

VIMAL RAJAN B

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SUMMARY

- With over three years of experience as an AI engineer, I have expertise in developing machine learning models, NLP and LLM models such as LangChain, OpenAI, Gemini Pro, LLama, etc. I have proven experience in implementing AI algorithms for LRT Railway system projects in Malaysia. As a published researcher, I possess strong problem-solving skills, a focus on enhancing efficiency and scalability in AI solutions.

WORK HISTORY

Special Graduate Technical Assistant Universiti Putra Malaysia Feb 2023 - Present (Selangor, Malaysia)

- **Algorithm Development:** Designed, developed, and tested a robust DDL algorithm for the protection system in Light Rapid Train (LRT) railways in Malaysia. This involved using various machine learning techniques, LLM Models such as OpenAI, Llama-3.1 to enhance the algorithm's accuracy and reliability, improving safety and efficiency in railway operations.
- **Machine Learning Models:** Developed and implemented various machine learning models for predictive analytics in transportation systems. Utilized frameworks such as TensorFlow and PyTorch to train models on large datasets, achieving significant improvements in prediction accuracy and computational efficiency.
- **LLM's:** Utilized LLM models, including LangChain, OpenAI Gemini Pro, to build predictive and conversational AI models. These were applied in the transportation system in capturing and real-time response systems and minimizing downtime.
- **NLP and Text Processing:** Applied advanced NLP techniques such as lemmatization, stemming, and TF-IDF for data preprocessing and analysis. Used LLMs like GPT-3 and Llama-3.1 to automate report generation and streamline document analysis in ongoing transportation projects.
- **Collaboration and Integration:** Developed CI/CD pipelines using Jenkins and GitLab to automate model training, testing, and deployment processes, ensuring seamless integration into existing systems.
- **Cloud Infrastructure:** Engineered and managed cloud infrastructure on AWS and Azure, emphasizing scalable, reliable, and secure environments for AI and ML workloads. Utilized services such as EC2, S3, Lambda, and Azure Machine Learning to support model deployment and inference processes.
- **Research and Innovation:** Published findings in academic journals and presented at international conferences to share insights and advancements with the broader research community.

TechSlack: LLM models, ML Algorithms, NLP, Python, AWS.

Custom Software Engineering Associate Accenture India May 2021 - Jan 2023 (Chennai, India)

- **AI Model Development and Implementation:** Assisted in the design, development, and deployment of machine learning models such as Random Forest, KNN, etc.
- **Data Preprocessing:** Cleaned datasets from various sources to prepare for model training. Applied data preprocessing techniques such as normalization, standardization, and feature engineering to improve model performance.
- **Algorithm Optimization:** Contributed to the selection and fine-tuning of appropriate AI/ML algorithms based on project requirements. Used techniques such as hyperparameter tuning, cross-validation, and regularization to enhance the accuracy and efficiency of models.
- **Assisted in evaluating AI models** using metrics such as accuracy, precision, recall, F1 score, AUC-ROC, etc. Identified overfitting or underfitting issues and suggested improvements to enhance generalization of the models.
- **Collaborated with senior engineers** to train, test, and evaluate machine learning algorithms on large datasets, focusing on optimizing model accuracy and performance.

TechSlack: ML Algorithms, Data Preprocessing, Model Development, Azure

EDUCATION

Master of Science - Electrical Engineering (By Research - AI)
Universiti Putra Malaysia , Malaysia

Feb 2023 - Jul 2024 (Selangor, Malaysia)

Bachelors of Engineering - Electronics and Instrumentation
Anna University , India (*University Rank Holder*)

Aug 2017 - Apr 2021 (Chennai, India)

SKILLS

- LLM Models - OpenAI, Llama, Gemini Pro, Hugging Face
- Vector database & NLP - BOW, word2vec, lemmatization, stemming, stopwords, TF-IDF, etc.
- Intermediate to Advanced Python & its libraries like tensorflow, pandas, Scikit-Learn, etc.
- CI/CD tools - Jenkins, Gitlab, Azure DevOps
- Cloud - Azure Functions, AWS
- Visualization tool - Tableau

PORTFOLIO PROJECTS

Q&A chatbot application using Google's LLM model [Link to Q&A LLM-ChatBot App](#)

- Developed a Q&A chatbot using Google's Gemini-Pro LLM model emphasizing the accurate responses to prompts.

Paragraph Generator using LLM-Llama model [Link to Paragraph Generator using Meta's-LLM model](#)

- Utilized Meta's Llama-2 LLM model for blog article generation for different use cases.

Stock Market Prediction using Reinforcement Learning [Link to Stock Market Prediction Notebook](#)

- Trying out reinforcement agents to forecast the share values of three companies.

CERTIFICATIONS

United States AI Institute (USAII) Certified AI Scientist (CAIS™) [Link to USAII Certificate Verification](#)

Microsoft Certified: Azure Administrator (AZ104) [Credly Link to validate Azure Certification](#)

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- Copyright - '*Improved Overcurrent Protection for Rapid Rail DC Traction System*', Published by MyIPO, Malaysia, Application No: LY2024W05250 [Link to Copyright Application](#)
- Bharatha Kumar, V. R., Othman. M. L., Abdul Wahab, N. I., Hizam, H., N. *Adaptive DDL Algorithm to Elucidate the Protection Misoperation in Malaysian Rapid Rail DC Traction System*. IEEE Access, 12, pp. 10995 - 11009, 2024. (Q2, IF=3.9, Published)
- Bharatha Kumar, V. R., Othman. M. L., Abdul Wahab, N. I., Hizam, H., *The Modified Line-Fault Algorithm to Unravel the Protection Failure in the DC Rapid Rail Traction System* 5th International Conference on Power and Embedded Drive Control, SSN College of Engineering, India, January 2024
- Presenter at a Conference on *AI in power system Applications*, Universiti Putra Malaysia, Malaysia, Jun 2023
- Coordinator at *UK-MY AI Conference*, Malaysia, Oct 2023