SATVIKA EDA

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Education

Northeastern University — Boston, MA
Master of Science (MS) - Artificial Intelligence — 09/2023 - Present

- Foundations of AI, Design Paradigms, Natural Language Processing, Algorithms, Machine Learning, Pattern Recognition & Computer Vision, AIHCI

G. Narayanamma Institute of Technology & Science — Hyderabad, India
Bachelors of Technology - Computer Science — 08/2017 - 06/2021

Experience

Dassault Systèmes — Boston, United States
ML Engineer Intern — 08/2024 - 12/2024

- Created a Task Decomposition System based on agent workflows using LangChain and Langgraph for project management, enhancing project management efficiency by almost 30% and reducing manual intervention
- Developed and deployed a chatbot system that leverages Langgraph Agents to dynamically route REST API-based user queries to the appropriate agents, thereby streamlining and automating project planning processes within the firm

JP Morgan Chase & Co — Hyderabad, India
Software Engineer — 08/2021 - 07/2023

- Innovated by crafting recipes that seamlessly automate JDK upgrades, thereby contributing to the esteemed 'Open Rewrite' open-source software development for over 100 products with 90% of upgrade automated in the firm
- Spearheaded the design, development workflow and publication of AWS proof-of-concept applications in data centers, and shared valuable knowledge for more than 500 product teams along with documentation
- Launched a JDK automation tool also integrated in the pipeline to facilitate stable version migrations used by over 45 products
- Engineered AWS projects such as S3 utility, providing comprehensive reporting on bucket and object information, benefiting approximately 470 products

JP Morgan Chase & Co — Hyderabad, India
Software Engineer Intern — 03/2021 - 07/2021

- Deployment of 10+ Java-based microservices with database on company's private cloud with unit testing with functional and business requirements
- Conceptualised and implemented a suite of utilities, such as Light Switch with shell scripting languages, aimed at driving cost reduction and preserving optimal efficiency within production environments employed by all 5 lines of business

Projects

Stroke-Based and Free-Form Image Colorization — 03/2025 - 04/2025

- Developed an end-to-end image colorization pipeline using free-form and stroke-based techniques across grayscale images
- Built and compared models including Autoencoder, U-Net, Hybrid ResNet18-UNet, GAN, and Stable Diffusion v1.5 for free-form colorization
- Designed a custom stroke-generation dataset and trained a U-Net with ResNet34 encoder to perform stroke-guided colorization. Integrated ControlNet with Stable Diffusion for generative stroke-based colorization, and evaluated limitations with hallucinated outputs

Multi Agent Code Development Team — 01/2025 - 04/2025

- Created a modular multi-agent system for code generation using specialized LLMs (Planner, Chain-of-Thought, Developer, Debugger, and Explainer)
- Fine-tuned Qwen2.5-0.5B models using teacher-student transfer learning from Qwen2.5-7B models to balance efficiency with performance
- Integrated RLHF and RLAIF using a custom reward model and PPO to improve code quality, readability, and debugging effectiveness. Built UI to collect user feedback and deliver structured agent responses for programming tasks

RAG based Chatbot for Document Querying using LangChain and Streamlit — 06/2024 - 06/2024

- Deployed LangChain for PDF data extraction; harnessed OpenAIEmbeddings and ChromaDB to develop embeddings, increasing data retrieval speed by 45%
- Identified most relevant chunks from vector store using machine learning algorithms and similarity search. Employed Streamlit library for user interaction platforms, and used Gen AI GPT-4 to refine responses and display to user

Accelerated Web Development via LLM Fine-Tuning and Prompt Engineering — 02/2024 - 04/2024

- Fine-tuned and trained on large language model with web-crawled datasets to produce personalized web pages, reduced development time and increased user retention by 15% through optimized prompts and algorithms
- Modeled on Falcon, Meta's Llama, and CodeLlama LLMs using A100 GPU cluster with CUDA architecture optimization; achieved 30% faster analysis and precise HTML/CSS output for web development

Skills

Python · Java · C++ · SQL · HTML · CSS · Javascript · React · AI · ML · Deep Learning · REST API · RL · Data Science · AWS · LLM · Kubernetes · Docker · CI/CD · PyTorch · Jenkins · Tensorflow · Keras · Scikit-Learn · Numpy · MySQL · MatplotLib · Pandas · Neural Networks · RDS · Scipy · Cloud computing · API · Github · Supervised learning · NLP · Terraform · Data Structures · Jira · IntelliJ · VSCode · Postman · SUMO · Git · Statistics · LangGraph · LangChain · ChromaDB · Transformers · XGBoost · Jupyter · MLOps

Achievements

Granted PATENT for Smart SDK upgrade (Application no: 17/456,970) at JP Morgan Chase