SAI PRANAV MADUPU

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SUMMARY

Motivated and detail-oriented, I have hands-on experience developing AI and software solutions through research and practical implementation. I am skilled in machine learning, data analysis, and simulations, and have strong programming abilities. I enjoy working collaboratively to solve technical problems and deliver effective results.

EXPERIENCE

Tata Consultancy Services - Research   *Pune, India*
Project Intern - Media & Entertainment Team   *May 2025 - July 2025*
- Developed an AI-Assisted Music Loop Recommender for DJs and Live Musicians, creating a system to select optimal music loops for live performances by analyzing real-time musical flow and style.
- Applied machine learning and audio signal analysis to enhance loop recommendations, supporting dynamic performance adaptability and ensuring perceptually relevant results.

EDUCATION

IIITDM KANCHEEPURAM   *Chennai, India*
B.Tech in Computer Science Engineering (CGPA: 8.16/10)   *2022 - present*

NARAYANA JUNIOR COLLEGE   *Hyderabad, India*
11th and 12th Standard (Marks: 967/1000)   *2020 - 2022*

PANINEEYA MAHAVIDYALAYA PUBLIC SCHOOL   *Hyderabad, India*
10th Standard (Marks: 461/500)   *2019 - 2020*

PROJECTS

Ingest AI: Document QA Chatbot

Skills: *Python, Pytorch, Transformers, Streamlit, Milvus Cloud DB, FastAPI, Docker*
- **Developed a scalable Retrieval-Augmented Generation (RAG) system** supporting multi-format document ingestion (.pdf, .docx, .csv, .txt) with semantic search and contextual Q&A across documents.
- **Implemented end-to-end NLP pipeline** using BAAI/llm-embedder for embedding, Milvus Cloud for vector storage, and Phi-3 Mini 128K Instruct (4-bit) for efficient response generation.
- **Built an interactive Streamlit-based UI** enabling users to upload, explore, and query large document sets with fast, memory-efficient, and context-aware responses.

AI Based Intrusion Detection System: Botnet Detection

Skills: *Python, FastAPI, Pytorch, Docker*

- Designed and trained a 1D-CNN model on network flow features, achieving **88% F1-score**, **91% accuracy**, and **83% recall** for botnet classification across 78k+ traffic samples.
- Containerized the model using **FastAPI and Docker**, enabling **real-time inference** and seamless integration with network traffic collectors for proactive threat detection.

Appointment Scheduler API

Skills: Node.js, Express.js, REST API, Docker, Azure VM, Postman, OCR

- Designed and deployed a scalable API service that parses appointment details from text or images using **Mistral AI OCR + LLM models**, enabling intelligent scheduling automation.
- Containerized the application with **Docker** and deployed it on an **Azure Virtual Machine**, with testing and validation performed through **Postman** for both text and image-based inputs.

SKILLS

- **Programming Languages:** Python, C, C++, SQL
- **Web & Backend Development:** FastAPI, HTML, CSS, JavaScript, MySQL, SQLite, MongoDB, Node.js, Express.js
- **Machine Learning & LLMs:** Scikit-learn, TensorFlow, PyTorch, Transformers (Hugging Face), OpenCV, Langchain
- **Data Science & Visualization:** NumPy, Pandas, Matplotlib, Seaborn, Power BI
- **Tools & Platforms:** Git, Azure, Docker, BeautifulSoup, Selenium, Linux

CERTIFICATIONS

- **Advanced Learning Algorithms, DeepLearning.AI**, Coursera
- **Supervised Machine Learning: Regression and Classification, DeepLearning.AI**, Coursera
- **Machine Learning Onramp, Mathworks,** Mathworks Academy

POSITION OF RESPONSIBILITIES & ACHIEVEMENTS

- *Finalist* in AI4Andhra Police Hackathon 2025
- *Head Core*, Developers Club, IIITDM Kancheepuram   2025 - Current
- *Hospitality Co-Lead*, Samgatha X Vashisht 2025, IIITDM Kancheepuram   2025