SIDAK DEEP SINGH

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SUMMARY

While I can't carry a tune, I'm passionate about orchestrating complex ML models and full-stack applications. With a toolkit including Python, PyTorch, TensorFlow, and MERN, I enjoy transforming abstract concepts into tangible, elegant solutions.

EXPERIENCE

Machine Learning Intern 2025-05 - 2025-07
VIT UNIVERSITY • Chennai, India

- Engineered and optimized sparse CNNs in PyTorch, using extensive hyperparameter tuning tobalance accuracy and sparsity on CIFAR-10/100.
- Achieved 84% activation sparsity and 62% accuracy on CIFAR-10 through a novel adaptivesparse initialization technique.

EDUCATION

B.Tech. CSE (Specialization in A.I. & Robotics) Vellore 2023-08 - 2027-06
Institute of Technology • Chennai, India

AISSCE 12th 2019-04 - 2023-05
G.D. Goenka Public School • Lucknow, India

SKILLS

Python • C/C++ • JavaScript/TypeScript • Java • Pandas • Scikit-learn • PyTorch • Tensorflow • OpenCV • Qt • MongoDB • MySQL • Docker • Git • REST APIs • MatPlotLib • Transformers • FastAPI • PostgreSQL • Kubernetes • MERN • Model Training • Neural Networks • Data Preprocessing

PROJECTS

Multi-Modal AI Chatbot Backend & UI
Technologies: React, FastAPI, Python, PyTorch, HuggingFace Transformers, Whisper, CLIP, Groq Vision API, httpx

- Built a multimodal AI chatbot to process text, image, and audio, featuring a modern React UI and a robustFastAPI backend for seamless user interaction.
- Implemented core features like real-time streaming, robust file validation, and efficient cloud inferenceusing LLM and vision models through the Groq Vision API.

Mood Analyser and Playlist Generator
Technologies: React, Node.js, Express, MongoDB, Chart.js, Spotify API, Mongoose, Last.fm API

- Developed a full-stack MERN app for mood logging and personalized Spotify playlist generation, featuring live charting and secure user authentication.
- Architected the backend using Node.js/Express to create scalable REST APIs for data management and seamless third-party API integration.

BeMyVision-Environmental Captioning for the Blind
Technologies: Python, Streamlit, OpenCV, PyTorch, Transformers, pytesseract, Deep Learning

- Developed a real-time image captioning system with BLIP/YOLOv3, featuring text-to-speech, OCR, and an interactive Streamlit UI for live video.

Parallel Search using OpenMP
Technologies: C++, Qt, OpenMP

- Accelerated CSV file searches by 30% by implementing a parallel algorithm with OpenMP. Developed a Qt GUI for file interaction and performance analysis.