

DILANGA GALAPITA MUDIYANSELAGE

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OBJECTIVE

Dynamic and results-oriented professional with 7+ years of experience in the field of AI/ML and Data Science. Adept at developing innovative algorithms and solutions to address complex challenges in diverse industries. Ready to bring creativity, expertise, and a passion for innovation.

EDUCATION

Ph.D. in Information Technology at the University of Nebraska at Omaha, NE.

May 2024

Concentration: Artificial Intelligence, GPA 3.81

Dissertation: Self-Supervised Representation Learning on Multi-Label Classification

Master of Computer Science at the University of Nebraska at Omaha, NE.

Dec 2018

Concentration: Database and Knowledge Engineering, GPA 3.70

Thesis: Multi-Label Classification Using Higher-Order Label Clusters

Bachelor of Computer Science Honors at University of Peradeniya, Sri Lanka.

Jan 2014

Major: Computer Science, Statistics and Mathematics, GPA 3.75

Thesis: Performance Comparison of Emerging HEVC Standard with H.264/AVC and frame interpolation based Error Correction Technique for HEVC decoder.

SKILLS

Programming languages

Python, Java, C#.NET, C++, PHP

DevOps and Cloud

CI/CD, AWS, Docker, MLFlow, Falsk/FastAPIs, Gunicorn, Git/GitHub

Frameworks

LangChain/FAISS, OpenCV, PyTorch, TensorFlow, Scikit-image, SKLearn

Database

MySQL, MSSQL server, Microsoft Access, MongoDB

Web technologies

RESTful/SOAP, JavaScript, XML, JSON, Dash

EXPERIENCE

AI Developer

May 2022 – Aug 2022

AI Developer Intern - GUARDIAN RFID®

MapleGrove, MN

- Contributed to the correction officers, by machine learning model building, testing, and deployment tasks using PyTorch, Flask/FastAPIs, Dockers, CI/CD testing, and maintenance.

Graduate Research Assistant

Aug 2016 - May 2024

University of Nebraska at Omaha

Omaha, NE

- Building ML models to accommodate pattern recognition and prediction tasks on medical images (Toxoplasmosis fundus images, OCT images, Adaptive Optics) in collaboration with the Byers Eye Institute, Stanford University.
- Building deep segmentation models for bacteria cell segmentation on metal material SEM images, in collaboration with the South Dakota School of Mines and Technology.
- Unsupervised (Cover Coefficient-based Clustering) and supervised machine learning approach to enhance generic high dimensional Multi-label classification performance.

Software Engineer

Jan 2013 – Jan 2015

hSenid Mobiles Solution (Pvt) Ltd

Sri Lanka

- Contributed to the e-Local Government project, by developing Android RESTful Client mobile application and Server-side RESTful web services. Country-wide tax collection application system in Sri Lanka.

PROJECTS

- **Bio-material info crawler:** Built a web API with custom Large Language Models (LLM) for effective retrieval of relevant information from unstructured text collections of bio-material research articles. Used RAG techniques to boost the accuracy and mitigate the hallucinations. (Langchain, Huggingface, ChatGPT, Docker, Flask)
- **HelloGaze:** A distortion correction App for Age-Related Macular Degeneration (AMD) patients, designed for Windows operating systems. (C#.NET, Tobii Eye Tracking Pro SDK, MSSQL)
- **Customer Churn Prediction:** built an ensemble classification model to predict the churn probability of a customer accounts. Processed over 25k employee data records from multiple data sources (model with ~90% accuracy. (R, GGally, dplyr, tidyverse)
- **Semi-Join simulation:** Windows-based GUI application to illustrate the process of Semi-Join SQL for large data in in-memory using C#.NET.

SELECTED PUBLICATIONS

- **D. Abeyrathna** et al, "An AI-Based Approach for Detecting Cells and Microbial Byproducts in Low Volume Scanning Electron Microscope Images of Biofilms", *Frontiers in Microbiology, Systems Microbiology*, 2022.
- **D. Abeyrathna** et al, "Segmentation of Bacterial Cells in Biofilms Using an Overlapped Ellipse Fitting Technique" 2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM).
- **D. Abeyrathna** et al, "Directed Fine Tuning Using Feature Clustering for Instance Segmentation of Toxoplasmosis Fundus Images," 2020 IEEE 20th BIBE.
- **D. Abeyrathna** et al, "Analyzing and predicting player performance in a quantum cryptography serious game." International Conference on Games and Learning Alliance. Springer.
- **D. Abeyrathna** et al, "Anomaly Proposal-Based Fire Detection for Cyber-Physical Systems" 2019 International Conference on Computational Science and Computational Intelligence (CSCI).

BOOK CHAPTERS / PATENTS

- **D. Abeyrathna** et al, book chapter "An Overview of Machine Learning" in "Machine Learning in 2D Materials, CRC Press, 2023 (ISBN 9780367678203)
- Contributor to a U.S. Provisional Patent, titled "Artificial Intelligence-Based Methods to Objectively Identify the Foveal Center in Adaptive Optics Retinal Imaging." Application No. US 63/497,679.