Senuja Yehen Asuramuni

📞 (+94)71-448-5290 | ✉ yehenasuramuni@hotmail.com | 💼 linkedin.com/in/yehen-asuramuni | 💻 github.com/yhnx

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: 3.96/4.00*

- Dean's List: Semester 1, 2, 3, 4 (Semester 5 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 Desginer*   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 Feasibilty study ∘ Product assembly ∘ Market analysis*

CERTIFICATIONS

AI for Medicine Specialization | *DeepLearning.AI*   Ongoing

- Completed the first course: **AI for Medical Diagnosis** (Dec 2025)

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

- Completed courses on supervised, unsupervised, recommender systems, and reinforcement learning.
- Built ML models using NumPy, scikit-learn, and TensorFlow for prediction, classification, and reinforcement learning.
- Applied best practices in algorithms, neural networks, and deep learning.
- Courses completed:
  * **Supervised ML: Regression & Classification** (Jun 2024)
  * **Advanced Learning Algorithms** (Sep 2024)
  * **Unsupervised Learning, Recommenders, Reinforcement Learning** (Sep 24 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

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
B.Sc. Eng. Hons. (Moratuwa), M.E.Sc. (Western, Canada), Ph.D. (Western, Canada), SMIEEE
Senior Lecturer at the Department of Electronics and Telecommunication Engineering
Faculty of Engineering, University of Moratuwa.
Email: ranga@uom.lk
Phone: +(94) 112 640 422

Prof. Tharaka Samarasinghe
B.Sc. Eng. Hons. (Moratuwa), Ph.D. (Melbourne), MIEEE
Professor at the Department of Electronics and Telecommunication Engineering
Faculty of Engineering, University of Moratuwa.
Email: tharakas@uom.lk
Phone: +(94) 112 640 051 (Ext: 3323)