SHUBH PRATAP SINGH

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Education

VIT Bhopal University   *GPA: 8.93*
B.Tech in Computer Science and Engineering   *Sept 2023 – present*

Experience

Data Science Intern   *BKC, Mumbai*
National Stock Exchange (NSE India)   *Apr 2025 – June 2025*

- Implemented a Retrieval-Augmented Generation (RAG) pipeline using LLaMA 3.2-1B-Instruct, improving ITSM ticket resolution speed by ~30% via enhanced context-aware retrieval and embedding optimization.
- Designed fine-tuning protocols for domain-specific LLMs within ServiceNow, reducing model training time by ~45%.
- Architected an end-to-end GenAI solution integrating vector databases with custom embedding models, enabling real-time information retrieval from technical documentation to enhance LLM outputs for automation.

Projects

Syllabi Tracker (Next.js, Node.js, TailwindCSS, TypeScript, Gemini API)   *Mar 2025 – July 2025*

Converts syllabus PDFs into structured, interactive learning roadmaps with topic breakdowns and resource suggestions.

- Built an AI-powered tool that converts raw syllabus PDFs into modular learning paths with topic breakdowns and progress tracking. Designed a responsive UI with interactive checklists and progress indicators
- Implemented dynamic resource mapping with auto-curated videos, docs, and articles

AlzDx (Tensorflow, ResNet50, FlaskAPI, Firebase)   *Sept 2024 – Dec 2024*

Deep learning pipeline to detect early Alzheimer's stages using MRI scans

- Built a CNN-based AI model with transfer learning, achieving classification accuracy of ~89%.
- Engineered feature extraction to capture early neurodegenerative markers, improving detection sensitivity.

YOLOv3 Enhancement (PyTorch, OpenCV)   *July 2024 – Oct 2024*

Improved YOLOv3 for small-object detection using entropy-based metrics. Co-authored supporting research paper.

- Added entropy & mutual information metrics to YOLOv3, raising detection precision by ~15%.
- Optimized loss functions and prediction logic for cluttered scene robustness.

Skills

Languages & Frameworks: Python, Java, TypeScript, React, Node.js, Next.js, Flask, TailwindCSS

Tools & Libraries: Git, REST APIs, LLMs, AWS, Docker, Hugging Face, Firebase, TensorFlow, PyTorch, scikit-learn

AI&ML: Supervised & Unsupervised ML, CNNs, RNNs, LSTMs, Transfer Learning, Fine-Tuning, Model Optimization, Data Augmentation, Gemini API, LangChain, Retrieval-Augmented Generation (RAG), Model Context Protocol (MCP)

Achievements & Certifications

- Finalist in GeeksForGeeks 'Bug-a-thon'; finalist in Meta's 'AI for Impact' Hackathon
- Machine Learning Specialization (Coursera) + Deep Learning Specialization (Coursera)
- 5★ in Python and Problem Solving (HackerRank); solved 200+ problems on LeetCode
- Syllabi Tracker project gained traction with over 100 real-world tests and successful deployment on Vercel, showcasing scalable AI integration in education.

Extracurricular Activities

Anterix Club   *VIT Bhopal*
Core Member   *Apr 2025 – present*

- Contributed to event planning and technical activities as an active club member.