Avijeet Ranawat

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Professional with 5 years of work experience in Machine Learning, Data Science & Generative AI

Education

Masters in Computer Science, Georgia Institute of Technology | Atlanta, USA 2021-24

Bachelors in Computer Science Engineering, Rajiv Gandhi Proudyogiki Vishwavidyalaya | Indore, India 2014-18

Courses: Algorithms & Data Structures | Artificial Intelligence | Machine Learning | Deep Learning | Computer Vision | Large Language Models | Big Data Health | AI Robotics | ML Trading | Natural Language Processing | Scientific ML | Management for Engineers

Extra Curricular Activities: Member @ Buzz Studios | Volunteer @ Georgia Space Consortium | Organizer @ HackGT

Experience

Fractal Analytics, Data Scientist Nov 2021 - Jul 2023

- **Insights Generation:**
  - Objective: Develop an unsupervised ML model to identify patterns in billions of search data entries.
  - Approach:
    - Employed Python and PyTorch for modeling, using Transformer embeddings for data vectorization.
    - Deployed the model in Docker containers, MLOps distribution with Kubernetes, infrastructure on GCP.
    - Optimized data engineering tasks utilizing SQL and BigQuery. Along with robust system design.
  - Outcome: Enabled a 80% improvement in insight generation for the marketing team.
- **Causal Impact Analysis:**
  - Objective: Employ A/B testing framework to analyze the causal impact on business revenue.
  - Approach:
    - Conducted ETL and data preprocessing with Numpy, Pandas, and Spark.
    - Applied statistical methods like hypothesis testing and T-tests, comparing test and control groups.
    - Visualized results using Matplotlib and developed dashboards in PowerBI and Tableau.
  - Outcome: Enabled clients to strategically reduce costs by 25%.

Tata Consultancy Services, ML Engineer Jul 2018 - Oct 2021

- **Query Categorization:**
  - Objective: Develop a supervised ML model for issue categorization.
  - Approach:
    - Utilized Sklearn, SpaCy, and NLTK to build a custom NLP entity recognizer.
    - Enhanced the model with Random Forest for feature engineering and selection, integrated into an end-to-end ML pipeline.
    - Deployed on Azure, providing the model as a scalable API service.
  - Outcome: Achieved a 50% improvement in inference of customer issues.

Projects

GPTLens (AI in Finance)
- Objective: Develop a RAG model, fine-tuned on a vulnerability dataset.
- Approach: Utilized OpenAI GPT with LangChain, deployed on HuggingFace Spaces.
- Outcome: Improved vulnerability detection with enhanced accuracy and context awareness using Chain of Thoughts.

StrategAI (AI in Sports)
- Objective: Develop an LLM using open-source Llama models and LlamaIndex.
- Approach: Implemented Vector Database; utilized LangServe and LangSmith for deployment and monitoring of LLM models.
- Outcome: Enhanced dynamic strategy planning capabilities through GenAI.

Hateful Memes Detection (AI in Media)
- Objective: Develop a multimodal BERT model to analyze combined embeddings of images and text.
- Approach: Utilized PyTorch and the MMF framework to implement transfer learning and parallel processing on GPUs.
- Outcome: Created a deep learning model capable of detecting hateful memes.

Skills

Programming	Python, SQL, PyTorch, TensorFlow, JAX, Java, C/C++
Machine Learning	Linear Regression, Logistic Regression, Decision Trees, Random Forest, XGBoost, Naive Bayes, SVM, Clustering
Deep Learning	Neural Network, RNN, LSTM, Transformers, CNN, GAN, Reinforcement Learning, AutoML, Model Interpretability
NLP Tech	LLM, Generative AI, HuggingFace, LangChain, Transfer learning, RAG, RLHF, NLU, NLG
Big Data	Hadoop, Spark, Kafka, Hive, BigQuery, NoSQL, Airflow, Databricks, Snowflake
Data Bases	MySQL, Vector DB, Mongo DB, Redis, Cassandra, Neo4j, Elasticsearch
Cloud Platforms	AWS, GCP, Azure, S3, EC2, RDS, Lambda, SageMaker, GPU
Development	Jupyter Notebook, Colab, Anaconda, VS Code, MLOps, CI/CD Pipelines, Git, Docker, Kubernetes, MLflow
Statistics	Bayesian Inference, Hypothesis Testing, T-tests, Probability Theory
Research	Research Papers, Technical Blogging, Publications, Peer Review, Conferences, Journals, LaTex
Soft Skills	Excellent Communication, Presentation, Teamwork, Critical Thinking, Open Source Contributions