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Research Interests

- Computer Vision
- NLP
- Data Science
- Back-end Development

Education

University of Moratuwa

Aug 2021 – Present

BSc Eng (Hons) in Electronic and Telecommunication Engineering

GPA (Up to Semester 6): 3.80/4.00

- Pathway: [Computer Vision and Pattern Recognition](#)
- Following the [Minor in Mathematics](#)

Embilipitiya President College

Jan 2011 – Aug 2019

General Certified Examination Advanced level

Aug 2019

- Z-Score: 2.5627
- Combined Maths: A, Chemistry: A, Physics: A
- District Rank: 6, Island Rank: 151

Skills

Languages: Python(Intermediate), C++(Intermediate), C#(Basic), JavaScript(Basic), Cypher(Basic)

Developer Tools: Google Colab, VS Code

Version Control: GitHub

Frameworks: PyTorch, SkLearn, TensorFlow

Databases: Neo4J, MongoDB

Soft Skills: Adaptability, Stress Management, Critical Thinking

Relevant Coursework

Mathematics: Mathematics(A), Methods of Mathematics(A+), Calculus(A+), Differential Equations(A), Linear Algebra(A-), Numerical methods(A), Applied Statistics(A), Neural Network & Fuzzy Logics (A+)

Miscellaneous: Circuits, Signal and System(A), Data Structures and Algorithms(A+), Computer Organization and Architecture(A), Pattern Recognition(A+), Software Design Competition(A+), Introduction to Engineering Optimization(A), Deep Learning for Vision (A)

Courses

HTML, CSS, JavaScript for Web Developers | [Link](#)

May 2022

- Offered by Johns Hopkins University

Full-Stack Web Development with Angular Specialization | [Link](#)

May 2022

- Offered by Hong Kong University of Science and Technology

Python, C++ and JavaScript certification | [Link](#)

Apr 2022

- Offered by HackerRank and SoloLearn

Web Design for Beginners | [Link](#)

Mar 2022

- Offered by University of Moratuwa, DP Educations

Undergraduate Projects

VideoPulse: Physiological Signal Extraction from Video | *PyTorch, Transformers, Mamba* Jul 2024 - Ongoing

- Aiming to develop a multitask model capable of predicting heart rate and SpO2 levels from neonatal facial videos from using the cutting edge computer vision architectures. (Final Year Project)

Unity Game Development | *Unity, C#, SpringBoot, React* [Git](#)

May 2024

- Designed and developed a custom game using Unity, featuring a questionnaire front-end built with React and a back-end powered by Spring Boot.
- Utilized C# for integration with Unity and created a zoo simulation controlled through power consumption APIs.

Webots Robot Simulation | *Webots, C++* [Git](#)

Feb 2023

- Developed a robot simulation encompassing three key tasks: Color Line Following and Recognition, Wall Following, and Chessboard Solving.
- Utilized C++ to integrate intelligent algorithms, and accomplish the tasks efficiently.

Intern Projects (SenzMate IoT Intelligence)

Document Understanding by Computer Vision | *PyTorch, ViT, Deep learning, LLM* Dec 2023 - Jun 2024

- This project aimed to develop a pipeline for extracting key-value pairs, table data, and document classes from scanned document images.
- Designed and implemented a solution utilizing Microsoft's Table Transformer and YOLO models for table data extraction, and GeoLayoutLM for key-value pair extraction.

Elders Care Application with LLMs | *LLM, Neo4J Knowledge Graph* Mar 2024 - Apr 2024

- Aimed to enhance Elders' care notes by correcting spelling and grammar errors, incorporating medical terminology, and generating personalized care plans for each elder.
- Developed whole back end utilizing a graph database (Neo4J) to store elders' data and employed a RAG (Retrieval-Augmented Generation) system with cypher queries and Gemini to generate tailored care plans.

External Projects

Paralegal: Data extraction from the Law Reports | *Python, OCR, Web scraping* Jul 2024 - Sep 2024

- Developed algorithms working with a senior ML Engineer to extract relevant information from a large collection of Sri Lankan law reports with using law computation power.

Layerit: Create the layers from a Image | *Diffusion, OCR, Segmentation, AWS, Flask* Mar 2024 - Apr 2024

- Developed an innovative solution for the Microsoft Imagine Cup to separate editable layers from a flattened image.
- Utilized OCR for text extraction, segmentation models for object identification, and diffusion models for reconstructing background pixels.

Flower Exchange Application | *C++, Multi Threading, Shared Resources* [Git](#) Jul 2023 - Sep 2023

- Developed a project assigned by LSEG to process order lists and generate output exchange sequence files.
- Implemented object-oriented programming with multi-threading and mutexes, achieving the processing of 100,000 orders in just 7 seconds.

Customer Market Segmentation using Machine Learning | *python, sklearn* [Git](#) Aug 2023

- The goal of this Coursera guided project is to develop a machine learning model using the K-Means algorithm and the elbow method to classify customers based on their credit card usage and payments to the bank.

Titanic Survival Prediction using Machine Learning | *python, sklearn* [Git](#) Aug 2023

- The Coursera guided project involved the development of a machine learning model using logistic regression and naive Bayes algorithms to make predictions about whether passengers on the Titanic survived the disaster.

Competitions

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|---|-----------------|
| • 1st Runner-Up in VRCade 2.0 - VR, AR, and MR Competition Organized by IEEE IAS, University of Moratuwa. | Dec 2024 |
| • Recognized for having one of the Top Three Codes in the LSEG Software Development Challenge. | Oct 2023 |
| • Advanced to the Second Round of the Microsoft Imagine Cup. | Jan 2024 |
| • Participant in the Google Gen AI Competition. | Apr 2024 |
| • Participant in IEEE Xtreme 17.0 Programming Competition. | Sep 2023 |
| • Silver Medalist at the 2019 Sri Lanka Physics Olympiad. | Mar 2019 |

Extra-curricular Activities

IEEE ComSoc Student Branch Chapter of University of Moratuwa

- Web Master (2023 - 2024)
- Assistant Web Master (2022 - 2023)

References

[1] Dr. Samiru Gayan,
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[2] Dr. Sampath K. Perera,
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