

SHEHAN MUNASINGHE

Email: shehanmunasinghe@gmail.com

Phone: (+94) 77 2615768, (+971) 56 7365478

EDUCATION

University of Moratuwa, Sri Lanka

August 2017 - July 2022

BSc(Hons) Eng. - Electronic and Telecommunication Engineering

Dean's List : Semester 1,2,3,4,6,7,8

GPA : 3.96/4.2 (First Class)

Relevant Courses:

- Image Processing & Machine Vision (A+)
- Neural Networks & Fuzzy Logic (A)
- Data Structures & Algorithms (A)
- Robotics (A+)
- Digital Signal Processing (A)
- Linear Algebra (A+)
- Calculus (A)
- Computer Organization (A)

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

Country Rank : 4, District Rank : 1

Other Courses/MOOCs

- Deep Learning Specialization (Deeplearning.ai - Coursera)
- Machine Learning (Stanford University - Coursera)
- Self-Driving Cars Specialization (University of Toronto - Coursera)
- Intermediate C++, Advanced C++ (Microsoft - edX)

EXPERIENCE

MBZUAI, Abu Dhabi, UAE

July 2022- Present

Research Assistant

Currently working on explainability and visualization methods for multimodal and vision Transformer models.

Creative Software, Sri Lanka

October 2020- March 2021

Intern (Machine Learning)

Worked on applying semantic segmentation and object detection neural networks (UNet, DeepLabV3, Mask R-CNN) for corrosion detection and industrial object detection. Also worked on synthetic data generation using Unity 3D game engine.

PROJECTS

Multi-Sensor Based Dynamic Object Detection, Tracking & Trajectory Prediction for Self-Driving

August 2021 - April 2022

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

Diagno - AI Based Remote Cardiology Solution

July 2020 - December 2020

Worked on developing a deep neural network model in PyTorch to classify 12-lead ECG recordings. Achieved over 90% accuracy in predicting 5 different cardiac conditions. Became runner-up solution at 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. Trained SqueezeNet, DenseNet and MobileNet models on the dataset, converted them to TensorFlow Lite format and deployed as an Android app. The project won Bronze Award in the Regional Final round of InnovateFPGA 2018 competition organised by Terasic and Intel.

PUBLICATIONS

Class-Aware Attention for Multimodal Trajectory Prediction

ArXiv Preprint

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

TECHNICAL SKILLS

Programming

Python, C++, MATLAB, JavaScript

Deep Learning

PyTorch, Tensorflow, Keras

Computer Vision & Image Processing

OpenCV, OpenCL

Graphics & Game Development

Unity

Robotics

ROS, Webots Simulator

Hardware Design

Altium, Verilog HDL, Arduino

Other Software & Tools

Linux, Docker, SQL, Git, LaTeX

RESEARCH INTERESTS

• Computer Vision

• Machine Learning

• Robotics

AWARDS

- Mahapola Merit Scholarship - for being ranked 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
- Selected to represent Sri Lanka in the SAKURA Science Plan Student Exchange Programme for High School Students, Japan 2017

OTHER ACHIEVEMENTS

- Synopsys Inno Champ Contest 2020 - Male - Runner up 2020
- IEEEExtreme 14.0 - world rank : 175, country rank : 11 2020
- IEEE Circuits and Systems Society - COVID-19 Special Student Design Competition - First-Runner-up 2020
- Bronze Award in the Regional Final (Asia Pacific and Japan) at InnovateFPGA-2018 Competition 2018

REFERENCES

- **Dr. Salman Khan** - Associate Professor, Computer Vision Department, MBZUAI, Abu Dhabi, UAE. [Email: salman.khan@mbzuai.ac.ae]
- **Dr. Ranga Rodrigo** - Head of the Department, Department of Electronic and Telecommunication Engineering, University of Moratuwa, Sri Lanka. [Email: ranga@uom.lk]
- **Dr. Peshala Jayasekara** - Senior Lecturer, Department of Electronic and Telecommunication Engineering, University of Moratuwa, Sri Lanka. [Email: peshala@uom.lk]