

SHEHAN MUNASINGHE

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EDUCATION

Mohamed bin Zayed University of Artificial Intelligence, UAE *August 2023 - Present*
MSc in Computer Vision (Research Thesis Based)
Current research: video understanding and large multimodal models

University of Moratuwa, Sri Lanka *August 2017 - July 2022*
BSc(Hons) Eng. - Electronic and Telecommunication Engineering **GPA: 3.96/4.2**
Dean's List : Semester 1,2,3,4,6,7,8 **First Class - 94.3%**

Rahula College Matara, Sri Lanka *January 2008 - August 2016*
GCE Advanced Level (Country-wide university entrance examination) **Z-score : 2.8487**
Mathematics-A, Chemistry-A, Physics-A **National Rank : 4**

EXPERIENCE

Mohamed bin Zayed University of Artificial Intelligence, UAE *July 2022- March 2023*
Research Assistant
Conducted research on explainability and visualization methods for multimodal and vision transformer models. Also worked on adapting class-agnostic unsupervised object detection and instance segmentation models for open-vocabulary setting.

Creative Software, Sri Lanka *October 2020- March 2021*
Software Engineering Intern (ML)
Implemented solutions for semantic segmentation and object detection in corrosion and industrial object identification. Pioneered the creation of synthetic data through the Unity 3D game engine for enhanced model training.

PUBLICATIONS

PG-Video-LLaVA: Pixel Grounding Large Video-Language Models *CVPR'24 Submission*
S. Munasinghe, R. Thushara, M. Maaz, H. A. Rasheed, Salman Khan, Mubarak Shah, Fahad Khan

Class-Aware Attention for Multimodal Trajectory Prediction *ArXiv 2022*
B. Pathiraja, S. Munasinghe, M. Ranawella, M. De Silva, R. Rodrigo, P. Jayasekara

A Novel Transfer Learning-Based Approach for Screening Pre-existing Heart Diseases Using Synchronized ECG Signals and Heart Sounds *IEEE ISCAS 2021*
R. Hettiarachchi, R. Haputhanthri, K. Herath, H. Kariyawasam, S. Munasinghe, K. Wickramasinghe, D. Samarasinghe, A. De Silva, and C. Edussooriya

RESEARCH INTERESTS

- Vision-Language Models
- Video Understanding
- Large Language Models (LLMs)
- Large Multimodal Models (LMMs)

PROJECTS

Multi-Sensor Based Dynamic Object Detection, Tracking & Trajectory Prediction for Self-Driving *August 2021 - April 2022*

Worked on developing deep learning models for detection, tracking and trajectory prediction of dynamic agents in autonomous-driving, and integrating them with Robot Operating System (ROS).

Epidemiological Modelling for COVID-19 Using Machine Learning *September 2021 - March 2022*

Collaborated in a research initiative to model the spread of the COVID-19 pandemic in Sri Lanka, leveraging neural network models to augment compartmental models for precise time series forecasting in epidemiology.

Diagno - AI Based Remote Cardiology Solution *July 2020 - December 2020*

Developed a system for 12-lead ECG classification with a deep neural network model in PyTorch. Recognized as the runner-up solution at the Synopsys Inno Champ 2020 contest.

Automatic Plant Disease Detection System *January - June 2018; February - July 2020*

System to identify 7 different types of diseases in Tomato plants, using an image of a plant leaf as the input. Achieved the Bronze Award in the Regional Final round of the InnovateFPGA 2018 competition, organised by Terasic and Intel.

TECHNICAL SKILLS

Programming Languages	Python, C++, MATLAB, JavaScript
Frameworks	PyTorch, OpenCV, ROS
Other	Linux, Git

AWARDS

- **Selected for Fully Funded MBZUAI Scholarship by the UAE Government** 2023
- **Sakura Science Exchange Programme for High School Students, Japan** 2017
- **Mahapola Merit Scholarship** - for ranking 4th in the country at GCE A-Level 2016
- **Bronze Medal Winner at Sri Lankan Physics Olympiad (Senior)** 2016
- **Member of National Mathematics Olympiad Pool** 2013, 2015

HACKATHONS/COMPETITIONS

- **Synopsys Inno Champ Contest 2020 (India & Sri Lanka) - Runner Up** 2020
- **IEEE Circuits and Systems Society - COVID-19 Special Student Design Competition - First-Runner-Up** 2020
- **InnovateFPGA-2018 Competition - Bronze Award (Asia Pacific & Japan Region)** 2018

COMMUNICATION SKILLS

English IELTS Score (Overall): 8.0/9.0

REFERENCES

Dr. Salman Khan	Associate Professor of Computer Vision, MBZUAI
Prof. Fahad Khan	Deputy Department Chair of Computer Vision, MBZUAI