

SAMARTH K J

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EDUCATION

Indian Institute of Technology, Madras

Bachelor of Technology

CGPA: 8.85

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

- Probability and Statistics
- Deep Learning
- Series and Matrices
- Differential Equations
- ML Foundations
- Deep GANs - Introduction

EXPERIENCE

MIT Media Lab

Remote – Cambridge, Massachusetts

Student Researcher

Jan 2025 – Present

- Helped develop a memory system akin to human memory using ML to aid people with issues such as Dementia.
- Won the EV grant upto \$20k** and \$5957 grant by Ingenuitas Pvt. Ltd. to pursue research at MIT Media Lab.
- Built a novel data pipeline on Python FastAPI server that **reduced the latency by 80%** leveraging concurrency.
- Developed efficient, concurrent interfaces in Kotlin app and an autonomous testbench to evaluate the system.

Dirac Labs

Remote – 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%**.

Alongside AI

Bengaluru, India

AI Research Intern

Jul 2024 – Aug 2024

- Built **RAG** applications using novel methods for storage and query, including **RAPTOR & knowledge graphs**.
- Curated custom evaluation datasets and metrics to gauge the performance of each RAG component for RAG apps.

RESEARCH PROJECTS

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 deep CGAN** to predict the response spectra (a function of ground motion) using 6 basic input parameters.

Snow Deposit Property Inversion using PINNs | *Python, PyTorch*

Aug 2024 – Present

- Conducted research across **8+ papers** and implemented **3+ SOTA analytical models** of inversion techniques.
- Currently exploring methods to improve inversion methodology with hyperspectral data using SciML approaches.

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

- 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.

AI Club

Dec 2022 – Mar 2023

Deputy Coordinator

IIT Madras

- Created a summariser using an **LSTM** in PyTorch, which **summarised textual documents in 50 words** or less.

Shaastra WebOps

Dec 2022 – Mar 2023

Web Design Volunteer

IIT Madras

- Used **HTML, CSS and Node.js** to design and **Git** to coordinate the **front-end** design for the fest Shaastra.
- Devised a script in Python using **Pandas and regex** to clean and extract emails of **2500+ institutions**.