

## Ritesh Bastola

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### Professional Summary

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Computer Information Systems student (3.66 GPA) with hands-on experience building production-grade AI/ML applications using Python, LangChain, LangGraph, and cloud LLM APIs. Proven ability to design agentic AI pipelines, implement Retrieval-Augmented Generation (RAG) systems with vector embeddings, and engineer full-stack software solutions from prototype to deployment. Skilled in SQL, REST API integration, unit testing, and technical documentation. Eligible to work on CPT — no employer visa sponsorship required.

### Technical Skills

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**Programming:** Python (primary), JavaScript, Java, SQL, HTML/CSS

**AI / Machine Learning:** LangChain, LangGraph, Agentic AI, RAG, Vector Embeddings (FAISS, ChromaDB), Prompt Engineering, Google Gemini API, NLP

**Data & Databases:** SQL, SQLite, PostgreSQL, Pandas, Data Cleaning & Analysis, Data Visualization (Matplotlib, Plotly)

**Frameworks & Tools:** Fast API, Flask, Git/GitHub, Docker (basic), pytest, PyInstaller, VS Code, Microsoft Office Suite

**Concepts:** OOP, Agile/Scrum, System Analysis & Design, Unit Testing, REST API Integration, Software Documentation, Semantic Search, Cybersecurity Fundamentals

### Education

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**B.S. Computer Information Systems** | SUNY Buffalo State University

Expected Dec 2026

GPA: 3.66 | Honors Program | Dean's List Award

**Relevant Coursework:** System Analysis & Design, Database Management (SQL), Object-Oriented Programming, Technical Communication, Cybersecurity Fundamentals

### Projects

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#### FinSight — LangGraph Agentic Financial Analytics Pipeline

2025 – Present

*Python · LangGraph · LangChain · FastAPI · RAG · SQLite · pytest*

- Architected a multi-agent AI system using LangGraph that orchestrates specialized agents (Research, SQL Query, Analysis, Report) to autonomously answer complex financial questions from natural language input — directly applying agentic AI framework design patterns.
- Built a RAG pipeline integrating FAISS vector store and Google Gemini API to retrieve semantically relevant financial documents, generating grounded, citation-backed responses with structured prompt engineering for reliable output formatting.
- Designed a normalized SQLite schema and integrated a Python SQL-executor tool, enabling agents to query structured market data alongside unstructured document retrieval in a single unified pipeline.
- Exposed the pipeline as a RESTful API using FastAPI; implemented a comprehensive unit test suite with pytest achieving 85%+ code coverage across agent workflows and data-access layers.

#### SecureCode AI — Automated Vulnerability Detection & Reporting Tool

2025

*Python · AST · LLM Integration · pytest · GitHub Actions · PyInstaller*

- Built a Python CLI tool using AST-based static analysis to detect OWASP Top-10 vulnerabilities (SQL injection, hardcoded secrets, insecure deserialization) across Python and JavaScript codebases — producing actionable, line-level findings.
- Integrated Google Gemini API to generate natural-language explanations and remediation recommendations for each detected vulnerability, reducing mean time-to-fix for developers by providing context-aware fix suggestions.
- Generated structured HTML and JSON security reports with severity ratings and file locations; wrote a pytest test suite covering 12+ vulnerability patterns and edge cases.

#### Bengal RAWR — AI/ML Research & Scheduling Assistant

2024 – 2025

*Python · LangChain · Google Gemini API · RAG · Vector Embeddings · Google Calendar API*

- Designed and built a RAG pipeline that ingests multiple course syllabi, applies LLM-based document understanding to extract academic deadlines, and computes high-workload periods — solving a real scheduling problem with applied machine learning.
- Implemented semantic search using vector embeddings (ChromaDB) to retrieve contextually relevant document segments, improving query accuracy over keyword-based retrieval by approximately 40%.

- Integrated Google Calendar API for automated deadline export, delivering an end-to-end user-facing solution with minimal manual input and measurable time savings for students.
- Leveraged Google Gemini API with structured prompt engineering for reliable JSON-formatted output, enabling downstream calendar sync without post-processing errors.

### Leadership Experience

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**Building Manager** - Student Leadership & Engagement, Buffalo State 2023 – Present

- Directed daily operations of the Campbell Student Union, managing scheduling, safety protocols, and event readiness for a high-traffic campus facility serving 500+ students daily.
- Supervised and coordinated a 10+ member cross-functional operations team (event setup, custodial, AV/technical support), developing strong project management, delegation, and leadership under deadline pressure.
- Planned and monitored multi-stakeholder event logistics — space configuration, AV requirements, and staffing, communicating real-time status updates to administrators and 20+ event leads annually.

**Vice President** - International Students Organization, Buffalo State Feb 2024 – Dec 2024

- Served as primary liaison between 100+ international students and campus administration, translating complex institutional policies into clear, actionable guidance.
- Spearheaded diversity and inclusion initiatives; demonstrated cross-cultural communication and collaboration with peers from 30+ countries.

**STEM Instructor (Service Learning)** - SMT High School, Buffalo, NY 20 hours

- Taught Cybersecurity fundamentals and Intro to Python to high school students, adapting technical concepts for a non-expert audience and reinforcing documentation and communication skills.

### Additional

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**Work Authorization:** F1 Student Visa - CPT eligible (no employer visa sponsorship required)

**Soft Skills:** Technical documentation, verbal & written communication, critical thinking, adaptability to emerging technologies, collaborative and independent work