

Imrankhan

Thanjavur, Tamil Nadu, India

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EDUCATION

M.A.M School of Engineering

Tiruchirappalli, India

Bachelor of Engineering in Computer Science; GPA: 8.32 / 10.0

Aug. 2023 – May 2027

- **Relevant Coursework:** Data Structures & Algorithms, Linear Algebra, Calculus, Probability & Statistics, Artificial Intelligence, DBMS.

EXPERIENCE

HeyCloudy

Mumbai, India (Remote)

AI / Machine Learning Intern

Jun 2025 – Jul 2025

- Designed an **LLM adaptive learning loop** using **RAG** and a **vector-based recommendation engine** to dynamically generate tailored questions based on topic-level accuracy.
- Built a **multimodal question-solving pipeline** using the **Gemini API** to transcribe image and text queries into step-by-step solutions and explanations.
- Engineered a **student performance analytics system** integrated with a **Firestore backend**. Automated diagnostic reporting, tracking historical progress and identifying weak topics to deliver actionable insights.

PROJECTS

Super-Resolution on Real Telescope Data | Python, PyTorch, EDSR, Computer Vision

 GitHub

- Engineered an Enhanced Deep Super-Resolution (EDSR) network to upscale real astronomical images from HSC and HST telescopes.
- Overcame a limited 300-image dataset constraint by implementing robust preprocessing workflows, including min-max normalization and targeted data augmentations like noise injection and rotations.
- Significantly outperformed the bicubic baseline, improving PSNR from 23.58 dB to 35.65 dB and SSIM from 0.3724 to 0.8853, while reducing Mean Squared Error (MSE) to 0.000683.

Singular Value Decomposition (SVD) Engine | Python, NumPy, Linear Algebra

 GitHub

- Engineered a custom mathematical engine from scratch to execute SVD, successfully handling eigen decomposition, matrix deflation, and numerical stability without external ML libraries.
- Applied Truncated SVD to Computer Vision for image compression and to NLP for Latent Semantic Analysis, condensing sparse document-term matrices into dense topics.
- Implemented collaborative filtering for recommendation systems, imputing missing values in user-item matrices to generate personalized mathematical predictions for movie ratings.

Desktop Automation Agent (Hackathon Winning Project) | Python, Whisper, LLM APIs

May 2025

- Architected a modular voice-controlled agent capable of task planning, speech-to-text (Whisper), and autonomous tool execution.
- Implemented an LLM reasoning layer to interpret natural language commands for meeting summarization, scheduling, and email automation via IMAP.
- Engineered robust error handling for tool failures and noisy audio inputs to ensure system stability during real-time interaction.

TECHNICAL SKILLS

Languages: Python, SQL, C

ML Frameworks & Libraries: PyTorch, Hugging Face, Scikit-learn, Optuna, Pandas, NumPy, Matplotlib, Seaborn

GenAI & Core Domains: Large Language Models, RAG, Transformers, Diffusion Models, Reinforcement Learning, Computer Vision

MLOps & Infrastructure: Git, Docker, Linux, Google Cloud Platform, Weights & Biases

ACHIEVEMENTS

Kaggle Notebooks Expert: Expert tier for reproducible, competition-ready ML notebooks.

Winner (1st Prize) – SRM Senthana AI Hackathon 2025: Led a team to build an Agentic AI solution in 24 hours.

GDG Chennai Hackfest '26 Finalist: Developed a real-time Carbon Footprint Optimization Engine with multi-agent ESG compliance and automated supplier risk monitoring and reporting.