Mohamed Irshad Nadha

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Statement

Ambitious engineering undergraduate passionate about technological innovation and societal impact. Experienced in hands-on projects, research, and leadership roles, with a strong drive for learning, teamwork, and delivering meaningful contributions.

Education

University of Moratuwa, Sri Lanka *Feb 2023 - Present*
B.Sc (Hons) in Electronic and Telecommunication Engineering
CGPA: 3.88/4.0
Minor in Mathematics: Graph Theory, Linear Algebra, Numerical Methods
Expected Graduation: 2027

Amina Girls' National School, Matale, Sri Lanka *Graduated: Jan 2022*
GCE Advanced Level (Combined Mathematics, Physics, Chemistry)
Achievements: 3A (distinction) passes, Ranked 334th in the country, Z-score: 2.3333
(Country-wide university entrance exam taken by over 100,000 students annually)

Certificates (External)

- Machine Learning Specialization – DeepLearning.AI and Stanford Online
- Mathematics for Machine Learning – DeepLearning.AI and Stanford Online
- Artificial Intelligence in Embedded Systems (Embedded ML for edge computing) – Skill-Surf.lk and ENTC
- PyTorch Bootcamp – OpenCV University

Technical Skills

Programming Languages: Python, C, C++, MATLAB
Frameworks: PyTorch, TensorFlow, Keras
Other Skills: Altium Designer, SolidWorks, Multisim Simulator
Interests: Computer vision and pattern recognition, machine learning and AI, deep learning and embedded ML

Soft Skills

Language Skills:

- **English:** Bilingual proficiency (speaking and writing)
- **Tamil:** Native proficiency (speaking and writing)
- **Sinhala:** Limited working proficiency (speaking and writing)

Other Skills: Strong writing, communication, interpersonal, leadership, analytical, and problem-solving skills

Research Experience

- **Research Intern**, Singapore University of Technology and Design (SUTD) July 2025 – Present
  Supervisor: Prof. Na Zhao
  Topic: 3D Domain Generalization for Autonomous Driving
  - Conducting research on domain generalization for 3D object detection in autonomous driving.
  - Worked with the **nuScenes dataset** using the **CMT codebase**, focusing on cross-domain robustness.
  - Currently working with the **FSDv2 codebase** on **nuScenes** and **Argoverse 2** datasets.
- **Research Contributor**, LiverUSRecon Research Team July 2025 – Present
  Supervisor: Dr. Ranga Rodrigo
  Project: Automatic 3D Reconstruction and Volumetry of the Liver with a Few Partial Ultrasound Scans
  - Contributing to medical image analysis research on 3D organ reconstruction and volumetry.
  - Tested multiple datasets for **liver ultrasound reconstruction** and extending the approach to the **kidney**.
  - Initial experiments conducted with the **TransUNet** model; currently experimenting with **LeViT-UNet** for improved performance.

Projects

- **Bin Picking Robot** (Jan - July 2025)
  - Designed and implemented the vision system for a Cartesian robot with a suction gripper to perform object picking from bins.
  - Evaluated multiple instance segmentation models; selected and deployed YOLOv11 for its high accuracy and efficiency on edge hardware.
  - Handled camera placement optimization and calibration to align vision output with the robot's coordinate frame for precise object localization.
- **GlucoPal - Non-Invasive Glucometer using NIR and PPG Signals** (March - July 2025)
  - GlucoPal is a non-invasive glucose monitoring system using near-infrared (NIR) sensors and photoplethysmography (PPG) signals.
  - Captured raw PPG signals, applied biosignal processing techniques (filtering, normalization, feature extraction) to enhance signal quality and extract glucose-relevant patterns.
  - Designed and trained a ResNet34-based deep learning model in PyTorch to predict blood glucose levels from processed PPG waveforms.
  - **Technologies Used**: PyTorch, ResNet34, Python, NIR Sensors, Biosignal Processing, NumPy, SciPy
  - **Finalist of the BRAINSTORM 2025** – IEEE EMBS Chapter, University of Moratuwa
- **Participant - FGVC12 Challenges @ CVPR 2025**
  - Participated in a series of cutting-edge computer vision competitions focused on fine-grained visual categorization (FGVC), hosted as part of the CVPR 2025 FGVC12 Workshop.
  - Applied deep learning techniques to tasks such as species identification, plant recognition from quadrat images, and animal re-identification.

  - Explored datasets like AnimalCLEF25, FungiCLEF25, and PlantClef 2025, advancing research in biodiversity and ecological monitoring.
  - **Technologies Used**: Python, PyTorch, CNNs, Transfer Learning, Image Segmentation, Data Augmentation
- **SentiVision - LSTM-Based Sentiment Analysis** (Dec 2024 - Present)
  - SentiVision is a deep learning-based sentiment analysis project that classifies text as positive, negative, or neutral using LSTM networks.
  - **Technologies Used**: Python, TensorFlow, LSTM, NLP
- **RightVote - AI Powered Web Application** (August 2024)
  - A web application developed for the recently concluded presidential election in Sri Lanka. The application aims to empower voters by providing them with tools to evaluate candidates, compare manifestos, and answer election-related queries.
  - **Technologies Used**: LSTM, RoBERTa, LLMs, Sentiment Analysis, Python.
  - **Finalist at Sri Lanka AI Challenge 2024**
- **Predicta 1.0 - Machine learning competition** (July 2024)
  - Participated in a national machine larning competition focused on weather forecasting and classification, applying data science to solve real-world problems.
  - **Technologies Used**: LSTM, XGBoost regressor and classification, time series prediction
- **EcoSync – a smart A/C regulator** (Jan - August 2024)
  - EcoSync is a smart AC regulator that integrates into split-type air conditioners to reduce energy consumption in hotel rooms by detecting occupancy and adjusting cooling levels accordingly.
  - **Technologies Used**: Atmega328P, BlueTooth connectivity, Altium, SolidWorks and IoT System Design
  - **1st Runner-up - Circulatory Challenge 2025, 1st Runner-up - IESL Techno Startup Spark 2024 and 2nd Runner-up - Finnc25' by IEEE IES University of Moratuwa**
- **Analog Solar Tracker** (June - Dec 2024)
  - Designed a single-axis solar tracker purely using analog components, implementing a PID controller with op-amps and PWM motor controls. Initial simulations were done using Multisim. Developed a dual-layer PCB in Altium and an enclosure designed in SolidWorks.
- **Robot Primus - Line following Robot** (June - Dec 2024)
  - Built an autonomous robot to take on a series of complex and exciting challenges, including line following, object manipulation, terrain traversal, and maze solving.
  - **Technologies Used**: Python, UART communication (ESP32 and Arduino Nano)

Awards

- **Dean's List - University of Moratuwa**
  Semesters 1,2,3
- **1st Runner-up - Techno Startup Spark 2024** – IESL Student Chapter, University of Moratuwa
  Start-Up competition for sustainable product development
- **1st Runner-up - Circulatory Challenge 2025** – GapHQ and INSEE
  Innovation competition for circulatory product development
- Finalist of the **BRAINSTORM 2025** – IEEE EMBS Chapter, University of Moratuwa
- Finalist of the **Sri Lanka AI Challenge 2024** – AI-Driven Sri Lanka, IEEE Challenge Sphere 2024
- **Most Outstanding Student of the Year** (2021) – Amina Girls' National School,

Matale

- **Best student in the Physical Science Stream, English medium** (2021) – Amina Girls' National School, Matale
- **Champions** at the Pentathlon season 1, organized by Shakthi TV and Capital Maharaja Organization (2016) – Amina Girls' National School, Matale
- High Distinction in the **Australian National Chemistry Quiz** (2018) – Royal Australian Chemical Institute

Volunteer Experience & Leadership

- **Manager, External Relations**(25/26) – Electronic Club, University of Moratuwa
- **Assistant Secretary** (24/25) – Mathematics Society, University of Moratuwa
- **Director of Membership Development** (23/24) – Mathematics Society, University of Moratuwa
- **Member** – IEEE WIE chapter, University of Moratuwa
- **Member** – IEEE Professional Communication chapter, University of Moratuwa
- **Content Writer** – Majlis Ul Islam, University of Moratuwa
- **Student Representative** – Department of Electronics and Telecommunications (Semesters 2 and 3)
- **Member** – Matale Muslims Undergraduates Asociation
- **Senior Prefect** – Amina Girls' National School, Matale
- **Player – Netball Team**, Amina Girls' National School, Matale

Referees

Dr. Ranga Rodrigo
B.Sc. Eng.Hons (Moratuwa), M.E.Sc. (Western, Canada), Ph.D. (Western, Canada)
Senior Lecturer - Grade 1
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Dr. Upeka Premaratne
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