Sasini Wanigathunga

+94 71 433 2221 SasiniWanigathunga sasiniwanigathunga wanigathungasasini@gmail.com

Education

University of Moratuwa, Sri Lanka Aug 2021 - Present
B.Sc. Engineering (Hons.) in Electronic and Telecommunication Engineering *GPA: 3.88/4.0 (Up to semester 6)*

- **Dean's List:** Semesters 1, 2, 3, 4 and 6
- **Selected Coursework:** Deep Learning for Vision, Image Processing and Machine Vision, Pattern Recognition, Introduction to Engineering Optimization, Data Structures and Algorithms, Applied Statistics, Linear Algebra, Calculus, Neural Networks and Fuzzy Logic

Sujatha Vidyalaya, Matara, Sri Lanka 2011 - 2019
GCE Advanced Level - Physical Science Stream *4As / Z-score - 2.6629*

- Combined Mathematics, Physics, Chemistry, General English

Relevant Coursework

Coursera

Machine Learning Specialization (DeepLearning.AI, Stanford University)
Neural Networks and Deep Learning (DeepLearning.AI, Stanford University)
Structuring Machine Learning Projects (DeepLearning.AI, Stanford University)
Machine Learning in the Enterprise (Machine Learning on Google Cloud Specialization - Google Cloud)

Experience

Machine Learning Engineer - Intern | FcodeLabs, Sri Lanka Nov - May 2024

- **Research project:** A novel approach for the automatic removal of Personally Identifiable Information (PII) directly from speech data.
- **Progress Magic (Company application):** Implemented modular Python packages with production-ready folder hierarchy and unit testing (pytest) for privacy data masking and emotion recognition in textual data. (Natural Language Processing) / Modified a LLM-based activity suggestion solution. (OpenAI API, Prompt Engineering)

Visiting Instructor | University of Moratuwa, Sri Lanka Feb - Apr 2024

- Worked as a visiting instructor for EN1094: Laboratory Practice

Publications

Test-Time Optimization for Domain Adaptive Open Vocabulary Segmentation | *CVPR 2025* Under Review
U De Silva, D Samaraweera, S Wanigathunga, K Kariyawasam, K Ranasinghe, M Naseer, R Rodrigo

Selected Projects

Vision Language Models - Final Year Project Jun 2024 - Present
Domain Adaptive Open Vocabulary Semantic Segmentation | *Computer Vision, VLMs, Prompt Learning*

- Developed a novel test-time optimization framework for open vocabulary semantic segmentation (OVSS) on specialized-domain tasks and evaluated across 22 challenging domain specific datasets and obtained overall +2.03 mIoU improvement over the state-of-the-art.

Audio Named Entity Recognition | *Natural Language Processing, Named Entity Recognition* Mar 2024 - Present

- Developed a novel approach for text-independent PII removal in speech data. Prepared a time-aligned NER annotated English speech dataset and implemented an end-to-end model architecture. Achieved improved accuracy and low latency over existing work.

ProjectPulseAI | *LLMs, Groq, RAG, Next.js, Jira API, AstraDB* Ongoing

- Developed a LLM-powered application for project managers using Retrieval-Augmented Generation (RAG) to integrate project documents, company resources, web links, and Jira issue tracking.

Ophthalmic Biomarker Detection | *Computer Vision, Deep Learning* Aug - Oct 2023

- Optimized the algorithm to predict the presence or absence of 6 different biomarkers on OCT scan images. Tested with different preprocessing techniques and backbones and optimized the model by changing the classification layers.

Diabetic Retinopathy Severity Grading | *Computer Vision, Deep Learning* Oct 2023

- Replicated an existing work to determine the stage of diabetic retinopathy and tested with different backbones and preprocessing techniques.

Mimicking Shakespearean Dialogue with Transformers | *Natural Language Processing* June 2024

- Implemented a Transformer model from scratch to automatically generate dialogues or monologues that closely resemble the style of Shakespeare's plays.

Software Design Competition | *Unity, C# Programming* Jan - July 2024

- Designed a game using Unity with WebGL including API authentication, player profile, a questionnaire that can be opened using a web browser, dynamic and interactive game environment and a leaderboard.

Robot Design and Competition | *Arduino, Webots, C++ Programming* Feb 2023

- Designed a simulation of a robot capable of identifying chess piece positions and performing checkmate.

Awards and Scholarships

World Rank 6 in IEEE SPS Video and Image Processing (VIP) Cup 2023 ***Aug - Sep 2023***
Team: TESSERACT | Achieved F1 score of 0.7921 for ophthalmic biomarkers detection.

IEEEXtreme 17.0 | World Rank: 389 | Country Rank: 26 ***Oct 2023***

IEEEXtreme 16.0 | World Rank: 874 | Country Rank: 61 ***Oct 2022***

Mahapola Higher Education (Merit) Scholarship ***Aug 2021***
Awarded for outstanding performance in GCE A/L Examination | Ranked 97th in the country.

Leadership Experience

IEEE Industrial Electronics Society Student Branch Chapter - University of Moratuwa

- Secretary, Chief Editor, Assistant Editor, Member of Public Relations Team

Electronic Club - University of Moratuwa

- Chairperson for two webinars, Student Editor-in-Chief for the E-Carrier magazine, Editor, Sub Editor

AIESEC in Colombo South, Sri Lanka

- Content Specialist in Public Relations and Marketing Team, iGT International Relations and Matching Team

Skills

Languages: English (Professional proficiency), Sinhala (Native proficiency)

Programming Languages: Python, C++ (Novice), C# (Novice), LaTeX

Software & Tools: VS Code, Git/GitHub, Hugging Face, Kaggle, Docker, AWS (Novice), MATLAB, Unity

Frameworks: PyTorch, Tensorflow, spaCy, NLTK, Nemo

Sports: Chess (FIDE Rating - 1219)

References

Dr. Ranga Rodrigo
Head of the Department
Department of Electronic and Telecommunication Engineering,
Faculty of Engineering,
University of Moratuwa, Sri Lanka
Tel: +94 11 264 0416
Email: head-entc@uom.lk

Dr. Sampath K. Perera
B.Sc. Eng. (Moratuwa), M.E.Sc. (Western), Ph.D. (RUB), MIEEE
Senior Lecturer
Department of Electronic and Telecommunication Engineering,
Faculty of Engineering,
University of Moratuwa, Sri Lanka
Tel: +94 70 572 6264
Email: sampathk@uom.lk