Sasini Wanigathunga

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Education

University of Moratuwa, Sri Lanka Aug 2021 - Present

B.Sc. Engineering (Hons.) in Electronic and Telecommunication Enginnering *GPA: 3.86/4.0*

- Image Processing and Machine Vision, Pattern Recognition, Digital System Design, Embedded Systems and Applications, Signals and Systems, Data Structures and Algorithms

Sujatha Vidyalaya, Matara, Sri Lanka 2011 - 2019

GCE Advanced Level - Physical Science Stream *Z-score - 2.6629*

- Combined Mathematics, Physics, Chemistry

Relevant Coursework

Coursera

Machine Learning Specialization (DeepLearning.AI, Stanford University)

- Supervised Machine Learning: Regression and Classification
- Advanced Learning Algorithms
- Unsupervised Learning, Recommenders, Reinforcement Learning

Deep Learning Specialization (DeepLearning.AI, Stanford University)

- Neural Networks and Deep Learning
- Structuring Machine Learning Projects

Introduction to Generative AI (Google Cloud)

PiMORA JAM 1.2

Raspberry Pi Jam series (Spark Branch - Electronic Club, University of Moratuwa)

Experience

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

- Research project on a novel approach for the automatic removal of Personally Identifiable Information (PII) directly from audio data.
- Natural language Processing
- Applied Machine Learning integrations to the Company Application - Progress Magic

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

- Worked as a visiting instructor for EN1094 - Laboratory Practice

Projects

Vision Language Models - Final Year Project Ongoing

- Skills: Computer Vision, Deep Learning, Prompt Engineering, PyTorch
- A novel approach that integrates Vision Language Models with visual attributes generated by Large Language Models, inspired by human cognition in understanding new visual concepts, to enhance interpretability and robustness in dense prediction tasks.

Audio Named Entity Recognition Ongoing

- Skills: Audio Signal Processing, Deep Learning, Natural Language Processing, PyTorch

- A novel approach for the automatic removal of personally identifiable information (PII) directly from audio data
- Careful annotation and labeling of PII instances in the dataset (dataset preparation and preprocessing), as well as adaptation and optimization of the OpenAI Whisper model for the desired task, and implementation of postprocessing and a custom evaluation metric

Ophthalmic Biomarker Detection Aug 2023

- Skills: Computer Vision, Deep Learning, Supervised and Unsupervised Learning, Transfer Learning, PyTorch
- Optimized the algorithm to predict the presence or absence of six different biomarkers simultaneously on every OCT scan in the held-out test set
- Tested with different preprocessing techniques and backbones(ResNet, DenseNet, VGG19) and optimized the model by changing the classification layers

Diabetic Retinopathy Severity Grading Oct 2023

- Determining the stage of diabetic retinopathy, given a fundus image
- Testing with different backbones(UNet, ResNet, DenseNet)

2023 ACM/IEEE TinyML Design Contest at ICCAD Oct 2023

- Designing and implementing a machine learning algorithm to automatically discriminate life-threatening VAs from IEGM recordings and to be deployed and run on a STM32F303K8T6 development board
- Optimizing the given algorithm to achieve a better detection precision, memory occupation, and inference latency

Non-pipelined Single Stage (Cycle) RISC-V Processor Design Oct 2023

- Designing a 32 bit non-pipelined RISC-V processor using Micropramming with 3 bus structure using RV32I implementation.

Coursera Project Network Sep 2023

- Skills: PyTorch, Image Segmentation, Computer Vision
- Deep Learning with PyTorch: Image Segmentation
- Deep Learning with PyTorch : Object Localization

Mini Weather Station July 2023

- Skills: PCB Designing (Altium), Enclosure Designing (Solidworks), C++ Programming
- Developed a user-friendly mini weather station with essential weather measurements and integrated remote monitoring via web dashboard and mobile app
- Managed project from concept to execution, emphasizing market appeal and user centered design

Hospital Waste Segregation June 2023

- Engaged in conceptualizing a hospital waste segregation using a robot arm and a smart waste bin

High Frequency Amplifier Feb 2023

- Skills: Enclosure Designing (Solidworks), Electronic Simulation (Multisim), Analog Circuit Design
- Designed a high-frequency amplifier with minimal distortion and amplitude loss, capable of driving an 8 Ω speaker, meeting specifications including a bandwidth of 20 kHz - 100 kHz with a 0.1Vp-p input signal

Robot Design and Competition Feb 2023

- Skills: Arduino, Webots, C++ Programming
- Designed a simulation of a robot capable of line following, segmented wall following, dotted line following, colour detecting, obeject picking & placing, climbing through ramps and searching
- The robot was able to identify chess pieces positions on a board and perform a checkmate

Awards and Scholarships

IEEE SPS Video and Image Processing (VIP) Cup 2023 Aug - Sep 2023
6th Place | Team : TESSERACT

- Achieved F1 score of 0.7921 for predicting the presence or absence of six different ophthalmic bio-markers simultaneously

IEEEXtreame 17.0 Oct 2023
World Rank 389 | Country Rank 26

IEEEXtreame 16.0 Oct 2022
World Rank 874 | Country Rank 61

Mahapola Higher Education (Merit) Scholarship Aug 2021
For outstanding performance in GCE A/L Examination ; Ranked 97 in the country

Colours Award - Sujatha Vidyalaya 2017
Awarded for performance in chess at national level

Experience

IEEE Industrial Electronics Society Student Branch Chapter - University of Moratuwa

- Chief Editor (Sep 2023 - Sep 2024)
- Assistant Editor (Sep 2022 - Sep 2023)
- Member of Public Relations Team (Sep 2021 - Present)

Electronic Club - University of Moratuwa

- Chair person - Webinar on 'Path towards a successful publication' (Sep 2023)
- Chair person - Webinar on 'Visual SLAM' (Sep 2023)
- Editor (Aug 2023 - Aug 2024) (Student Editor-in-Chief for the E-carrier magazine October 2023)
- Sub Editor (May 2022 - Aug 2023) (Student Editor-in-Chief for the E-carrier magazine October 2022)

AIESEC in Colombo South, Sri Lanka

- Content Specialist in Public Relations and Marketing Team | Winter 22.23 (Aug 2022 - Apr 2023)
- iGT International Relations and Matching Team Member (Jan 2022 - Aug 2022)

Skills

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

Programming Languages: Python, C++, Matlab, LaTeX

Software: Altium(PCB Designing), Solidworks(Enclosure Designing), Quartus Prime

Frameworks: PyTorch, Tensorflow, OpenCV, NodeRED

Sports: Chess(FIDE Rating - 1219)

References

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