

Ketaki Dabade

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EDUCATION

Columbia University <i>Master of Science in Computer Science</i>	New York, NY Aug 2025 – Dec 2026
Dr. Vishwanath Karad MIT-WPU <i>Bachelor of Technology in Computer Science and Engineering, 3.74/4</i>	Pune, IN Jul 2021 – Jul 2025

RESEARCH EXPERIENCE

Complex Resilient Intelligent Systems Laboratory, Columbia University <i>Research Assistant under Professor Venkat Venkatasubramanian</i>	New York, NY Sept 2025 – Present
• Developing hierarchical Sparse Autoencoder (SAE) framework to decompose LLM internal representations, implementing PyTorch training pipelines and analyzing feature activation patterns across transformer layers to identify interpretable circuits in GPT-2 and Qwen3 models	
AI and ML Lab of NITTTR - Siemens Centre of Excellence <i>Research Assistant</i>	Bhopal, IN Feb 2024 – Mar 2024
• Spearheaded ensemble ML models analyzing music-mental health correlations, achieving 93.19% accuracy through Random Forest and Gradient Boosting algorithms	

WORK EXPERIENCE

AI4M Technology Private Limited <i>Deep Learning Engineer Intern</i>	Pune, IN Jul 2024 – Dec 2024
• Engineered real-time defect detection system using YOLOv7/YOLOv8 with DeepStream SDK on NVIDIA Jetson GPU, designing REST APIs for model inference and CI/CD pipeline that reduced detection latency by 25% across 3 production lines	
• Architected multi-threaded Python backend with TensorRT optimization and Docker containerization, implementing unit tests achieving 85% code coverage for seamless production deployment	
ViLA EmachWirken Private Limited <i>Data Analyst Intern</i>	Pune, IN Jun 2022 – Dec 2022
• Built clustering models analyzing customer behavior and created Grafana dashboards tracking KPIs, enhancing operational visibility by 30% and presented analytical findings to management through comprehensive reports	

PROJECTS

CanMan - Full-Stack Canteen Management System <i>Flask, MongoDB, React, D3.js, HTML/CSS</i>	2024
• Led a team of 5 to design a full-stack system with an interactive frontend (HTML/CSS) and Flask backend, featuring an NLP chatbot and D3.js visualizations	
• Won 2nd place at HACKMITWPU 2024	
SkillSet Sherpa - Career Guidance Platform <i>Flask, LLM, EasyOCR, HTML/CSS</i>	2024
• Architected a Flask-based platform with a responsive frontend (HTML/CSS), integrating GPT-3 LLM, RIASEC aptitude assessment, and EasyOCR for resume parsing	
• Published in Springer LNNS. DOI: 10.1007/978-981-97-9523-9_23	
ViziAssist ADAS <i>NVIDIA Jetson, YOLOv7, Raspberry Pi Camera</i>	2022
• Directed team of 4 members to construct road-obstacle detection system achieving 0.681 mAP. Published in Springer CCIS. DOI: https://doi.org/10.1007/978-3-031-93688-3_6	
• Communicated technical concepts and secured top 20 team ranking at national level KPIT Hackathon 2022	
EEG Brain-Computer Interface <i>Python, KNN, Emotiv EPOC X, Blender</i>	2025
• Engineered BCI achieving 97.63% accuracy utilizing KNN to translate neural signals into 3D hand gesture control through Blender software and final output shown using Unity integration.	
• Gathered data from participants ranging from ages 20 to 22 using the Emotiv EPOC X Headset	

SKILLS

Languages: Python, C/C++, JavaScript, R, HTML/CSS, SQL
Software Development: REST APIs, Flask, React Native, Git, Linux, Docker, PostgreSQL
ML/AI Frameworks: PyTorch, TensorFlow, HuggingFace, Keras, OpenCV, Scikit-learn, LangChain, NLTK, Streamlit
Tools: Azure, Grafana, Apache Hadoop, NVIDIA DeepStream, NVIDIA Triton, TensorRT