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 MERN, FastAPI, and scalable backend systems.
Machine Learning Researcher and first-author IEEE Access published researcher specializing in model compression and SVD-based pruning.
Experienced in building production-grade applications with secure authentication, responsive UI/UX, and real-time systems.
Actively seeking Software Engineering Intern, Full-Stack Developer Intern, and Machine Learning Research Intern roles.

EDUCATION

Manipal Institute of Technology (MIT), Bengaluru, India *Aug 2024 – Jul 2028*
Bachelor of Technology (B.Tech) in Computer Science and Engineering
CGPA: 9.19/10.0 | University Top Ranker

Miranda Composite PU College, India *May 2022 – Mar 2024*
Pre-University (PCMC) | **Score: 94.83%** | JEE Aspirant, KCET Top Ranker

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, Java, C, C++, SQL
Web Technologies: HTML5, CSS3, JavaScript
Frontend Frameworks: React.js, Next.js
Backend Frameworks: Node.js, Express.js, FastAPI, Django, RESTful APIs
Databases: MongoDB, MySQL, SQL
Machine Learning & AI: PyTorch, TensorFlow, Deep Learning, Computer Vision, Model Compression, SVD
DevOps & Tools: Git, GitHub, Linux, Docker, JWT, Socket.IO
Deployment & Cloud: Vercel, DNS Configuration, Cloud Hosting
Design & Prototyping: Figma

PROFESSIONAL EXPERIENCE

Founding Full-Stack Developer (Software Engineer) *Jun 2025 – Present*
ShreeKara Kalagruha – Freelance

- Architected a full-stack content management platform using React.js, FastAPI, and MongoDB.
- 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 uptime and scalable system behavior.

Freelance Web Developer (Commercial Project Completed) *Dec 2025*
Shree Guru Mess – 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 local search visibility and indexing
- Executed complete project lifecycle, including requirement analysis, development, testing, deployment, and post-launch support

RESEARCH & PUBLICATIONS

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

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 backbone
- 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

Meta Full-Stack Developer
IBM Data Science Professional Certificate
MathWorks: Deep Learning, MATLAB, Simulink
HackerRank: Python, Java, SQL, JavaScript

ACHIEVEMENTS & LEADERSHIP

- 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