

JAYKUMAR BHUVA

Boston, MA | +1 (857) 397-2777 | bhuva.j@northeastern.edu | jay-bhuva | jaybhuvaa | Portfolio

EDUCATION

Northeastern University | Master of Science in Computer Science

Coursework: Programming Design Paradigm, Essentials of Data Science | GPA: 4.0/4.0

Boston, MA

Sep 2025 – Present

Dharmsinh Desai University | B.Tech in Information Technology

Coursework: System Design, OOP, DBMS, Web Development, ML | GPA: 8.8/10.0

Nadiad, India

Oct 2021 – May 2025

SKILLS

Programming Languages: Java, C, C++, C#, Python, JavaScript, React Native, SQL, Typescript, Bash, Shell, HTML

Web Technologies: React.js, Next.js, jQuery, Node.js, Express.js, .NET, CSS, Spring Boot, Websockets, gRPC

Databases & Testing: MySQL, PostgreSQL, SQLite3, MongoDB, Firebase, Redis, JUnit, Selenium

AI & ML: LLM, LangChain, HuggingFace, RAG, NLP, TensorFlow, PyTorch, Keras, scikit-learn, Transformers

Tools: Git, VS Code, IntelliJ IDEA, Jupyter Notebook, Android Studio, Linux, Jira, Figma, NGINX, Postman

Cloud & DevOps: AWS, Docker, Kubernetes, Jenkins, Kafka, CI/CD, System Design, Grafana, Prometheus, Microservices

EXPERIENCE

Software Developer Intern | Space Applications Centre (ISRO)

Ahmedabad, India

Hydrology Department

Dec 2024 – Mar 2025

- Designed an end-to-end **ETL pipeline in Python** to ingest, process, and transform **500+ satellite data files** from NASA APIs, automating extraction across **Shapefiles, NetCDF, and CSV** formats using **Pandas, NumPy, GeoPandas, and xarray**.
- Implemented a river discharge estimation algorithm integrating **3 data sources** across **28 satellite cycles**, achieving **69% KGE accuracy** through statistical validation with **RMSE metrics** using **SciPy**.
- Created an automated **data validation framework** with **Z-score outlier detection** and spatial matching, reducing manual preprocessing time by **80%** across **8 monitoring stations**.
- Authored a **SARIMA time-series forecasting** model analyzing **30 years of historical data**, producing **29 analytical visualizations** using **Matplotlib** for trend analysis and reporting.

Research Assistant | Dharmsinh Desai University

Nadiad, India

Department of Information Technology

May 2024 – Nov 2024

- Created a full-stack **AI interview evaluation platform** using **React.js, Flask, and REST APIs**, integrating **LLaMA 3.2 LLM** with a **RAG pipeline** and **ChromaDB** for semantic answer retrieval and scoring.
- Designed an **NLP pipeline** using **LangChain** and **sentence-transformers** for text embedding and cosine similarity matching, achieving **83.5% evaluation accuracy** across **4 scoring criteria**.
- Implemented a **RESTful API backend** supporting text and voice inputs with automated **PDF report generation**, reducing manual evaluation time by **70%**; published in **IEEE SCEECS 2025.(Research Paper)**

PROJECTS

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

(Live Demo)

- Built an **AI-powered GitHub bot** using **Python** and **FastAPI** that performs **AST-based static analysis** to automatically review pull requests, detecting **25+ security vulnerabilities** and identifying **50+ bug patterns** while enforcing **PEP8 style guidelines**.
- Integrated **Llama 3.3 70B** via **Groq API** for context-aware code review using **webhook-driven event processing** and **REST APIs**, reducing manual review time by **90%** to under **5 seconds**.
- Launched a production-ready system with **CI/CD pipelines**, inline **PR commenting**, and a **React-based landing page**, achieving **99.9% uptime** across multiple repositories.

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

(GitHub)

- Engineered an **intelligent LLM routing middleware** using **FastAPI** that classifies query complexity via **rule-based scoring** analyzing **40+ technical terms** to route requests to optimal **Ollama** models, achieving **90%+ routing accuracy** and **100% cost savings**.
- Implemented **semantic caching** using **Sentence-Transformers** with **coseine similarity matching**, achieving **45% cache hit rate** and built **real-time cost analytics** comparing against **GPT-4** baselines.
- Deployed with **Docker** and **GitHub Actions CI/CD**, implementing **40 automated tests** across unit, cache, and integration modules with **85%+ coverage**.

SecureWallet | Java, Spring Boot, Spring Security, Typescript, PostgreSQL, Docker

(Live Demo)

- Architected a **production-grade digital banking platform** using **Java** and **Spring Boot**, implementing secure user authentication with **JWT tokens** and refresh token rotation, wallet management, and real-time transaction processing.
- Engineered **role-based access control (RBAC)** with **Spring Security**, integrating **JPA/Hibernate** for **PostgreSQL** persistence and **pessimistic locking** to ensure **ACID-compliant** concurrent transactions.
- Designed **event-driven architecture** with async notification processing, applying **Strategy** and **Factory patterns** for extensible payment processing and wallet type management.