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EXPERIENCE

Applied Machine Learning Researcher - C2 Research Lab [🔗](#) **Jan 2023 - Present**
California, USA

Technologies Used: Pytorch, RAG, LangChain, Transformers, Gen AI LLMs, GCP

- Investigated ICL and Instruction **fine-tuning** of open & closed source LLMs & Multimodal models in few-shot learning for harm detection in video platforms like Youtube etc., achieving **30%** higher accuracy compared to **SOTA LLMs**
- Engineered **NLP4GOV** [🔗](#), an advanced open-source **NLP based search and retrieval library** for long document retrieval reducing document search time by **60%** and enhancing precision by **25%** compared to traditional methods

Lead Machine Learning Engineer- EvaluAItor [🔗](#) **Nov 2023 - Jan 2024**
California, USA

Technologies Used: Python, RAG, LangChain, GCP, Vertex AI, node.js, prompt engineering

- Developed **virtual interviewer AI agents** with **RAG & LLMs** using **LangChain**, and the **OpenAI API**, enhancing the conversational capabilities for video interviews and improving accuracy by **50%**
- Optimized **NLU** by LLM fine-tuning and prompt engineering, leading to a **20%** increase in **ROUGE** score

Machine Learning Engineer - PepsiCo [🔗](#) **Jan 2021 - Sep 2022**
Hyderabad, India

Technologies Used: TensorFlow, FastAPI, Streamlit, Azure, Docker, Kubernetes, Hadoop

- Led the development of **Precision-Agro SaaS ML** application to evaluate potato plant health, addressing inefficiencies in manual assessment through multimodal text and image recognition, resulting in a **35%** increase in crop yield
- Built a **data-driven recommendation system** using **ML** models, enhancing overall Gross Margin by **15%**
- Developed an Azure-based app for field workers to input potato leaf images, reducing Time to Conversion by **40%**

Machine Learning Engineer - Innoviti Payment Solutions [🔗](#) **Jul 2020 - Dec 2020**
Bengaluru, India

Technologies Used: Python, EDA, Predictive Models, Recommendation Systems, ML

- Utilized Exploratory Data Analysis(**EDA**) for feature engineering, **predictive modeling** and **time series forecasting** to estimate future merchant trends, optimizing merchant selection and improving retrieval algorithms efficiency
- Leveraged ML insights on merchant preferences, enabling tailored offerings and increasing **customer retention** by **35%**

PROJECTS

HanumaGPT - A completely optimized PEFT fine-tuned nanoGPT [🔗](#) | *Pytorch, QA-SQuAD* **Mar 2024 - Jun 2024**

- Enhanced **nanoGPT** architecture by **PEFT fine-tuning**, reducing key and query vector sizes, implementing sliding window attention, multihost training with **15%** improvement in **generation efficiency** compared to **SOTA LLMs**
- Modified MLP layers achieving a **12%** loss reduction by element-wise product, outperforming similar SOTA models
- Experimented with alternative Softmax approximations leading to a **20%** reduction in computational complexity

BnBGenie: Unlocking Airbnb with EDA & ML Insights [🔗](#) | *EDA, ML, Analytics* **Mar 2024 - Jun 2024**

- Conducted EDA on **38,000+** Airbnb listings, identifying key factors like room types and amenities affecting appeal
- Applied ML models- XGBoost, Random Forest etc., to predict optimal pricing strategies, using **R-squared** metrics
- Performed sentiment analysis on guest reviews and time series analysis of demand trends, providing actionable insights for both hosts and tourists regarding listing features and pricing dynamics

Aletheia - Hindi Fake News Detection System [🔗](#) | *Python, NLP, React, Flask* **Jun 2019 - May 2021**

- Curated a dataset of 15,000 Hindi news articles, applied **Word2vec** and **TF-IDF** for feature extraction, and trained models including **Logistic Regression**, and **Deep Neural Networks** for Fake News Detection in Hindi Language
- Developed a responsive web application using **React.js** and **Flask**, featuring user authentication, input forms, interactive result display, and integrated visualizations to enhance user experience

PUBLICATIONS

- **“Few Shots, Big Impact: Improved Social Media Moderation with LLMs”** in **ACL ARR 2024 - Under Review**
- **“NLP4Gov: A Comprehensive Search & Retrieval Library for Computational Policy Analysis.”** In **CHI, 2024** [🔗](#)
- **“Aletheia:FakeNews Detection System for Hindi.”** In **ACM IKDD CODS COMAD, 2022** [🔗](#) (Best Paper Award)
- **“Learnings from Attempt to Build NLP Fake News Classification system for Hindi.”** In **ACM SIGCAS, 2021** [🔗](#)

EDUCATION

University of California, Davis **Sep 2022 - Present**
Davis, California

PhD in Computer Science

- Coursework: Machine Learning, Advanced Deep Learning, NLP, Web & Data Analytics, Distributed Databases

Birla Institute of Technology and Science, Pilani (BITS PILANI) **Aug 2017 - May 2021**
Hyderabad, India

Bachelor of Engineering in Electronics and Communication

- Coursework: Data Structures & Algorithms, OOP, Operating Systems, Statistics, AI, HCI, Stochastic Optimization

TECHNICAL SKILLS

Languages: Python, C, C++, Java, SQL, Javascript, R, HTML

Technologies: Git, Linux, FastAPI, AI Agent Builder, GCP, Elasticsearch, Kubernetes, Docker, Swagger, Postman

SWE, ML Tools: Tensorflow, Pytorch, PySpark, OpenCV, NLTK, RAG, LangChain, HuggingFace, LLMs, Transformers, Spark, Scikit-learn, numpy, pandas, seaborn, matplotlib, Github actions - CI/CD, Flask, React, RESTful API, PostgreSQL