SATVIKA EDA

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Experience

Dassault Systèmes **Aug 2024 - Dec 2024**
ML Engineer Intern *Boston, United States*

- Designed and deployed an AI-driven chatbot leveraging LangGraph Agents to dynamically route REST API queries, automating 80% of project planning workflows and improving operational scalability
- Built a multi-agent routing framework with an entry-point agent that interprets user intent and delegates tasks to specialized downstream agents, achieving 95% routing accuracy and end-to-end autonomous query handling
- Engineered a Task Decomposition System using LangChain and LangGraph, improving project management efficiency by 30% and reducing manual workload by 40% through advanced multi-agent orchestration

JPMorgan Chase & Co. **Aug 2021 - Jul 2023**
Software Engineer *Hyderabad, India*

- Granted PATENT for 'System and method for implementing a platform and language-agnostic smart SDK upgrade module' with patent number: 12223309
- 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

JPMorgan Chase & Co. **Mar 2021 - Jul 2021**
Software Engineer Intern *Hyderabad, India*

- Deployment of 10+ scalable Java microservices with database on company's private cloud infrastructure 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 **Mar 2025 - Apr 2025**

- Developed an end-to-end image colorization pipeline using free-form and stroke-based techniques across grayscale images, incorporating feature engineering
- Modeled 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 features in outputs

Multi Agent Code Development Team **Jan 2025 - Apr 2025**

- Engineered a modular multi-agent system for code generation using specialized LLMs (Planner, Chain-of-Thought, Developer, Debugger, and Explainer).
- Implemented teacher-student transfer learning to fine-tune Qwen2.5-0.5B models from Qwen2.5-7B, balancing efficiency with performance.
- Integrated RLHF and RLAIF using a custom reward model and PPO to improve code quality, readability, and debugging effectiveness. Designed a UI to collect user feedback and deliver structured agent responses, embedding best practices for collaborative AI-assisted development.

RAG-based Chatbot for Document Querying using LangChain and Streamlit **Jun 2024**

- Deployed LangChain for PDF data extraction; using OpenAI Embeddings and ChromaDB to create embeddings, increasing data retrieval speed by 45%
- Identified most relevant chunks from vector store by building 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 **Feb 2024 - Apr 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 optimization techniques
- Remodeled 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

Education

Northeastern University **Sep 2023 - Dec 2025**
Master of Science (MS), Artificial Intelligence

- **Coursework:** Foundations of AI, Design Paradigms, Natural Language Processing, Algorithms, Machine Learning, Pattern Recognition & Computer Vision, AIHCI, Data Mining

G Narayanamma Institute of Technology and Sciences **Aug 2017 - Jun 2021**
Bachelors of Technology, Computer Science

Skills

- **Programming Language**: Python, Java, C++, SQL, HTML, CSS, JavaScript, MySQL
- **Artificial Intelligence & Machine Learning**: Machine Learning, Deep Learning, Reinforcement Learning, NLP, Neural Networks, Supervised Learning, Transformers, Statistical Modeling, LLMs, LangChain, LangGraph, ChromaDB, Data Science, Analytics, Statistics
- **Frameworks & Libraries**: React, Tensorflow, PyTorch, Keras, Scikit-learn, NumPy, Pandas, Matplotlib, SciPy, XGBoost
- **Cloud, Databases & DevOps**: AWS, AWS SageMaker, AWS Bedrock, Google Kubernetes, Docker, CI/CD, Jenkins, Terraform, RDS, MLOps, Linux, MySQL
- **Software Dev Tools**: REST API Development, Data Structures, FASTAPI, API Design, Design Patterns, OOP, Git, GitHub, Jira, Windsurf, Jupyter, Postman, IntelliJ, VSCode, Vertex AI