MALATHI

US Citizen - Bay Area CA · Malathi.kaliappan11@gmail.com · 925-699-5473 ·
https://www.linkedin.com/in/malathi-kaliappan014/

EXPERIENCE

Pryon   San Francisco, CA
Senior Machine Learning Engineer   January 2024 - Present

- Created AI assistants using Retrieval-Augmented Generation (RAG) with LangChain/LlamaIndex, utilizing vector databases, embedding models, sentence transformers, tokenization, and multiple knowledge sources for efficient information retrieval and processing.
- Implemented a multi-agent system using Agentic AI with AutoGen, enabling multiple models to interact and collaborate for complex task automation, improving decision-making and optimizing workflows.
- Implemented LangChain for prompt templating, memory, context handling, and task chaining, optimizing LLM-based workflows.
- built interactive interfaces using Streamlit/React with FastAPI for seamless API integration and front-end interaction.
- Leveraged VectorDB for embeddings and integrated HuggingFace models to enhance the accuracy and speed of data retrieval.
- Conducted testing for retrieval and response evaluation using advanced metrics like BLEU, ROUGE, and retrieval precision to ensure the accuracy and effectiveness of AI-driven solutions.
- Applied advanced NLP techniques such as summarization, classification, and sentiment analysis using NLTK and spaCy, in conjunction with LLMs and LangChain for effective task automation and chaining.
- Established monitoring and logging systems for deployed models, ensuring real-time performance tracking and facilitating timely updates and troubleshooting.
- Deployed and optimized models on AWS Bedrock, utilizing its managed service to efficiently build and scale generative AI applications.
- Fine-tuned large language models (LLMs) with domain-specific datasets to optimize AI assistance, ensuring high accuracy and relevance in conversations.
- Optimized model deployment across cloud platforms, ensuring seamless integration with existing business processes.
- Implemented large-scale infrastructure solutions using EKS for container orchestration and Git for CI/CD pipeline management.
- Used Python libraries like Pydantic, FastAPI, and Pytest for developing applications, validating data, and automating testing.

Bank of the West   San Ramon, CA
Machine Learning Engineer   July 2021 - December 2023

- Developed and deployed machine learning models using Python and PyTorch, implementing algorithms for predictive analytics, classification, and recommendation systems to enhance user experiences.
- Designed and trained complex neural networks in PyTorch, leveraging its dynamic computation for efficient model building
- Collaborated on multiple projects utilizing PyTorch for developing end-to-end machine learning pipelines, from data preprocessing to model training and deployment, ensuring scalable and efficient solutions.
- Tested and evaluated models using Python frameworks, including scikit-learn for performance metrics and validation techniques, ensuring robust model accuracy and reliability.
- Implemented MLOps using Docker and AWS SageMaker, streamlining model deployment, version control, and continuous integration for efficient production workflows.
- Worked with cloud services like AWS SageMaker to automate the end-to-end ML workflow, including training, deployment, and model tuning.
- Deployed models on AWS and utilized monitoring tools to track performance, ensuring minimal downtime and consistent service delivery

- Implement CI/CD pipelines for data engineering and machine learning projects to automate testing, deployment, and monitoring.Ensure seamless integration of new data and model updates into production environments.

- Built data pipelines using pandas, NumPy, and scikit-learn for data preprocessing, feature engineering, and model training, enhancing data transformation speed by 20%.

- Facilitated knowledge sharing and collaboration across teams to enhance overall data and machine learning practices, incorporating both Python-based and SQL-based solutions.

- Optimize data processing and machine learning workflows to improve performance and reduce costs.Use profiling tools to identify bottlenecks and implement optimizations.

Bank of the West San Ramon, CA
Senior Data Analyst June 2018 - June 2021

- Conduct in-depth data analysis using advanced statistical methods and machine learning algorithms to uncover actionable insights and drive strategic decision-making.

- Lead the development and implementation of data strategies to support business objectives, including data collection, integration, storage, and analysis.

- Oversee data analysis projects from inception to completion, ensuring timely delivery of high-quality results that meet business requirements.

- Design, build, and optimise complex data pipelines using SQL, Python, Apache Airflow, and other tools to ensure efficient and accurate data flow across the organisation.

- Manage and maintain data warehouses using technologies such as Amazon Redshift, Snowflake, and Google BigQuery, ensuring scalable and reliable data storage.

- Create and maintain advanced dashboards and reports using tools like Tableau providing stakeholders with clear and actionable insights.

- Collaborate with cross-functional teams, including product, engineering, marketing, and finance, to understand data needs and deliver tailored analytical solutions.

- Implement and enforce data governance policies and procedures to ensure data quality, security, and compliance with industry standards and regulations.

- Develop predictive models and perform scenario analysis to forecast key business metrics and support strategic planning.

- Establish performance metrics and monitoring systems to continuously evaluate and improve the effectiveness of data-driven initiatives.

- Mentor and train junior analysts and team members, fostering a culture of continuous learning and development within the data team.

- Evaluate and recommend new data tools and technologies to enhance the efficiency and effectiveness of data analysis processes.

- Design and implement business intelligence solutions to support data-driven decision-making across the organisation.

- Integrate data from diverse sources, including internal databases, third-party APIs, and cloud services, to create a unified data ecosystem.

- Analyse data infrastructure costs and implement strategies to optimise spending while maintaining high performance and scalability

Merck Rahway, New Jersey
Data Analyst January 2017 - May 2018

- Created interactive and insightful dashboards using Tableau and Power BI, enabling stakeholders to easily interpret data trends and make informed decisions.

- Conducted statistical analysis using Python (NumPy, Pandas, SciPy) to identify significant data patterns and trends, providing actionable insights for business strategy

- Developed predictive models using machine learning algorithms such as regression, classification, and clustering to forecast key business metrics and optimise operations.

- Implemented data validation and cleansing processes to ensure data accuracy and reliability, reducing data-related errors by 25%

- Conducted customer segmentation analysis using k-means clustering and other techniques to improve marketing strategies and enhance customer targeting.

- Designed and executed A/B tests to evaluate the impact of changes to products and marketing campaigns, leveraging statistical significance testing to guide decision-making.

- Established data governance frameworks and best practices to ensure data integrity, security, and compliance with industry regulations

- Set up monitoring and alerting systems to track the performance of data pipelines and quickly address any issues, ensuring minimal downtime.

- Integrated data from various sources including CRM systems, web analytics tools, and third-party APIs to provide a comprehensive view of business operations.

- Worked closely with cross-functional teams, including product managers, engineers, and business analysts, to define data requirements and deliver insights that drive business growth.

TECHNICAL SKILLS

Programming Languages:	Python, SQL
ML Frameworks/Libraries:	Pytorch, Huggingface, MLFlow, Tensorflow, Keras
Cloud Platforms:	AWS Bedrock, AWS Sagemaker
Data Processing and Analysis:	Numpy, Pandas, Spark, Databricks
Natural Language Processing (NLP):	NLP, Pytorch, Huggingface
Web Development and Deployment:	Streamlit, FASTAPI, Docker, Kubernetes
Other Tools and Technologies:	LangChain/LlamaIndex, RAG, Gen AI, LLM, Vector DB