

ROHIT MAHESH

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Education

Vellore Institute of Technology <i>Bachelor of Technology - Computer Science Engineering</i>	Chennai, India
	2022 - 2026 9.02* (CGPA)
DAV School, Adambakkam <i>XII-CBSE</i>	Chennai, India
	2022 94.8%
DAV School, Adambakkam <i>X-CBSE</i>	Chennai, India
	2020 91.4%

Experience

INDIAN INSTITUTE OF SCIENCE (IISc) [Certificate] <i>Research Intern, Neurodynamics Lab, Centre for Neuroscience</i>	Bangalore, India
	May 2024 – July 2024
• Microscope Automation: Automated the XY-base movement of an Image Scanning Microscope using Arduino Uno & stepper motors, enabling raster scanning with >95% positional repeatability and improving experiment throughput by 40%.	
• Control Interface: Engineered a custom graphical user interface (GUI) featuring intuitive controls for managing motor speed increments and scanning area dimensions, leading to a 75% reduction in manual adjustment errors.	
• Behavioral Data Analysis: Analyzed 500+ data points for the study “Effects of Event Boundaries on Temporal Order Memory,” using PsychoPy, MATLAB, and Origin analytics, achieving 92% reproducibility.	
SRIP 2024, VIT Chennai (Funded by MeitY) [Certificate] <i>Research Intern, IEDC Lab, CSE Dept.</i>	Chennai, India
	June 2024 – July 2024
• Hybrid Similarity Model: Developed a hybrid embedding model integrating BERT, RoBERTa, SBERT, and Word2Vec with a Siamese BiLSTM network, improving grading accuracy by 31%.	
• Negation & Nuance Handling: Added negation-aware scoring achieving AUROC 0.984 across 8k+ samples — [GitHub]	
• Tools: Developed full pipeline using TensorFlow, PyTorch, NLTK, and scikit-learn; reduced inference time by 28%.	
SURGE 2025, INDIAN INSTITUTE OF TECHNOLOGY (IITK) [Certificate] <i>Research Intern, Privacy Lab, CSE Dept.</i>	Kanpur, India
	May 2025 – July 2025
• Quantized PIR: Implemented a quantifiable private information retrieval system, enabling tunable privacy under fixed computation budgets; reduced bandwidth by 55%.	
• Privacy-Efficiency Trade-off: Designed weighted-interval database model improving query efficiency by 40% — [GitHub]	
• Tools: Worked with C/C++, DPFs, LP optimization, and cryptographic primitives to build QPIR pipelines.	

Projects

- **Parkinson's Disease Classification with CNN:** Built a deep learning model combining CNN and a **quantum-inspired layer** for MRI analysis. Achieved **97.16%** validation and **97.33%** training accuracy for early-stage Parkinson's detection. [\[GitHub\]](#)
- **E-Commerce Product Recommender:** Built a hybrid recommendation system with a **Knowledge Graph based RAG pipeline** for collaboration filtering, vector embeddings, and LLM-powered explanations. [\[GitHub\]](#)
- **Multimodal Emotion Recognition:** Implemented emotion classification by fusing facial and audio features (MFCC) using CNNs, TensorFlow, OpenCV, and Librosa - [\[GitHub\]](#)
- **Traffic Sign Detection System:** Built a real-time system using CNN, ResNet-50, Con-ViT, MobileNetV3, and Efficientnetv2. Integrated **few-shot learning** to handle low-resource classes, achieving over **98%** accuracy across all models tested - [\[GitHub\]](#)

Achievements & Certifications

iConSCEPT 2025 – Paper Acceptance <i>Paper ID: 114</i>	NIT Puducherry
	Nov 2025
• ADP-LoRA: Proposed a privacy-preserving fine-tuning framework integrating LoRA with adaptive noise control, noise-aware pruning, and a dynamic feedback controller for DP-LLM training, achieving 77.9% accuracy on BERT under a privacy budget of $\epsilon \approx 7.3$, with a 7+ point reduction in the typical DP vs non-DP performance gap.	
Defy'25 Hackathon – ARCA Team India (Public Goods Track) <i>3rd Place Winner</i>	India
• BCHAIN (Web3 Blood Donation Platform): Developed a decentralized blood-donation platform using Solidity smart contracts for secure donor-recipient matching, tokenized incentives, and Ether-based fundraising; built using Next.js, Web3.js, and HardHat. [GitHub]	March 2025
IBM RAG & Agentic AI Professional Certificate [Certificate] SQL for Data Science (UC Davis) [Certificate]	

Technical Skills

- **Languages:** Python, Java, C, C++, HTML/CSS, JavaScript, SQL (MySQL, Oracle, PostgreSQL)
- **Developer Tools:** VS Code, Postman, Google Cloud Platform, Tableau, MATLAB, Origin
- **Technologies/Frameworks:** Node.js, React.js, Next.js, FastAPI, REST APIs, JSON, Flask (basic)
- **Automation:** Build & Deployment (Java, Python), Voice Chatbots (pyttsx3, pyaudio, speechrecognition, torch)
- **Machine Learning:** PyTorch, TensorFlow, scikit-learn, NLTK, LoRA, NumPy, Pandas
- **AI Engineering:** Multi-agent frameworks (A2A, MCP, CrewAI), LangChain, LLM orchestration, agent workflows