SAMARTH K J

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EDUCATION

Indian Institute of Technology, Madras   **CGPA: 8.86**
Bachelor of Technology   *Jun, 2026*

SCHOLASTIC ACHIEVEMENTS

- Secured **99.46% ile in JEE(M)** among 1M+ students
- Achieved **AIR 1473 in KVPY** among 100K+ students
- Achieved **AIR 5957 in JEE(A)** among 60K+ students.
- Scored **324/390 in BITSAT**, was offered BE in CS at BITS Pilani

RELEVANT COURSEWORK

- Speech Technology*
- Deep Learning
- ML Foundations
- Differential Equations
- Reinforcement Learning*
- Intro to DeepGANs
- Probability & Statistics
- Series and Matrices

EXPERIENCE

Fractal Analytics   **Bengaluru, India**
AI Research Intern   *May 2025 – Present*

- Conducted **multi-GPU** training and implemented **novel architectural changes** on **SDXL** based on SOTA research
- Evaluated 8+ reward models to **curate a high-variance, high-quality dataset to finetune a DiT with GRPO**.
- Orchastrated SOTA **cross-attn and CFG-based guidance methods** to improve image fidelity of DiT by **20-30%**.

Massachusetts Institute of Technology   **Cambridge, Massachusetts**
Student Researcher   *Jan 2025 – May 2025*

- Helped develop a memory system akin to human memory using AI to aid people with issues such as Dementia.
- Built a **novel data pipeline** on Python FastAPI server that **reduced the latency by 80%** leveraging concurrency.
- Built a user-friendly, high-speed **Kotlin** android application, leveraging **coroutines** and **on-device caching**.

Dirac Labs   **Madison WI, USA**
ML Associate   *Feb 2024 – Dec 2024*

- Implemented a **SciML-based NN** in the Julia language for real-time edge applications at <**5ms inference rate**.
- Strategised a data pipeline on **Google Cloud** for the pre-processing, transformation & storage for >**5TB** of data.
- Built an **RF model** to detect soil type over ground using hyperspectral satellite data with an **accuracy of 95.7%**.

RESEARCH PROJECTS

StrInt: Structural Intelligence | *Python, LangGraph, LangChain, Streamlit*   **Aug 2024 – Present**
- Built an **agentic RAG with FAISS vectorstore** that solves structural engineering problems using Indian Standards.
- Used **LLM-as-a-Judge** evaluation for each component. Currently buliding data pipeline for **QLoRA** finetuning.

Earthquake Response Spectrum Prediction | *Python, PyTorch, Pandas, Matplotlib*   **Jan 2024 – May 2024**
- Used XGBoost, FFNNs and BNNs to predict ground acceleration and got **R-squared values of 0.85, 0.86 & 0.91.**
- **Built a CGAN** to predict realistic frequency-domain signal. Used **custom loss-penalties** to improve predictions.

COMPETITIONS

- Secured **1st place** in Buildathon leveraging **Flutter** to process camera feed with ML and **SQL** to store results.
- Devised strategy and **headed a 5-member team** to bag **1st place** in a Mock Auction event among 345 participants

POSITIONS OF RESPONSIBILITY

Professional Shows   **Jun 2023 – Apr 2024**
Deputy Coordinator   *IIT Madras*

- Responsible for managing an event with **80k+ footfall** with artists like **Farhan Akhtar and Matisse & Sadko**.
- Spearheaded publicity and sales for the online degree section of IIT Madras, comprising of **68K+ students**.
- **Managed end-to-end needs of a 6-member band** from Malaysia and corresponded with companies for funding.

Corporate Relations: E-Cell   **Dec 2022 – Mar 2023**
Assistant Manager   *IIT Madras*

- Solely responsible for negotiating a deal in kind worth **INR 2.5L** from **Kokuyo Camlin** kits for E-Summit.
- Managed the **branding and advertisement** of sponsors during E-Summit and **chaperoned VIP delegates**.