SAVINDI WIJENAYAKA

Machine Learning Engineer & Researcher

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Summary

Machine Learning Engineer and Researcher with over two years of experience in applied deep learning and developing scalable, production-grade cloud-native applications. PhD in Bioengineering, currently under examination, with over three years of interdisciplinary research combining medical imaging, computational quantification, and deep learning-based analysis. Driven by a passion for building AI solutions with real-world impact and committed to bridging the gap between research and application.

Experience

Machine Learning Engineer

WSO2 · Full-time Sept 2020 - Nov 2021 Colombo, Sri Lanka

WSO2 is one of the world's leading open-source integration vendors. Choreo is its latest product, providing an AI-enhanced integrated platform as a service.

- Researched, engineered and deployed the initial phase of Choreo's AI-assisted testing feature, using Python, Keras, Flask, Kubernetes and Azure DevOps pipelines.
- Architected, developed and deployed Choreo's AI-based anomaly detector with two other engineers, using Azure solutions, Ballerina, and Python, while adhering to security best practices, scaling requirements, and optimised resource usage.
- Diagnosed and resolved a critical memory leak in the Ballerina Language Server using JMeter and Eclipse Memory Analyser (MAT), which helped in the optimisation of resources in Choreo.
- Contributed to automating the performance testing of Choreo by creating a library and a pipeline for system metrics collection using Python, Kusto Query Language (KQL), Seaborn, and Azure DevOps pipelines.

Software Research Engineer

Pearson · Internship Sept 2018 - Sept 2019 Colombo, Sri Lanka

Pearson is a leading Education provider, offering curriculum materials, multimedia learning tools, and testing programs to help educate people worldwide.

- Collaborated with two other engineers to create the minimum viable product of AI-based Public Speaking Evaluator Service (APSES) while contributing to emotion detection and speech analysis features, using Python, Keras, OpenCV, Kaldi and Flask.
- Investigated on Question and Answering and built the minimal viable product of a Chatbot, which answers students' questions based on Pearson books and other documentation, using a modified version of the Bi-Directional Attention Flow (BiDAF) model, Python and Django.
- Researched and engineered the minimal viable product which automatically classifies flashcards created by the system or users under available topics, using the Universal Language Model Fine-Tuning (ULMFiT) model, Python and Django.

Education

Ph.D. in Bioengineering (under examination)

University of Auckland Dec 2021 - May 2025 Auckland, New Zealand

- Analysed gastric microstructures using an interdisciplinary approach integrating micro-CT imaging, mathematics, computational anatomy, and deep learning, advancing the understanding of healthy stomachs.
- Engineered a semantic segmentation model to distinguish gastric tissue layers, integrating multiscale channel and spatial attention concepts, implementing numerous ablation studies, and saving over 40 hours per dataset.

- Developed a robust three-dimensional gastric tissue quantification framework using advanced mathematical techniques in Python; delivered precise measurements from 20+ tissue samples, establishing the first benchmark for future research.
- Developed a comprehensive computational model compiling crucial geometric information alongside quantification details sourced from 8 distinct experiments, enabling future in-silico experiments.
- Conducted biological experiments to collect and prepare rodent stomachs for micro CT imaging, resulting in a streamlined process that enhanced sample quality and consistency across 15 experimental trials.

B.Sc. (Hons.) in Software Engineering

University of Kelaniya Feb 2016 - Mar 2020 Kelaniya, Sri Lanka

- Specialised in Data Science and Net-centric application development
- Attained a GPA of 3.96 out of 4.00, obtaining a First Class.

Skills

- **Knowledge Areas** — Deep learning (Vision & NLP)
- **Programming languages** — Python, Ballerina, Java SE, Bash
- **Frameworks and tools** — Pytorch, Keras, Flask, Django, Numpy, Pandas, Scikit-Learn, Plotly, Seaborn, Springboot, Git, Agile
- **Data handling** — SQL, Kusto Query Language (KQL), ADX, DVC, REST, gRPC
- **DevOps** — Linux, Azure, Kubernetes, Docker, Kustomize, AWS, JMeter

Achievements

- **1st Place (2022)** and **2nd Place (2024)** in the international SPARC FAIR Codeathon, representing the University of Auckland, organised by the SPARC Data and Resource Centre and the NIH.
- **4th Place** in DataStorm 2020 Datathon, organised by Octave (JKH) and University of Moratuwa.
- **1st Runner-Up** in National Youth Software Competition 2017, organised by UNDP Sri Lanka.
- **Dean's List Honouree**, recognised in all four academic years of the B.Sc. programme.
- **Vice President** of Marketing & Communications at AIESEC in the University of Kelaniya in 2018, contributing to local chapter growth.
- **National University Colours** recipient, **Black Belt** Karate player and **Women's Captain** in University Karate Team; won multiple national and inter-university medals (2016–2018).
- **Gold Medalist** in Chess at Four Nations Championship 2019, organised by Pearson.
- Represented school at the national level in Karate, Carrom, Kabaddi, and Army Cadet competitions, while also serving as Junior Prefect, Senior Prefect, and Karate Captain.

Volunteer and Webinar hosting

- Member of the teaching team for Code In Place 2021, an online Python course offered by Stanford University during the COVID-19 pandemic.
- Guest speaker of IEEE Hobnobbers 2021, sharing knowledge on the topic "A dive into deep learning. "
- Guest speaker of Pie & AI Sri Lankan session, organised by DeepLearning.AI, on the topic "An Introduction to AI and Machine Learning - Sinhala. "