SARAVANAN K

Senior Software Engineer

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ABOUT

Aspiring Senior Software Engineer with deep expertise in Data Science, AI, Machine Learning, and Generative AI, focused on creating high-impact, forward-thinking solutions. Dedicated to advancing technical excellence and cultivating meaningful collaborations, I bring a passion for innovation and continuous learning to every project. I thrive in fast-paced environments where new technology and clear strategy lead to significant results.

PROFESSIONAL EXPERIENCE

Mobius Knowledge Services   **March 2024 - Present**

Senior Software Engineer

1. Excel Process Automation:

  - Developed and deployed a Streamlit application to automate Excel processes, using Python to transform unstructured data into structured formats. Users can handle multiple Excel files and customize columns.

  - Integrated Mistral 7b and DeepSeek models for enhanced data extraction accuracy based on user queries, streamlining manipulation and extraction tasks from Excel dataframes.

2. Automated Conference Call Insights:

  - Created a Streamlit application utilizing advanced LLM models like Mistral, OpenAI, and LLaMA to analyze and visualize board meeting call transcripts.

  - This tool generates insightful visual plots and identifies critical discussion points. Implemented Retrieval-Augmented Generation (RAG) for deeper insight extraction, improving decision-making.

3.AI Based Knowledge Management Product:

  -Developed a fully on-premises AI-powered application for structured and unstructured data, supporting various databases and offering advanced search, knowledge management, and LLM-driven workflows. Key features include visual document generation, project management, admin roles, vector database options, full customization, and license management.

Role and Responsibilities:

- Led backend development, integrating LLMs for document generation and guided workflows, including testing and deploying pretrained models on on-prem servers to drive AI functionalities.

- Integrated Postgres for secure user and application management, ensuring a scalable backend architecture with vector database support, enabling advanced search and knowledge management capabilities.

- Collaborated with front-end teams to ensure seamless Angular integration.

- Managed debugging, testing, and performance optimization, ensuring high reliability and stability of the application.

- Implemented license management and optimized the app for full on-prem deployment, including LLM setup.

4.AI-Powered Guided Document Generation for Stock Analysis:

   -Developed an AI-based product that leverages historical stock documents to generate guided, context-specific reports for leading stock prediction organizations. The system analyzes past data to create tailored reports based on specific client requirements, improving the efficiency and accuracy of stock predictions.

Role and Responsibilities:

- Led backend development, including data analysis and integration of AI models for document generation.
- Built a proof of concept (PoC) and conducted successful demos, receiving positive feedback from clients.
- Scaled the PoC into a full-fledged product, incorporating OpenAI for natural language generation and ensuring the solution met industry-specific needs.

Prodapt Solutions Pvt Ltd   Feb 2022 - March 2024
Associate Software Engineer

1. AI-Driven Automation for Visual Testing:

   - Spearheaded AI-driven automated visual testing using NLP, expert recommendation, and Computer Vision.
   - Efficiently uncovered critical visual bugs and UI changes.

2. Explainable AI:

   - Developed a proof of concept for an AI Scorecard to enhance transparency and reliability of the AI pipeline, evaluating dimensions like explainability, fairness, privacy, and model performance.

3. AI-Driven Network Diagram Audit:

   - Implemented a project using Keras/TensorFlow and Yolo algorithms for confidential image processing.
   - Optimized model performance and monitored using TensorFlow board.

4. Machine Learning Platform:

   - Developed a comprehensive machine learning platform with modules for data upload, exploratory data analysis (EDA), model building, and more, streamlining the ML workflow. Dockerized the application with 9 containers and hosted using Jenkins for efficient CI/CD.

5. Intent Prediction (Order Fallout):

   - Constructed Few-Shot Classification intent prediction model using Hugging Face.
   - Integrated into RPA bot automation system, reducing failure rate by 30 to 40%.

6. Contract Management Application:

   - Designed and developed a contract viewing application with NLP-driven semantic search and content summarisation, managed ongoing maintenance, and migrated to Azure OpenAI, enhancing contract management efficiency.

7. IBM Codenet Masked Language Model:

   - Developed a proof of concept for a Masked Language Model for Project CodeNet using Keras TextVectorization and a BERT-like model, improving code understanding and generation capabilities.

8. Workflow Automation:

 - Led automation process for parsing Swagger documentation and generating workflow calls.
 - Implemented across various internal teams for Networks, Tools, and IT.

9. Enterprise Knowledge Base and RAG Enhancement

- Implemented Retrieval-Augmented Generation (RAG) for factual retrieval, leveraging Langchain, OpenSearch Vector Database, and Azure OpenAI. This enhancement improved efficiency and optimized the application across 15 deliverable units, resulting in a 90% improvement in search capabilities.

- Developed a vector database across all SynaptGDK RAG applications, utilizing OpenSearch for superior performance. This implementation significantly enhanced data retrieval speed and accuracy.

- Created a Streamlit dashboard to facilitate seamless enterprise knowledge base data ingestion. The dashboard integrated visualizations, AI-based descriptions, and usage logs through Grafana, substantially improving data accessibility and analytics.

10. AI-Based TestCase Generation:

- Developed an intelligent testing automation tool reducing testing efforts by 60%, covering test scenario creation, test case generation, and test automation framework generation, significantly improving test coverage and reliability.

Shiash Info Solution Private Limited   June 2020 - Aug 2020

Intern
- Responsible for creating web-based applications.
- Gained experience and worked with the asp.net.

SKILLS

Programming Languages: C, Python, SQL, HTML, CSS.

Version Control: Git, SVN.

Technologies & Tools:

- **Artificial Intelligence & Machine Learning:** AI, ML, Natural Language Processing (NLP), Large Language Models (LLM), Generative AI, Data Science, Computer Vision (CV), OpenAI, Hugging Face.
- **Development & Deployment:** Jenkins, Flask/Fast API, Docker, Streamlit, Azure, Amazon Bedrock.
- **Databases:** MySQL, Postgres, Vector Database, Opensearch, Pinecone.
- **Frameworks & Libraries:** LangChain, Grafana, Keras, TensorFlow, DeepFace, FaceNet, VLLM.

EDUCATION

Adhiparasakthi Matriculation and Higher Secondary School

SSLC | 96.2%
HSC | 91.58%

Sri Sairam Engineering College

B.E. (Computer Science Engineering) | GPA: 8.38

Indian Institute of Technology, Kanpur
MS in Machine Learning and Generative AI (Correspondence)

EXTRACURRICULAR ACTIVITIES

Paper Presentation
- Presented a paper in symposium based on Machine-Learning based IoT Data Caching
- Presented a Paper in Vishwakarma awards on automatic waste segregation and monitoring using smart trash bin.

CERTIFICATIONS

- Google Data Analytics-Coursera
- IBM Data Science Professional Certificate
- Generative AI Fundamentals – GCP
- Jumpstart your skills with LLM's – A 6 section course by NASBA (CPE) and LinkedIn Learning.
- Data Science Campion Internal Certificate – Prodapt Solutions Pvt Ltd

ACHIEVEMENTS

- Participated at spell bee(International level).
- Completed FLYERS level(University of CAMBRIDGE)