

# VEDHANTH M

CSE Student | Full-Stack Developer | ML Researcher | Data Scientist | Data Analyst

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## PROFESSIONAL SUMMARY

Computer Science Engineering undergraduate at Manipal Institute of Technology (CGPA: 9.19/10.0). Full-Stack Developer with experience in software engineering, web development, backend development, REST API development, and scalable systems using MERN and FastAPI. Machine Learning Researcher and first-author, IEEE Access published researcher specializing in model compression and SVD-based pruning, and experienced in building production-grade applications with secure authentication, responsive UI/UX, and real-time systems.

## EDUCATION

<b>Manipal Institute of Technology (MIT)</b> , Bengaluru, India	<i>Aug 2024 – Jul 2028</i>
Bachelor of Technology (B.Tech) in Computer Science and Engineering	
<b>CGPA: 9.19/10.0</b>   University Top Ranker	
<b>Miranda Composite PU College</b> , India	<i>May 2022 – Mar 2024</i>
Pre-University (PCMC)   <b>Score: 94.83%</b>   JEE Aspirant, KCET Top Ranker	

## TECHNICAL SKILLS

**Programming Languages:** Python, JavaScript, Java, C, C++, SQL

**Web Development:** HTML5, CSS3, JavaScript

**Frontend Frameworks:** React.js, Next.js

**Backend Frameworks:** Node.js, Express.js, FastAPI, Django, REST APIs

**Databases:** MongoDB, MySQL, SQL

**Machine Learning & AI:** Machine Learning, Deep Learning, Computer Vision, PyTorch, TensorFlow, scikit-learn, NLP, Model Compression, SVD, CUDA

**DevOps & Tools:** Git, GitHub, Linux, Docker, JWT, Socket.IO

**Deployment & Cloud:** Vercel, DNS Configuration, Networking, Cloud Hosting

**Design & Prototyping:** Figma, Framer

**Core CSE Concepts:** Data Structures, Algorithms, Object-Oriented Programming (OOP), Computer Networks, Operating Systems, Database Management Systems (DBMS), System Design, Computer Organization and Architecture

## PROFESSIONAL EXPERIENCE

<b>Founding Full-Stack Developer (Software Engineer)</b>	<i>Jun 2025 – Present</i>
<i>ShreeKara Kalagruha</i> – Freelance	

- Architected a full-stack web application using React.js, FastAPI, REST APIs, MongoDB, implementing authentication and scalable backend services.
- Supported 4+ multimedia content types with integrated user analytics.
- Engineered JWT-based authentication with role-based access control, securing author and admin workflows across all application modules.
- Developed a responsive, animation-rich UI using mobile-first principles, achieving consistent performance across desktop and mobile devices.
- Oversaw deployment, feature releases, and performance tuning, maintaining production up-time and scalable system behavior.

<b>Freelance Web Developer (Commercial Project Completed)</b>	<i>Dec 2025</i>
<i>Shree Guru Mess</i> – Client Project	

- Delivered a responsive commercial website for a local food business using HTML5, CSS3, JavaScript, and React within a single production release cycle
- Crafted an intuitive user interface presenting menu, pricing, location, and contact information, improving customer discoverability and engagement

- Optimized layout and assets using mobile-first design practices to ensure fast load times and cross-device accessibility
- Integrated SEO-optimized structure and semantic HTML, improving search visibility and indexing
- Executed complete project life cycle, including requirement analysis, development, testing, deployment, and post-launch support

## RESEARCH & PUBLICATIONS

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### Adaptive Rank Pruning for Neural Network Compression

First Author, *IEEE Access(Accepted)*, Oct 2025

- Formulated an adaptive low-rank pruning algorithm using Singular Value Decomposition (SVD) for neural network compression
- Achieved 2.5x reduction in model size while maintaining competitive accuracy across benchmark evaluations
- Demonstrated lower inference latency and improved energy efficiency compared to LoRA and QLoRA on edge hardware

**Conference Publication:** 16th International Conference on Computing, Communication and Networking Technologies (ICCCNT), Jul 2025

**Peer Review Experience:** Reviewed 10+ AI/ML research papers for conferences and journals

## KEY PROJECTS

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**Role:** Software Developer / Machine Learning Engineer

### GlideSight: AI-Powered Runway Detection System

*Technologies:* PyTorch, UNet, ResNet34, OpenCV, Computer Vision, Gradio, CUDA

- Ranked Top 10 among hundreds of teams in a 48-hour Honeywell Hackspace national ML hackathon
- Constructed a semantic segmentation pipeline for runway detection using UNet with ResNet34
- Extracted runway centerline and edge coordinates with real-time inference metrics and visual overlays

### Real-Time Multiplayer Chess Application

*Technologies:* Node.js, Express.js, Socket.IO, JavaScript

- Engineered a real-time multiplayer chess platform supporting simultaneous players and spectators
- Established WebSocket-based synchronization enabling instant move propagation and game-state updates

### Multi-Client Concurrent Chat Server

*Technologies:* Python, TCP/IP, Multithreading

- Designed a scalable TCP server capable of handling multiple concurrent client connections
- Ensured thread-safe message broadcasting with graceful client disconnection handling

### Spotify Clone – Dynamic Music Web Application

*Technologies:* JavaScript, HTML5, CSS3, JSON

- Developed a dynamic music streaming interface with JSON-based content loading
- Integrated complete playback controls, including play/pause, seek bar, volume control, and responsive UI

## CERTIFICATIONS

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Meta Full-Stack Developer

IBM Data Science Professional Certificate

MathWorks: Deep Learning, MATLAB, Simulink

HackerRank: Python, Java, SQL, JavaScript

## ACHIEVEMENTS & LEADERSHIP

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- First-author publication in IEEE Access (Q1 Journal)
- University Top Ranker with CGPA 9.19/10.0 at Manipal Institute of Technology
- Top 10 Finalist, Honeywell Hackspace Hackathon (AI/ML)
- IEEE Student Member (Computer Society, RAS, CIS)
- State-level Basketball player; Intra-state Badminton player
- First Place, Kannada Poetry Competition