

JAYKUMAR BHUVA

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Education

Northeastern University Boston, Massachusetts

Master of Science in Computer Science

Aug 2025 - May 2027

GPA: 4/4

Dharamsinh Desai University, Gujarat

Bachelor of Technology in Information Technology

Oct 2021 - May 2025

CGPA: 8.8/10

Technical Skills

Programming Languages: Python, Java, JavaScript, TypeScript, C++, C.

Software & Frameworks: Spring Boot, React, Flask, Next.js, REST APIs, .NET, HTML, CSS.

Cloud & DevOps: AWS Cloud, Docker, Kubernetes, CI/CD, Jenkins, Ansible.

Databases & Tools: PostgreSQL, MySQL, MongoDB, Git, GitHub, Jira, Postman.

Certifications : AWS Cloud & Machine Learning Foundations, Advanced Learning Algorithms, Supervised Machine Learning.

Experience

Software Development Intern

Dec 2024 - Mar 2025

India Space Research Organisation

- Architected a **Python ETL pipeline** to ingest and transform SWOT satellite data from NASA APIs, processing multi-format geospatial datasets (Shapefiles, NetCDF) across **28 observation cycles** for hydrological modeling.
- Implemented a river discharge estimation algorithm integrating 3 data sources with a modified Manning's equation, achieving **69% KGE accuracy** validated using RMSE across **8 major river basins**.
- Created an automated data validation framework using **Z-score outlier detection** and spatial matching, reducing manual preprocessing time by **80%** across multiple monitoring stations.

Research Assistant

May 2024 - Nov 2024

Dharamsinh Desai University

- Developed **InterviewEdge**, an AI-powered interview evaluation system using **RAG architecture** with LangChain and ChromaDB, automating assessment of technical responses in Java, C++, and C programming languages.
- Engineered NLP pipeline integrating **Llama 3.2 3B Instruct** model with sentence-transformers embeddings, achieving **83.5% correlation** with expert faculty evaluations across four scoring criteria.
- Co-authored research paper published at **IEEE SCEECS 2025**, validating system performance with **MAE of 1.87-2.67** across evaluation criteria using 25+ anonymized interview responses.

Projects

CodeReviewAI | Python, FastAPI, Llama 3.3 70B, Groq, GitHub Apps

[\(GitHub App\)](#) | [\(Chatbot\)](#)

- Built an AI-powered GitHub code review bot using Python and **FastAPI**, implementing **AST-based static analysis** to detect **25+ security vulnerabilities** and 50+ bug patterns while enforcing PEP8 compliance.
- Integrated GitHub App with webhook-driven PR analysis, leveraging **Llama 3.3 70B via Groq API** for context-aware code suggestions and deployed standalone chatbot on **Cloudflare Workers**.

SecureWallet | Java, Spring Boot, Spring Security, TypeScript, PostgreSQL

[\(GitHub\)](#)

- Developed secure digital wallet platform using Java and **Spring Boot**, implementing **JWT authentication** with refresh tokens, RBAC via Spring Security, and **ACID-compliant transactions** using pessimistic locking.
- Designed responsive frontend using **React, TypeScript, and Tailwind CSS**, featuring real-time balance visualization with Redux Toolkit and Recharts, applying SOLID principles in backend architecture.

BillBuddies | Next.js, React, Convex, Gemini AI, Inngest, Resend

[\(Live Demo\)](#)

- Created full-stack expense management application using **Next.js, React, and Convex**, implementing real-time expense splitting with **circular debt minimization algorithm** and smart settlement calculations.
- Integrated **Gemini AI** for monthly spending insights and automated email reminders via Inngest and Resend, with form validation using Zod and React Hook Form.

SmartLLM Router | Python, FastAPI, Ollama, Sentence-Transformers

[\(GitHub\)](#)

- Constructed intelligent **LLM routing middleware** using FastAPI, implementing rule-based query complexity classification over 40+ technical terms to route requests to optimal Ollama models with **90%+ routing accuracy**.
- Engineered **semantic caching** using Sentence-Transformers with cosine similarity matching achieving **45% cache hit rate**, deployed with Docker and **GitHub Actions CI/CD** including 85%+ test coverage.

Publication

J. Bhuva, T. Parmar, V. K. Dabhi, and H. B. Prajapati, "InterviewEdge: A Smart Interview Assistant," in *IEEE International Conference on Smart Computing and Electronic Enterprise (SCEECS)*, 2025. [\(Publication Link\)](#)