Vidhan Mertiya

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EDUCATION

Indian Institute of Technology Madras   2022 - 2026
Bachelor of Science, Data Science and Applications

University of Rajasthan   2021 - 2024
Bachelor of Computer Applications

EXPERIENCE

Riverline | *Software Engineering Intern*   Jan. 2026
- Improved internal LLM prompts to increase reliability and consistency of outputs.
- Fine-tuned LLM and speech-to-speech (voice-to-voice) models for internal use cases.
- Set up the company's LLM evaluation framework to benchmark and monitor model performance.

Ground Zero | *Social Media Intern*   July. 2024
- Developed engaging social media content and contributed to the organization's daily operations.

Quest Alliance | *Data Intern*   Dec. 2023 – Feb. 2024
- Supported the Superset ITI dashboard, ensuring data accuracy and cleanliness through routine health checks.
- Collaborated with team managers to conduct a comprehensive placement analysis for ITI and VTI graduates (2020–2023), identifying key trends.

Quest Alliance | *Intern*   Sept. 2021 – Nov. 2021
- Designed knowledge products for Quest 2 Learn.
- Conducted data analysis post-Quest 2 Learn 2021 event.

SKILLS

- **Data Science :** Numpy, Pandas, HuggingFace, BeautifulSoup, Selenium, SQL
- **Developer :** Python, Java, HTML, CSS, JavaScript, TypeScript, VueJS, Flask, Jinja, NextJS
- **Tools :** Git/GitHub, VS Code, Google Colab, Jupyter Notebook, Tableau, MS Excel

PROJECTS

JobSpy | *Go, Python, Postgres, NextJS, Tailwind, Docker*   🌐 Live
- Built full-stack job aggregation platform with NLP-powered entity extraction using Fuse.js & dynamic programming, handling typo-tolerant search queries achieving 95% accuracy in 50ms.
- Implemented Python Flask microservice for resume parsing & job matching using Together AI (Llama Vision) sentence transformers, delivering 1s semantic search via in-memory embedding cache.
- Engineered automated job scrapers in Go collecting from 3200+ companies with PostgreSQL full-text search (tsvector/trigram indexes), OAuth (GitHub/Google), and WebSocket connections for real-time embedding generation.

Household Services Application | *TypeScript, HTML/CSS, Flask API, VueJS, SQLite, Git*   ⭑ Repo

- Developed a Flask-Vue.js platform with JWT and role-based access, cutting API response time by 25% via Redis caching.
- Automated service monitoring with Celery and responsive dashboards for professional/admin.

IITM Quizzes | *React, Flask, Go, SQLite, TypeScript, LLM, TailWind, Radix UI* 🌐 Live Repo
- Full Stack Web Application that lets users attempt quizzes.
- Leveraged LLMs for generating explanations for each question.
- Dockerized and Auto-Deployment using Github Actions.

CoinCraft | *Vue, Flask, SQLite, TypeScript, LLM, TailWind* 🌐 Live Repo
- IIT Madras project in which we got 2nd rank out of 50 teams. View Certificate.
- Full Stack Web Application to teach children about Financial Literacy.
- Integrated AI-generated learning modules with gamification (coins, achievements).

RL-Based Voice Agent | *FastAPI, Reinforcement Learning, PyTorch, NLU* Repo
- Built a DDQ (Dyna-style Data-efficient Q-learning) agent that learns optimal conversation strategies through self-play with LLM-simulated debtors, achieving 40%+ commitment success rate using world model imagination for sample-efficient training.
- Implemented 13 research-backed enhancements including semantic caching (99% API cost reduction), opponent modeling (real-time debtor classification), multi-step look-ahead planning, and adversarial training with 10 diverse debtor personas.
- Designed a full-stack conversational AI system with NLU-based state extraction, dynamic reward shaping (6 milestone rewards), Hindi/Hinglish multilingual support, and real-time evaluation dashboard with Neptune.ai integration.