Sanket D Avaralli

Data Scientist

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Summary

Data Science Engineer with 1 year of industry experience and M.Tech in Data Science from **IIT Palakkad**. Skilled in end-to-end development of AI systems, from data analysis and visualization to ML model deployment and GenAI-powered applications. Proficient in **Python, SQL, React, Django**, and tools like **LangChain, Agno SDK**, and **Azure OpenAI** for building scalable multi-agent LLM systems. Interested in solving real-world problems through recommendation systems, churn prediction, and chatbot development. Passionate about driving business impact through data-driven solutions and intelligent automation.

Experience

FirstHive – Data Science Engineer *June 2024 – Present*

- Designed and deployed intelligent **Recommendation Engines** using collaborative filtering, intent-based logic, and market basket analysis to enhance personalization, resulting in a 15% boost in customer engagement.
- Developed and productionized **Churn Prediction Models** using supervised learning techniques, reducing churn rates by over 20% through targeted intervention strategies.
- Built interactive and modular **React + Tailwind dashboards** to visualize key business metrics, integrating real-time data for better stakeholder decisions.
- Engineered scalable **Django REST APIs** with custom backend logic and rule-based thresholds to streamline campaign and customer interaction workflows.
- Developed a secure, LLM-powered **Chatbot** using **LangChain, OpenAI**, and React.js , featuring natural language interfaces and autonomous reasoning.
- Integrated **Agno SDK with Azure OpenAI** to build modular **agentic AI systems** supporting content generation, summarization, translation, and data insight retrieval with memory and fallback.
- Orchestrated a tool-based **multi-agent system**, enhancing GenAI capability through intelligent routing, prompt engineering, and contextual query resolution.
- Collaborated with cross-functional teams (frontend, backend, ML) to deliver full-stack AI solutions from prototype to production, adhering to scalable deployment and CI/CD standards.

Education

- **M.Tech in Data Science**: IIT Palakkad, 2022-2024
- **B.Tech in ECE**: IIIT, Dharwad, 2017-2021

Technical Skills

- **Programming Languages**: Python, SQL
- **Web Development**: HTML, CSS, React, Django, Docker
- **Data Analysis and Visualization:** Tableau, Power BI, Pandas, NumPy, Matplotlib
- **Machine Learning:** TensorFlow, Scikit-Learn, Supervised and Unsupervised Learning
- **Deep Learning:** FNN, CNN, RNN, LSTM, GRU, Transformer, Vision Transformer, NLP, Computer Vision
- **Business Analytics:** Data-driven decision making, Time series and Forecasting, Market Analysis, Business Intelligence Tools
- **API Development:** Django REST Framework, REST APIs
- **Generative AI and LLMs:** OpenAI GPT, LangChain, Prompt Engineering, RAG pipelines
- **Agentic AI Systems:** Agno SDK, Multi-Agent Coordination, Tool-based Agent Architecture, FastAPI integration

Projects

Multi-Agent GenAI System using Agno SDK and LangChain (April 2024 – Present)

- **Skills:** Agno SDK, Azure OpenAI, FastAPI, Prompt Engineering, Tool-based Agents
- Designed and deployed a modular multi-agent system for GenAI tasks like content generation, summarization, and translation.
- Implemented memory and fallback handling, using FastAPI endpoints to route queries through agent tools intelligently.

Market Basket Analysis System (May 2024 – Present)

- **Skills:** PySpark, FP-Growth, Association Rules, Parquet, MySQL, JSON Configs
- Built a scalable, sector-agnostic basket analysis engine using PySpark and dynamic configuration-based ingestion.
- Extracted product relationships and patterns, storing results in databases and S3 based on config.

Recommendation Engine (May 2024 – Present)

- **Skills:** Collaborative Filtering, Content-Based Filtering, Scikit-learn, Python
- Developed product-level recommendation systems leveraging user-item interactions and content similarity.
- Improved recommendation relevance through score-based filtering and fallback strategies.

Churn Prediction System (May 2024 – Present)

- **Skills:** Logistic Regression, Decision Trees, XGBoost, Feature Engineering
- Built predictive models to identify high-risk churn users; enhanced performance using hyperparameter tuning.
- Integrated model results with React dashboards and backend rule management for proactive decision-making.

Data Visualization Dashboard (React) (Feb 2024 – Present)

- **Skills:** React.js, Tailwind CSS, Chart.js, REST API Integration
- Designed and built responsive, interactive dashboards for data visualization of failure summaries and trends.
- Integrated backend APIs to enable real-time filtering and drill-down of metrics by date, part type, and supplier.

Personality Prediction Using Twitter Tweets (Sep 2022 – Nov 2022)

- **Skills:** NLP, SVM, Random Forest, Tweet Scraping (snscrape), Python
- Analyzed user behavior and predicted personality types from tweets using NLP preprocessing and classical ML models.
- Applied vectorization and text encoding techniques to classify tweets into Big Five personality traits.

Image-Text Annotation with Speech Recognition (Jul 2023 – Apr 2024)

- **Skills:** HTML, CSS, JavaScript, Django, Web Speech API
- Developed a full-stack tool for annotating images with voice-driven text labels, improving UX and data efficiency.
- Handled both UI/UX design and backend integration to streamline annotation pipelines.

Video Classification using Attention Mechanism (Jan 2023 – May 2023)

- **Skills:** OpenCV, CNN, LSTM, Attention, Vision Transformer (ViT), K-means
- Built a robust video action recognition system combining CNN and LSTM with attention to extract temporal features.
- Integrated Vision Transformer to enhance key-frame-level accuracy by 15%.

Positions of Responsibility

- **Deputy Secretary, Curtain-Call, IIT-PKD** Contributed to the planning and execution of drama club events, demonstrating leadership and organizational skills.
- **Teaching Assistant - Time Series and Analysis, IIT-PKD** Supported students in understanding complex concepts and methodologies related to time series modeling and analysis.
- **Coordinator, Culture Committee, IIIT Dharwad (2019)**
  Managed and executed major cultural events, showcasing strong event management and team coordination skills.

Extracurricular Activities

- **Inter IIT Cultural Dramatic Head (2023):** Directed and performed, enhancing team collaboration and creativity.
- **Cultural Affairs Secretary, Karnataka Rajyotsava Celebration (2018):** Led choreography for performances, demonstrating leadership and creative direction.