of transfer progress, speeds, and automatic file saving, integrating all system functionalities.
- **Contributions:** *GUI integration* ◦ *GNU Radio simulation* ◦ *Transmission optimization and channel analysis research*

Mynesweeper AI | *Minesweeper Assistant Bot* 🧠 | *Python, Propositional Logic, PyGame* Dec. 2024

- Independently developed an **AI bot** using propositional logic and constraint satisfaction to systematically solve Minesweeper puzzles.
- Implemented **logical inference engines** to analyze board states and make safe moves based on formal reasoning.
- Built both **assisted play** and **fully autonomous** modes with a PyGame interface visualizing real-time AI decision-making.

Linear Power Supply 🧠 | *Altium Designer, LTSpice, SolidWorks* Sep. 2024 – Nov. 2024

- Designed and implemented a **regulated linear power supply** with adjustable output from 2V to 20V, including preset levels at 3.3V, 5V, and 12V.
- Incorporated **current limiting and short-circuit protection** circuits to ensure safe and reliable operation under varying loads.
- Engineered a **user interface** with potentiometers and digital display for real-time monitoring of voltage and current.
- **Contributions:** *Component research* ◦ *Full schematic design* ◦ *PCB layout and routing*

Rysk | *Liver Cancer Predictor* 🧠 | *Python, Flask, Scikit-Learn, NumPy, Pandas* Jun. 2024 – Jul. 2024

- Independently developed a **web-based liver cancer risk prediction system** using a Kaggle medical dataset, hosted at cancer-risk.onrender.com.
- Preprocessed data and trained a **logistic regression model** with Scikit-Learn, optimizing features and hyperparameters for improved predictive accuracy.
- Implemented a **Flask backend and responsive front-end** using HTML, CSS, and Bootstrap for real-time inference and user-friendly interaction.

Hike Buddy | *Multi-Functional Hiking Torch* 🗡️ | *SolidWorks, Altium Designer* Mar. 2024 – Sep. 2024

- Designed a multi-functional hiking torch incorporating a TDS sensor for water purity, a magnetometer for compass navigation, and an OLED display for user feedback.
- Developed a **long-life, rechargeable power system**, optimizing efficiency and usability for real-world hiking conditions.
- Built and validated a **fully functional prototype**, testing sensor accuracy and overall system performance in outdoor scenarios.
- **Contributions:** *Prototyping* ◦ *Testing & debugging* ◦ *Power analysis*

RyCycle | *AI-Powered Plastic Waste Management* | *TensorFlow-Lite, ESP32, Flutter* Dec. 2023 – Jul. 2024

- Conducted **field research and market analysis** on Sri Lanka's waste management industry, identifying bottlenecks to inform system design.
- Designed and assembled an **IoT-enabled smart bin** with 7 motorized compartments and integrated a **TensorFlow-Lite model** for plastic classification (92% accuracy).
- Developed a **Flutter-based app** for user interaction, real-time tracking, and Rysco token management; (awarded **3rd place at SLIoT 2024**)
- **Contributions:** *Technology Research and Feasibility study* ◦ *Product assembly* ◦ *Market analysis*

CERTIFICATIONS

AI for Medicine Specialization | *DeepLearning.AI* Jan. 2026

- Courses completed:
 - * **AI for Medical Diagnosis** (Dec 2025)
 - * **AI for Medical Prognosis** (Dec 2025)
 - * **AI for Medical Treatment** (Jan 2026)

Machine Learning Specialization | *DeepLearning.AI & Stanford University* Sep. 2024

- Courses completed:
 - * **Supervised ML: Regression & Classification** (Jun 2024)
 - * **Advanced Learning Algorithms** (Sep 2024)
 - * **Unsupervised Learning, Recommenders, Reinforcement Learning** (Sep 2024)

CS50: Introduction to Computer Science | *Harvard University* Jun. 2024

- Learned computational thinking, algorithms, and data structures with focus on problem-solving and software design.
- Mastered programming fundamentals in C and Python, including memory management and control structures.
- Gained skills in SQL, HTML, CSS, and JavaScript; developed **Rysk** as the final project.

PROFESSIONAL EXPERIENCE

Visiting Research Intern Dec. 2025 – Present
University of Sydney *Sydney, Australia*

- Conducting research under the supervision of Prof. Anusha Withana on vision-based assistive systems.
- Designing and implementing assistive devices leveraging computer vision and XR technologies.
- Developing integrated hardware-software solutions for real-time perception and user interaction.
- Exploring immersive XR systems to enhance accessibility and human-computer interaction.

Co-Founder Nov. 2023 – Jul. 2024
Rysera Innovations *Colombo, Sri Lanka*

- Co-founded a startup delivering web and IoT solutions, focusing on electronics and sustainable technology.
- Led **RyCycle**, an IoT-based environmental monitoring project, achieving 3rd place at **SLIoT 2024**.
- Managed full product lifecycle, integrating hardware and software for real-time solutions
- Ensured smooth handover of technical responsibilities upon stepping down.

Industrial Engineering Intern Mar. 2022 – Jun. 2022
Original Apparel (PVT) Ltd *Bandaragama, Sri Lanka*

- Reorganized workflows and implemented efficiency improvements in the eyelet attaching department, increasing productivity by 90%.
- Supervised production operations in senior staff absence, ensuring uninterrupted workflow and goal completion.
- Redesigned production line layouts, streamlining processes and achieving measurable output improvements praised by management.

TECHNICAL SKILLS

Programming Languages: Python, C/C++, SQL, JavaScript, HTML/CSS, Dart, LaTeX

Design Tools: Altium Designer, KiCAD, SolidWorks, LTSpice

Frameworks & Libraries: Flask, FastAPI, React, React Native, Flutter, NumPy, Pandas, Matplotlib, Scikit-learn, TensorFlow, PyTorch, PyCryptoDome

Developer Tools: Git, VS Code, Visual Studio, STM32CubeMX, WSL2, GNU Radio

Embedded & Hardware: AVR, Arduino, Raspberry Pi, STM32, BladeRF

VOLUNTEERING

Manager of Operations (Main Branch) Electronic Club UOM	Aug. 2025 – Present
Vice President Rotaract Club of Panadura	Jul. 2025 – Present
Committee Member(Main Branch) Electronic Club UOM	Sep. 2024 – Aug. 2025
Sergeant at Arms Rotaract Club of Panadura	Jun. 2024 – Jun. 2025
Joint Director of Community Services Rotaract Club of Panadura	Jul. 2023 – Jun. 2024
Member Rotaract Club of Panadura	Sep. 2022 – Present
Volunteer Global Unites	Jan. 2023 – Dec. 2024
President Sri Lanka Unites, Kalutara Mother Club	May. 2022 – May. 2023

REFERENCES

Dr. Ranga Rodrigo

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