Suren Sritharan

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EDUCATION

M.Sc. Informatics (Computer Science)   Oct 2021 - present
Technical University of Munich - GPA of 1.1

B.Sc. Engineering (Specializing in Computer Engineering)   Jan 2016 - July 2020
University of Peradeniya - GPA of 4.0/4.0 (Top of my class of 400+ students)

WORK EXPERIENCE

Student Research Assistant (Hiwi) at Technical University of Munich, Germany   Dec 2021 - present
Study on uncertainty estimation in Graph Neural Networks (DAML lab)
Monocular object detection and tracking for autonomous driving tasks (Providentia++ project)

Research Assistant at Sri Lanka Technological Campus, Sri Lanka   Aug 2020 - Sep 2021
Intrinsic image decomposition (IID) and image enhancement under varying illumination conditions.

Autonomous wireless network research intern, Nokia Bell Labs, Belgium   Feb 2019 - Aug 2019
Study on the limitations of machine learning models for wireless 5G networks and beyond.

SELECTED PROJECTS

Cooperative perception through deep fusion for autonomous driving applications   2023
- Estimate 3D position of vehicles from features extracted on images and lidar data (fusion) taken from moving vehicles and stationary infrastructure sensors (cooperative perception) - ongoing project.

Monocular 3D object detection and birds-eye-view tracking   2022
- Estimated the 3D position of vehicles from monocular images taken from infrastructure cameras through semantic segmentation and pose estimation + tracking through coordinate transformation to BEV.
- Late fusion model developed based on the monocular detector improved the SOTA mAP by +1.62.

Anomaly detection during production process through images   2022
- Created an efficient ML pipeline using PyTorch to detect anomalies at the image and pixel levels with recall rate of 97%. This has been successfully deployed at Siemens GWE, to identify the anomalies in images captured during the production process of heat sinks.
- Performed hyper-parameter tuning through Optuna and WandB, and deployment + testing using ZenML.

Crowd risk assessment through CCTV to combat COVID-19 spread in Sri Lanka   2021
- Proposed TensorFlow-based model to assess the COVID-spreading risk levels from CCTV camera videos to develop spread mitigation strategies for different environments.
- Performed feature extraction using social distance measure, contact detection and mask identification, and prediction through temporal graph network that utilizes retrieved features.

Low light image enhancement and interpretation   2020
- Proposed a cyclic-GAN-based model for illumination enhancement trained with both paired and unpaired images which provides near-SOTA efficacy and higher efficiency.

TECHNICAL SKILLS

- **Programming Languages**: Python, Java, C, C++, R, MATLAB, Javascript
- **ML Tools**: PyTorch, TensorFlow, MLflow, ZenML, Weka
- **Web Development**: HTML, CSS, Django, Node.js, Nginx
- **Other tools and Technologies**: Docker, ROS, Open3D, CARLA Simulator, MySQL, MongoDB

PUBLICATIONS

PEER-REVIEWED JOURNAL

S. Sritharan, H. Weligampola, and H. Gacanin, "A Study on Deep Learning for Latency Constraint Applications in Beyond 5G Wireless Systems" in *IEEE Access*, vol. 8, pp. 218037-218061, 2020.
`https://ieeexplore.ieee.org/document/9268052`

G.Jayatilaka, J.Hassan, **S.Sritharan**, J.Senanayaka, H.Weligampola, R.Godaliyadda, P.Ekanayake, V.Herath, J.Ekanayake, S.Dharmaratne, "Holistic Interpretation of Public Scenes Using Computer Vision and Temporal Graphs to Identify Social Distancing Violations." in *Applied Sciences*, vol 12 no 17, pp 8428, 2022
`https://www.mdpi.com/2076-3417/12/17/8428`

INTERNATIONAL CONFERENCE

H.S. Weligampola, G.C. Jayatilaka, **S. Sritharan**, P. Ekanayaka, R. Ragel, and V. Herath, R. Godaliyadda, "An Optical physics inspired CNN approach for intrinsic image decomposition", IEEE International Conference on Image Processing (ICIP), 2021. `https://ieeexplore.ieee.org/abstract/document/9506375`

G.C. Jayatilaka*, H.S. Weligampola*, **S. Sritharan***, P. Pathmanathan, R. Ragel, and I. Nawinne."Non-contact Infant Sleep Apnea Detection" 14th IEEE International Conference on Industrial and Information Systems (ICIIS), 2019. `https://ieeexplore.ieee.org/document/9063269`

H.S. Weligampola, G.C. Jayatilaka, **S. Sritharan**, R. Godaliyadda, P. Ekanayaka, R. Ragel, and V. Herath, "A Retinex Based GAN Pipeline to Utilize Paired and Unpaired Datasets for Enhancing Low Light Images", Moratuwa Engineering Research Conference (MERCon), 2020.
`https://ieeexplore.ieee.org/document/9185373`

AWARDS AND RECOGNITION

Deutschlandstipendium 2022
  Merit-based scholarship awarded by the federal government of Germany.

Best Performance in Engineering 2020
  C. A. Hewavitharana Prize for best academic performance in Engineering.

Award for best final year thesis 2020
  Prof. E. F. Bartholomeusz Endowment award for the best Final Year Project.

Huawei - Seeds for the Future 2019
  Represented Sri Lanka at the Huawei Seeds for the Future program held in China.

IEEEXtreme 13.0 - 2nd Country Rank, 64th World Rank 2019
  24-hour Worldwide competitive programming competition organized by IEEE.

IEEEXtreme 12.0 - 2nd Country Rank, 79th World Rank 2018

Humanitarian Product Competition: IEEE R10 - 1st place 2018
  Product development competition organized by IEEE for Asia Pacific region.

Google Code Jam - Qualified to R1 (with top country ranks at qualifications) 2017, 2018, 2019
  Worldwide competitive programming competition organized by Google.

IEEEXtreme 11.0 - 1st Country Rank, 113th World Rank 2017

Mahapola Higher Education Scholarship 2016
  Merit-based scholarship awarded by government of Sri Lanka for performance at GCE A/L examination.