Dheeran Sankaran

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Summary

Enthusiastic AI and Data Science student with hands-on experience in machine learning, data analysis and web development. Passionate about building practical, research-driven solutions with real-world impact.

Projects

LAMP-PRo: Transformer Protein Binding Prediction System Web Tool

- Developed a **Transformer-based classifier** using **ESM-2 embeddings** for SOTA prediction of Nucleic Acid-Binding Proteins.
- Achieved superior prediction accuracy, securing a **DNA Binding AUC of 0.98** and **1-AURC of 0.97**, outperforming 9 leading benchmark methods.
- Engineered a scalable, three-tier microservice architecture for researchers: **PyTorch** model deployed on **Hugging Face Spaces**, accessed via a **FastAPI** backend (render), and served through a **React/TypeScript** frontend (vercel) for low-latency predictions.

Event Management System with QR + OTP Attendance GitHub

- Designed and deployed a scalable **Node.js/Express backend** that automated secure attendance logging for events up to **500 attendees/session**.
- Utilized unique QR code generation and OTP verification for identity security, reducing manual logging time and errors by an estimated **90%**.

Voice-Controlled Arduino Autonomous Car Personal Project

- Developed a **real-time voice command system** using a **TensorFlow-based audio classification model** for accurate speech recognition (e.g., 'stop,' 'forward').
- Engineered the **real-time decision pipeline** by integrating ML outputs with an Arduino UNO and HC-05 Bluetooth module to control movement with **sub-150ms latency**.

Education

2024 – 2028 **B.Tech in Artificial Intelligence and Data Science**, Shiv Nadar University Chennai (CGPA: 9.2)

2024 Class 12 CBSE (96%)

Publications

"LAMpPRO: Transformer-based DNA–Protein Binding Site Prediction Using Multi-Modal Representations." arXiv preprint arXiv:2509.24262. Available at: https://arxiv.org/pdf/2509.24262

Technical Stack

- **Languages and Tools:**Python, JavaScript, C++, Java, NumPy, Pandas.

- **Machine Learning:** PyTorch, TensorFlow, Hugging Face Transformers, Fine-tuning.

- **Web Development:** Node.js (Express), FAST API, Git/GitHub, REST APIs.