

Education

MS - Kyungpook National University

Deagu, South Korea

- Thesis Title : **6DoF Pose and Focal Length Estimation using Uncontrolled Single RGB Images** March 2023 to Nov. 2024
- Research Specialization: **3D Computer Vision, Extended Reality, Deep Learning, Photogrammetry**
- GPA : **4.3/4.3** ([Transcript](#))
- Coursework : Advanced Computer Vision, Machine Learning, Pattern Recognition, Brain Science, Natural Language Processing, Introduction to Research Paper Writing etc.

B.Sc.Eng. (Hons) in Computer Engineering - University of Sri Jayewardenepura

Colombo, Sri Lanka

- GPA : **3.76/4.0** ([Transcript](#)) - 2nd highest GPA holder in the Department of Computer Engineering Nov. 2018 to Nov. 2022
- Dean's List in 4 semesters - Gold Medalist for Academic and Extra Curricular performances.
- Coursework : Computer Vision & Image Processing, Advanced Computer Algorithms, Data Structures and Algorithms, Machine Learning, Natural Language Processing, Intelligent Systems etc.

BMVA Computer Vision Summer School 2024

Durham, United Kingdom

- Topics Covered: Deep Learning in Computer Vision, Vision Uncertainty and Evaluation, Self-Supervised Learning, Egocentric Vision, Language-Image Pretraining, Monocular Cues for 3D Vision, Video Understanding, Human Vision, Stereo Vision, Python for Vision Applications, Generative Models, Statistical Models, Multimodal Behavior Understanding, 4D Video Scene Analysis July 2024

Publications

6DoF Object Pose and Focal Length Estimation from Single RGB Images in Uncontrolled Environments - Journal: Sensors, Vol. 24, No. 17, Article No. 5474

Aug. 2024

M. Manawadu, S. Park [Paper](#) [\(\)](#)

Enhancing 6DoF Pose and Focal Length Estimation from Uncontrolled RGB Images for Robotics Vision - Workshop on 3DVRM - ICRA 2024, Yokohoma, Japan

May 2024

M. Manawadu, S. Park [Paper](#) [\(\)](#)

Advancing 6D Pose Estimation in Augmented Reality-Overcoming Projection Ambiguity with Uncontrolled Imagery - IPIU 2024, Jeju, South Korea

Mar. 2024

M. Manawadu, S. Park [Paper](#) [\(\)](#)

Predictive Analysis of Accidents Based on US Accident Data - ICTC 2023, Jeju, South Korea

Nov. 2023

M. Manawadu, U. Wijenayake [Paper](#) [\(\)](#)

Voice-assisted real-time traffic sign recognition system using convolutional neural network -

Feb. 2021

Best Track Paper Award [ICARC 2021](#) [\(\)](#)

M. Manawadu, U. Wijenayake [Paper](#) [\(\)](#)

Experience

Computer & Robot Vision Laboratory - Kyungpook National University, Graduate Research Assistant

Daegu, South Korea
March 2023 to Dec. 2024
2 years

- Research on estimating **6DoF Pose** and Focal Length from a single "in-the-wild" obtained RGB images without metadata.
- Evaluation of Non Rigid ICP for Furniture Registration - in collaboration with XR Project of Electronics and Telecommunications Research Institute (ETRI), South Korea
- Artifact removal in **3D Gaussian Splatting**, Comparison with NeRFs.

London Stock Exchange Group, Software Engineer([Service Letter](#))

Colombo, Sri Lanka
Nov. 2021 to March 2023
1 year 4 months

- Implementation of real-time and offline stat generation for Market Maker Monitoring at Qatar Stock Exchange using Apache Spark, Flink, and Kafka.
- Benchmarked query performance of Impala on Parquet, Trio on Iceberg, and Trino on Hudi in Amazon S3 to be used in Millennium Analytics of London Stock Exchange.
- Contributed for development of Millennium Surveillance 5.1 for fault tolerance and process management, aligning with Oracle updates for the disaster recovery site of London Stock Exchange.
- Contributed for development of Disaster Recovery Site for the London Stock Exchange, improving database fault tolerance and secondary site connectivity.

Projects

6DoF and Focal Length Estimation from Uncontrolled RGB Images

Mar. 2023

- We aim to estimate object pose and camera intrinsics from a single uncontrolled RGB image without focal length details using a neural rendering approach. This research is funded by The Ministry of Science and ICT (MCIT), Korea.
- PyTorch | Torchvision | Cuda | OpenCV | PyBullet

Abhises - An Intelligent AR Based Virtual Tour Guide

2021 to 2022

- Developed an Augmented Reality virtual tour guide featuring indoor localization, navigation via spatial feature point detection algorithms, and an improved IBM Watson's conversational agent for seamless communication. [Demo Video](#)
- Unity | AR Foundation | IBM Watson | Azure Spatial Anchors

Voice-Assisted Real-Time Traffic Sign Recognition System using Convolutional Neural Network

2020

- Traffic Sign Detection System using tiny YOLOv4 that detects the traffic signs in real-time and outputs a audio message of the sign. The system is trained using Mapillary Traffic Sign Dataset. [Demo Video](#)
- OpenCV | TensorFlow | Google Text to Speech API | Darknet | PyQt5

Predictive Analysis of Accidents Based on US Accidents Data

2021

- Developed an end-to-end proof-of-concept system trained on the US Accidents dataset to predict road accident probabilities using location and environmental data, such as weather conditions. The mobile application provides audio alerts for potential accidents.
- TensorFlow | Python | React Native | Flask | NumPy | Pandas | Sci-kit Learn

Additional Experience and Awards

Gold Medalist - 48th Convocation of University of Sri Jayewardenepura, Sri Lanka (Awarded by the Department of Interdisciplinary Studies, Faculty of Engineering, University of Sri Jayewardenepura)

Awarded for the outstanding undergraduate academic and extracurricular performances

Best Paper in Data Science and Applications Track – ICARC 2021 Paper Title: Voice-assisted real-time traffic sign recognition system using convolutional neural network

9th place in Sri Lanka (186th in World) - IEEEExtreme 13.0

Editor - IESL (Institute of Engineers Sri Lanka) Student Chapter - University of Sri Jayewardenepura

Toastmasters 3rd Place - Club Level Humorous [?] - Wayambsa Toastmasters, Sri Lanka

Marketing Manager IGET - AIESEC in University of Sri Jayewardenepura, Sri Lanka