NIRU FERNANDO

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I am a passionate Computer Engineering undergraduate with a strong interest in Full stack development, machine learning, data science, and artificial intelligence. My academic background has given me a solid foundation in computer science and mathematics. Driven by curiosity, I enjoy applying emerging technologies to solve real-world problems creatively and efficiently. I am eager to gain professional experience and embark on an exciting journey to build a successful career.

EDUCATION

Faculty of Engineering, University of Sri Jayewardenepura, Sri Lanka.   **March. 2021 –Jul. 2025**

B.Sc. Engineering (Hons.) in Computer Engineering
Minor Specialization in Data Management.
GPA - 3.40/4.0

Maliyadeva College, Kurunegala, Sri Lanka.

G.C.E Advanced Level - Physical Science (2019): 1A, 2Bs   **2019**
G.C.E Ordinary Level (2015): 9As   **2015**

INDUSTRY EXPERIENCE

Software Engineering Intern at Azbow pvt Ltd   **May. 2024 - Nov. 2024**

- Developed a responsive KPI dashboard for a German project, focusing on intuitive data visualization and user experience.
- Built and maintained the back-end infrastructure, including RESTful API integration, database schema design, and data validation to ensure accuracy. And automated daily data updates through scheduled Cron jobs to maintain real-time accuracy.
- Collaborated closely with clients and team members in regular meetings to align on requirements, provide updates, and incorporate feedback.
  Tech stack - Vue.js, Google-Charts, MySQL, Laravel, PHP, Postman, Github, Gitlab

PROJECTS

Final Year Project (OccluWatch) –Vehicle Tracking with Advanced Occlusion Handling & Re-Identification   **Dec. 2024 – Jun. 2025**

- Utilized ByteTrack for robust object tracking, enhanced with TransReID and **FastReID** to reconnect vehicle identities even after full occlusion or camera transitions.
- Integrated Graph Convolutional Networks (GCN) to model spatial and temporal relations between cameras, enabling reliable multi-camera ReID in real world road networks.
- Developed an AI-powered traffic monitoring system capable of multi-CCTV vehicle tracking and detecting violations such as red light jumps, illegal lane changes, overtaking, and parking violations. Integrated automated license plate recognition and real-time notifications to violators via email.

  Tech stack - Python, OpenCV, YOLOv11, TransReid, GNN TensorFlow, PyTorch,, TrOCR, Flask, Vue.js, PostgreSQL, Zero –DCE

Predict Lend – A Banking application for loan approval and performance monitoring.   **Jan. 2024 – Mar.2025**

- A web application for calculating risks of loan approval process. Includes loan application submission, risk analysis, and credit score calculations.
- Machine Learning techniques are used for loan eligibility predictions & recommendations.
- Dashboard is implemented with filters for evaluating agents and customer segmentation, which includes filters and various types of charts for data visualization.

  Tech stack - Vue.js, Google-Charts, MySQL, Laravel, PHP, Postman, TensorFlow, Keras,, Flask, Python

Individual Research – GAN-Based Perceptual Image Compression.   **Nov.2024 – March.2022**

- Developed a low-bitrate image compression system using GANs with saliency-aware bit allocation.
- Achieved high perceptual quality using a PatchGAN-based architecture and MobileNetV2 for saliency mapping.
- Optimized performance through a custom loss function combining adversarial, perceptual, and rate-distortion components.
- Outperformed traditional methods (e.g., JPEG) in MS-SSIM and LPIPS metrics, enabling real-time, resource-efficient deployment.

  Tech stack - Tensorflow, Python, GANs, VGG19, MobileNetV2

Autonomous Multi-Agent AI System   **Jul. 2025 - Present**

- Multi-agent autonomous AI system with autonomous collaboration and task handling.
- Integrating LLMs (GPT-4, LLaMA), vector search (FAISS), and RAG for intelligent context-aware retrieval.

- Enabling agents to autonomously browse, retrieve data, summarize findings, and issue alerts.
- Developing memory, planning, and alerting systems and deploying with backend logic and UI.

Tech stack - Python, GPT-4, LLaMA, FAISS, Gradio

Multi-Agent Conversation System with LangGraph   **Jul. 2025 - Present**
- Designing a LangGraph powered multi-agent system enabling structured, multi-step conversations with memory and state persistence across turns.
- Implementing looping agent workflows that could revisit previous steps, adjust plans, and continue interactions autonomously.
- Integrating memory enabled tools that agents could invoke dynamically within the LangGraph.
- Handling state transitions and edge conditions using custom logic to manage complex, branching agent behaviors.

Tech stack - Python, LangGraph, LangChain, OpenAI API, ChromaDB, Jupyter Notebook.

inPath - Learning Management System.   **Jan. 2023 - May 2023**
- Web application for students and lecturers to manage student exams efficiently, along with QR code for updating attendance seamlessly within the application.
- Machine Learning is utilized to analyze past student's results and recommendations are done for choosing the suitable field of study.

Tech stack - HTML, CSS, JavaScript, NodeJS, MongoDB Atlas Cluster, Python

TECHNICAL SKILLS

- Programming Languages - C++ | C# | SQL | PHP | JavaScript | Python
- Databases – MongoDB | MySQL
- Libraries and Frameworks - Pandas | NumPy | Scikit-learn | Matplotlib | OpenCV | Tensorflow | Keras | LLMs | Vue.js | Laravel | LangChain | Transformers (Hugging Face) | OpenAI | GenAI
- Tools & Services: Git | Github | Gitlab | PyCharm | VS Code | Postman | Visual Studio | Jupyter | Google Colab | Cisco Packet Tracer | Weka | Unity | IntelliJ IDEA | Jupyter Notebook | OpenAI API | Hugging Face Hub | Ollama | Modal | Conda
- Technical Fields: Software/Full-Stack Development | Machine Learning | Computer Vision | Data Management | Deep Learning | Natural Language Processing | Neural Networks | LLM | RAG

LEADERSHIP EXPERIENCES

- Junior Treasurer Computer Engineering Society (Censco)   2023 - 2024
- Social Media Team Leader -ENIGMA Exhibition   Jan.2024 - March.2024
- Public & Relations Team - Project Thaprobane   2024 - Present
- Director - Interact Club Maliyadeva College   2017 - 2018

ACHIEVEMENTS

- 2016 Best Offensive player, football under 15- Colors Night
- 2013 All island fourth place - Football
- 2011 - 2017 Football provincial Champions
- 2009 - 2011 School chess team

CERTIFICATIONS

- LLM Engineering: Master AI, Large Language Models & Agents - Ligency Team , Ed Donner
- Introduction to Machine Learning Tensorflow for deep learning bootcamp - Andrei Neagoie, Daniel (Following)
- Machine Learning in Production – DeepLearning.AI on Coursera (Following)

REFERENCES

Dr. Udaya Wijenayake
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