

# HASHARA VIDUSANKA

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## ABOUT ME

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I am an undergraduate in Faculty of Engineering, University of Ruhuna. I am also following a Computer Engineering Degree Program. I would love to apply my knowledge in computer engineering, and develop my skills within the industrial context. I am a keen learner who is always willing to learn something new and adapt myself in any new environment, while gaining ample knowledge when working as a team.

## Experience

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### Sri Lanka Telecom (SLT), AI/ML Engineering Trainee

- Contributed to the development of an AI-powered chatbot for LECO, designed to enhance customer interactions and handle solar system installation queries.
- Implemented a Retrieval-Augmented Generation (RAG) architecture, integrating retrieval-based and generative AI techniques for context-aware responses and improved accuracy.
- Developed a multilabel intent classification model using Random Forest and TF-IDF vectorization, optimizing performance with Grid Search and Cross-Validation.
- Utilized FastAPI, LangChain, HuggingFace, FAISS, BM25, NumPy, PyPDFLoader, and Uvicorn for the RAG pipeline.
- Performed data visualization and model performance analysis using Matplotlib and Seaborn.

Head Office, Lotus Road,  
Colombo 01  
Aug 2024 – Feb 2025

## TECHNICAL SKILLS

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**AI/ML & Data Science:** Deep Learning (CNN, RNN, Autoencoders), Retrieval-Augmented Generation (RAG), Multilabel Classification, Image Processing, Data Visualization, Experiment Tracking (MLflow, Optuna)

**Frameworks & Libraries:** TensorFlow, Keras, PyTorch, OpenCV, scikit-learn, Streamlit, LangChain, HuggingFace, FastAPI, React.js, Node.js, Flutter, WPF, Spring Boot

**Languages:** Python, C++, C#, Java, JavaScript, Dart, SQL

**Technologies & Tools:** AWS, Docker, Terraform, DBMS, FAISS, BM25

**Concepts & Practices:** AI/ML Model Deployment, Design Patterns, Data Structures & Algorithms

**Operating Systems:** Windows, Linux

**Version Control & Collaboration:** GitHub, Jira

**UI/UX Design Tools:** Figma

**Adobe Software:** Adobe Photoshop, Adobe Premiere Pro, Adobe Audition

## Research Project (Ongoing)

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### Hybrid Deep Learning and Optimization-Driven Multipath Flow Routing in Software-Defined Vehicular Networks - Group Project

[Research Details](#) 

- **Description:** Developed a novel framework combining deep learning and optimization techniques for efficient multipath flow routing in highly dynamic vehicular networks. Implemented network simulations using NS3 and designed models addressing link lifetime uncertainty, energy efficiency, and flow interactions in SDVNs.
- **Skills:** Machine Learning & Deep Learning, Non-Linear Mathematical Optimization, Network Simulation & Modeling, Algorithm Development & Research

## PROJECTS

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### Traffic Flow Clustering - Group Project

2025

[Repository Link](#)

- **Description:** Built an AI-powered solution to classify urban traffic flow using Convolutional Autoencoders and clustering on SUMO-simulated data.
- Implemented MLflow, Optuna, and FastAPI for experiment tracking, optimization, and automated reporting.
- Designed an interactive Streamlit dashboard integrated with a Gemini-powered chatbot for visual analytics and decision support.

### Parking Spot Occupancy Detection Using Computer Vision and CNN

#### Group Project

2025

[Repository Link](#)

- **Description:** Developed a real-time smart parking system using Computer Vision and CNN to classify parking spot availability from video feeds.
- Applied ROI-based change detection for improved computational efficiency.
- Implemented using Python, OpenCV, NumPy, TensorFlow/Keras, scikit-learn, and Matplotlib for accurate and scalable deployment.

### AI-Driven CAPTCHA Detection Model - Group Project

2024

[Repository Link](#)

- **Description:** Developed a robust CAPTCHA recognition system using CNN and RNN with TensorFlow and Keras in Python.

### Potato Disease Classification Model

2024

[Repository Link](#)

- **Description:** Developed a CNN using TensorFlow and Keras to classify potato diseases from leaf images.

### Smokers and Drinkers Predictor - Group Project

2023

[Repository Link](#) [Research Paper](#)

- **Description:** Developed a machine learning model using Logistic Regression and SVM in Python to predict individuals' smoking and drinking behavior.

## EDUCATION

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**BSc. Faculty of Engineering University of Ruhuna**, Computer Engineering (UG)  
**Hons** • 7th semester completed.

2021 – Present

**A/L Dharmaraja College, Kandy** — GCE A/L Examination (Passed)

2016 – 2018

## CERTIFICATES

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### Oracle Cloud Infrastructure 2025 Certified Data Science Professional

[Certificate Link](#)

- **Issued by:** Oracle
- **Description:** Demonstrates proficiency in developing and managing machine learning models and applying data science best practices.

### Oracle Cloud Infrastructure 2025 Certified Generative AI Professional

[Certificate Link](#)

- **Issued by:** Oracle
- **Description:** Focuses on building and deploying LLM-based solutions using OCI Generative AI, RAG, and LangChain.

### Oracle Cloud Infrastructure 2025 Certified AI Foundations Associate

[Certificate Link](#)

- **Issued by:** Oracle
- **Description:** Covers core AI and ML concepts with practical applications in Oracle Cloud Infrastructure.

## REFEREES

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### Dr. Nilmantha Wijesekara

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Faculty of Engineering, University of Ruhuna.
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