

Bhavani Shankar Ajith

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🌐 github.com/abs768 | [linkedin.com/in/abs768](https://www.linkedin.com/in/abs768) | abs768.github.io

Skills

Languages: Java, Python, C/C++, SQL, JavaScript

Backend & DevOps: Spring Boot, FastAPI, REST APIs, Microservices, PostgreSQL, Docker, Liquibase, GitHub Actions (CI/CD), Linux, React

AI & ML: LLMs, RAG, GraphRAG, Vector Search, Qdrant, ChromaDB, MCP, Pydantic, NetworkX, LSTM, CNNs, AWS Bedrock, Ollama, TensorRT, Pandas, NumPy

Work Experience

Stony Brook University, Stony Brook, NY

Feb 2026 - May 2026

Graduate Research Assistant

- Built a multi-source financial time-series pipeline using Stooq, yfinance, and FRED, producing a cleaned panel of 16 years of daily data across 20 stocks.
- Engineered technical, macroeconomic, and regime-based features for LSTM forecasting, and reviewed the modeling pipeline for leakage-safe splits, scaling, and walk-forward validation.
- Python, Pandas, NumPy, yfinance, FRED, LSTM, Time Series, Feature Engineering

Navitas Business Consulting, Herndon, VA

Jun 2025 - Aug 2025

Software Engineer Intern

- Led the migration of database schema management from Flyway to Liquibase, enabling complex schema changes with Dockerized execution and rollback support.
- Reduced enrollment processing time by 40% by implementing backend validation rules, transactional data flows, and PostgreSQL integrity checks for enrollment and document records.
- Built transactional Spring Boot REST APIs integrating legacy enrollment systems with the ARBenefits Portal, automating eligibility validation, enrollment workflows, and carrier assignment for 184K covered employees.
- Java, Spring Boot, REST APIs, PostgreSQL, Liquibase, Docker, AWS Bedrock, Microservices

NVIDIA — Edge Intelligence Lab at SRM University, Chennai

May 2022 - Oct 2022

Deep Learning Apprentice

- Optimized a vehicle-damage-detection CNN for NVIDIA Jetson using TensorRT and FP16 quantization, achieving 87% accuracy with sub-100ms on-device inference latency.
- Reduced CPU preprocessing time by 60% by moving image preprocessing workloads to NVIDIA VPI and containerized the edge inference pipeline for reproducible Jetson deployment.
- Python, TensorRT, NVIDIA Jetson, NVIDIA VPI, Nsight Systems, Docker, CNNs

Education

Stony Brook University, Stony Brook, NY

Aug 2024 - May 2026

MS in Applied Mathematics and Statistics (Data Science)

GPA: 3.75/4.0

Relevant Coursework: Big Data & Distributed Systems, Deep Learning, Large Language Models, Statistical Learning

SRM Institute of Science and Technology, Chennai, India

Sep 2020 - Jun 2024

B.Tech in Computer Science Engineering (AI & ML)

CGPA: 9.66/10

Relevant Coursework: Data Structures & Algorithms, Operating Systems, Computer Networks, Distributed Systems

Project Work

- **Forensic LLM Wiki (2026):** Developed a forensic case-wiki generator that turns notes into Markdown timelines, IOCs, hypotheses, and contradictions. Implemented evidence linking using a directed graph with hash-indexed dictionary lookup and content-hash deduplication. Validated outputs using a Pydantic schema layer and exposed 13 tools through an MCP server. Python, Pydantic, MCP, pytest.
- **PaperTrail (2026):** Built a GraphRAG research-paper agent that answers cross-paper questions with page-anchored citations. Implemented hybrid retrieval that seeds candidates with embedding search, then expands across papers via k-hop BFS over a directed knowledge graph (NetworkX DiGraph). Implemented entity canonicalization using a regex/alias table that lifted cross-paper linkage from 0% to 19.2%, with a fuzzy-match filter to drop fabricated citations. Python, FastAPI, React, ChromaDB, NetworkX, Docker.
- **DocGPT (2025):** Developed a self-hosted PDF QA app that runs entirely on local LLMs so documents never leave the user's machine. Implemented vector retrieval using top-K nearest-neighbor search over a Qdrant HNSW index with cosine similarity, with per-user access filtering so users only retrieve their own files. Selected the deployed model by benchmarking four local LLMs across 42 prompts. Java, Spring Boot, React, Qdrant, Ollama, PostgreSQL.

Awards and Certificates

- **Publication:** Book chapter on deep-learning plant disease classification (DenseNet-169, 99.61% accuracy).
- **Honors & Certifications:** SRM Merit Scholarship; OCI 2025 Data Science & Generative AI Professional.