Lasitha Amarasinghe

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RESEARCH INTERESTS

Machine Learning, Deep Learning, Multimodal Learning, Distributed AI Systems, Computer Vision, Intelligent Assistants, AR/VR Systems.

PROFESSIONAL EXPERIENCE

Research Intern - National University of Singapore (QS Rank–8)   Dec 2024 - May 2025

Supervisor: Prof. David Hsu - Director, Smart Systems Institute, NUS   Intern Certificate

- Conducting research on TOM, an AI assistant platform for Augmented Reality glasses.
- Implemented AiGet service to allow context-aware engagement with dynamic environmental information.
- Contributed to development of a Unity client - Python server architecture for TOM project.
- Enhanced AR user experience using MRTK, implementing multimodal interactions.
- Presented AiGet system at Singapore HCI Meetup 2025 increasing visibility within HCI community.

Undergraduate Teaching Assistant - University of Moratuwa   Sep 2025 - Present

- Conducted lab sessions under EN3251 - Internet of Things & EN1094 - Laboratory Practice modules.

EDUCATION

University of Moratuwa, Sri Lanka   Mar 2022 - Present

B.Sc. Eng.(Hons.) in Electronic & Telecommunication Engineering , CGPA: 3.86/4.00 (Transcript)

Coursework: Linear Algebra, Calculus, Statistics, Signals & Systems, Pattern Recognition, Image Processing, Computer Vision, Deep Learning, Data Structures & Algorithms, Software Design, Robotics

Dharmaraja College, Kandy   Jan 2012 - Dec 2020

G.C.E. A/L , AAA , Z-Score: 2.5972 , Island Rank: 100/35000 (Top 0.3%) (Transcript)

PROJECTS

NeoCare - Contactless Neonatal Health Monitoring System (FYP, Ongoing)   Link

- A contactless neonatal health monitoring system using Remote Photoplethysmography (rPPG) to estimate key vital signs, including heart rate, SpO2 levels, and jaundice status of neonates.
- Evaluating 3D-CNNs, Vision Transformers, and Mamba models seeking for best performance.
- Applying privacy-preserving techniques and optimizing models for secure, on-device inference.
- Creating a neonatal facial video dataset collected at De Soysa Hospital for research and benchmarking.

UAV-Detection, Tracking & Payload Identification System   Link

- Developed a real-time drone detection and tracking system using multimodal RGB-IR fusion, achieving over 90% tracking persistence and over 99% F1-score for payload classification under adverse conditions.
- Used YOLOv8 for drone detection, BoT-SORT for drone tracking, and YDTR (Y-shape Dynamic Transformer) for fusion of RGB and IR modalities to achieve better performance.

ACTURA – Immersive Virtual Reality Public Speaking Trainer   Link

- Developed a VR public-speaking trainer using Unity and OpenXR, creating immersive environments with realistic audience interactions to help users overcome stage fear and enhance presentation skills.

Transformer Management System   Link

• Developed a web-based Transformer Thermal Inspection System using Java Spring Boot, React.js, and PostgreSQL, enabling efficient management of transformer records and thermal image uploads.
• Created a thermal anomaly detection pipeline using U-Net segmentation and classical image processing techniques for automated identification of issues in thermal images.

3D Mapper for Object Identification   Link

• Developed a 3D mapping device for short-range object detection, utilizing ATmega 2560, TOF sensors, stepper motors, and an I2C multiplexer for precise distance measurement and 3D plotting.
• Generated 3D point clouds and reconstructed surface meshes from sensor measurements, applying Delaunay triangulation to achieve accurate, high-fidelity 3D object visualization.

Agni - Autonomous Mobile Robot   Link

• Developed an Arduino Mega 2560-powered robot capable of various tasks in robotics competitions, including line following, wall avoidance, ramp navigation, object manipulation, and sound detection.
• Integrated IR, ultrasonic, and color sensors with a PID controller and robotic arm for precise movement, obstacle avoidance, and color-based path navigation in autonomous robotics competitions.

COMPETITIONS

- **IEEEXtreme 19.0:** *Sri Lanka Rank 4 , World Rank 76 , 8500+ teams, 24 hours* - IEEE
- **IEEEXtreme 18.0:** *Sri Lanka Rank 8 , World Rank 129 , 8500+ teams, 24 hours* - IEEE
- **Techno Xtreme 2023:** *Champions, 250+ teams* - IESL Students Chapter of University of Moratuwa
- **CYPHER:** *Champions, 200+ teams* - IEEE WIE Student Branch of Kothalawala Defence University
- **SLIoT Challenge** *4th place, 100+ teams* - Computer Science Engineering of University of Moratuwa
- **ENIGMA 2024:** *5th place, 250+ teams* - Mathematics Society of University of Moratuwa

SKILLS

Programming Languages	Python, C, C++, Java, MATLAB
AI/ML	TensorFlow, PyTorch, Keras, Scikit-learn, Hugging Face
Web Development	HTML, CSS, JavaScript, React.js, Java Spring Boot, PostgreSQL
Soft Skills	Problem Solving, Leadership, Adaptability, Communication Skills, Teamwork

LEADERSHIP

Vice President - Spark Branch - Electronic Club of University of Moratuwa   Link

• Leading Spark Branch focusing on innovations with sustainable development of undergraduates.
• Organized Spark Challenge featuring Sri Lanka's highest prize pool in university competitions.

Department Representative - Electronic and Telecommunication Engineering   Link

• Provided leadership in organizing and coordinating flagship department events, including EXMO 23, Abhina, SLRC, Tronic Awurudu, Trip Tronic, Mewisuru, Tronic Dansal, and Career Fair.

REFEREES

Dr. Sampath K. Perera
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