Jitesh Rachamadugu

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OBJECTIVE

Highly skilled Computer Science student with hands-on experience in **Data Science, AI, ML, and NLP**. Adept at bridging the gap between complex analytics and measurable business outcomes, with a proven track record of transforming challenges into scalable ML models while effectively collaborating with stakeholders to drive data-informed decisions.

EDUCATION

Gandhi Institute of Technology and Management (GITAM)   May 2021 – May 2025
Bachelor of Technology in Computer Science — CGPA: 7.86
Related coursework: Machine Learning, Artificial Intelligence, Data Structures, Algorithms, Operating Systems, and Database Systems

Sri Chaitanya Junior College, India   May 2019 – May 2021
Intermediate (MPC) — Percentage: 84.6%

Bharatiya Vidya Bhavans Vidyashram, India   May 2018 – May 2019
10th CBSE — CGPA: 75%

WORK EXPERIENCE

Artificial Intelligence Development Intern   Jnauray 2025 - Present
Hongkong and Shanghai Banking Corporation (HSBC), Pune, India

- Developed an **AI-driven chatbot** for customer support, leveraging Salesforce integration to automate responses, resulting in a 40% reduction in query resolution time and enhancing operational efficiency.
- Designed and implemented advanced intent recognition and dialogue management systems using BERT and transformer-based models, achieving a **30%** improvement in chatbot accuracy and delivering more precise customer interactions.
- Enhanced chatbot's multilingual capabilities using **Unicode normalization**, tokenization, and custom embeddings, enabling seamless support for **10+** languages, including complex scripts like CJK (Chinese, Japanese, Korean) and Arabic.
- Optimized chatbot performance by fine-tuning large language models (LLMs), utilizing custom embeddings and prompt engineering techniques, which led to a **25%** reduction in incorrect responses and improved overall reliability.
- Integrated sentiment analysis and dynamic feedback loops into the chatbot system, enabling real-time adjustments based on customer interactions, which significantly improved user engagement and satisfaction rates.
- Deployed and optimized models on **HSBC's internal cloud infrastructure**, ensuring secure and compliant AI integration within enterprise systems and ensuring seamless real-time chatbot performance.

Artificial Intelligence Research Intern   May 2024 – Sep 2024
Indian Institute of Information Technology Design & Manufacturing (IIITDM), Kurnool

- Pioneered the development of a cutting-edge pathfinding algorithm combining backtracking with dynamic obstacle avoidance, surpassing traditional algorithms like Genetic Algorithm, Dijkstra's, A*, and Breadth-First Search by achieving a **40%** increase in navigation efficiency and precision.
- Conducted over **100+** advanced simulations in a virtual dynamic grid environment, optimizing computational time by **25%**, coverage efficiency by **35%**, and reducing energy consumption by **30%**, ensuring unparalleled performance in resource-constrained scenarios.
- Enhanced real-time adaptability by reducing algorithmic overhead by **20%**, enabling seamless navigation and obstacle handling in dynamic and complex environments with unpredictable constraints.
- Revolutionized algorithm validation through the creation of a robust evaluation framework, achieving a **45%** reduction in testing cycle time while maintaining uncompromising standards for reliability and scalability.
- Leveraged **advanced heuristic optimization and AI-driven pathfinding strategies** to deliver scalable, future-proof solutions for autonomous robotic systems, transforming operational efficiency in unstructured environments.
- Authored and presented a groundbreaking technical report, securing recognition for innovative contributions to autonomous navigation research, with potential cross-industry applications in robotics, logistics, and AI-driven automation.
- Established benchmark-setting advancements in autonomous robotics, enabling the prototype to handle **20%** more complex obstacle patterns while reducing computational latency by **15%**, solidifying its applicability in consumer-grade autonomous systems.

Academic & Freelance Projects

Knowledge-Constrained Response Generator for Safety-Critical Use Cases Dec 2024 - May 2025
- Built a **safety-first LLM system** that generates answers only from verified internal sources using retrieval-augmented generation. Implemented fallback mechanisms for low-confidence inputs and refusal handling to **prevent hallucinations**. Achieved **96%** factual reliability and aligned the architecture with enterprise governance goals similar to IBM watsonx standards.
- *Tools: LangChain, FAISS, FastAPI, Docker, Azure Blob Storage*

Enterprise QA System with Context Confidence and Source Citation Sept 2024 - Feb 2025
- Developed a document-level question-answering platform that combines semantic search and controlled generation for internal SOPs and policy docs. Implemented a **trust threshold** and **citation tracing**, with a **70%** reduction in manual lookup time. Designed with fallback logic to avoid overgeneration and maintain answer reliability across compliance domains.
- *Tools: Sentence-BERT, FAISS, Hugging Face Transformers, PostgreSQL, Weights & Biases*

Semantic Data Drift Detector for LLM Systems Jan 2024 - April 2024
- Created an **LLM observability framework** to track response consistency and drift using **semantic similarity** and **token divergence** over time. Logged prompts and model outputs, flagged shifts, and visualized behavior trends across deployments. Enabled early detection of degradation, helping maintain model stability in production.
- *Tools: scikit-learn, NumPy, Weights & Biases, Streamlit, OpenAI API, Kubernetes*

PII Redaction System for Chat and Email Logs Jan 2024 - April 2024
- Designed an **automated redaction engine** to detect and remove **personally identifiable information (PII)** from enterprise communications. Combined custom **NER** patterns with audit logging and human review options. Achieved **94%+** precision on test data and integrated into preprocessing pipelines for data privacy compliance.
- *Tools: spaCy, Hugging Face Transformers, Elasticsearch, Celery, Docker*

TECHNICAL SKILLS

- **Programming Languages:** Python, Java, C/C++
- **NLP & Generative AI:** Pre-processing, Tokenization, Fine-tuning, Semantic Search
- **Information Retrieval Systems:** MiniLM, Milvus, Embeddings, Similarity Matching
- **AI/ML Frameworks:** OpenCV, VADER, Scikit-learn, NumPy, TensorFlow, PyTorch, Matplotlib, Keras, Pandas, BERT
- **Big Data & Data Engineering:** SQL, Spark, ETL Pipelines, Data Warehousing, Data Governance
- **Tools:** Git, AWS, LINUX, IOS, Visual Studio, Jupyter, Spyder, Power BI, Tableau
- **Agile Practices:** Code Reviews, CI/CD, Regression Testing
- **Soft Skills:** Collaboration, Communication, Negotiation, Problem-Solving, Agile Methodologies
- **Languages:** English, Hindi, Telugu

ACHIEVEMENTS

- Among 26 winners at the **HSBC Hackathon 2024**, selected from over 4500 applicants. Developed a model for real-time fraud detection, leveraging historical transaction data to identify anomalies and enhance financial security, earning recognition from HSBC and T-Hub.
- Secured the **Best Presentation Award** at the **Spring Startup Sprint 2024**, held by the Venture Development Centre and co-sponsored by the Ministry of Education and the Institution's Innovation Council.
- Nominated and won the **Best Research Paper Award** at the 2024 **GITAM IDEATHON Undergraduate Research Event**.
- Participated in the **Generative AI-Powered Apps Workshop** organized by Swecha Telangana and Elan & nVision at IIT Hyderabad in February 2024.
- Participated in the **National Mathematics Day − 2021**, organized by the Department of Mathematics, School of Science, GITAM Deemed to be University, Hyderabad.
- Attended **Google Developer Student Clubs DEV Fest 22**.

PERSONAL DETAILS

- **Date of Birth:** 23rd April 2003
- **Address:** H.No 1-8-2153, NIRD Road, Rajendranagar, Hyderabad, Telangana, India 500030
- **Nationality** : Indian