

VINATHA VISWANATHAN

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EDUCATION

Master of Science in Computer Science, Northeastern University, Seattle, WA | *GPA: 4.0/4.0* (2025 – Expected 2027)
Bachelor of Technology in Engineering, Anna University, Chennai, India | *GPA: 3.98/4.0* (2017 – 2021)

EXPERIENCE

Software Engineer at Citi (2022 – 2024)

- **Real-Time Data Streaming Infrastructure:** Worked on initiatives to enhance cross-region data consistency, system observability, and fault-tolerant microservice performance
 - Led the integration of IBM Db2 Analytics Accelerator (IDAA) into Spring Boot microservices, reducing analytical data latency from 2 hours to under 30 minutes
 - Collaborated with stakeholders to implement persistent State Machines, minimizing Mean Time to Recovery (MTTR) by 35%
 - Developed an event-driven ingestion pipeline leveraging Apache Kafka, improved throughput by 2.5x and reduced message delivery latency by 40%
 - Integrated JUnit and Mockito test frameworks into Jenkins CI/CD pipelines, achieving over 85% code coverage
- **Internal Microservice Bootstrapping Framework:** Worked on developer-facing infrastructure to accelerate service setup, streamline data access, and improve service health monitoring
 - Engineered a framework to standardize runtime configurations through dependency injections, reducing setup time by 16–20 engineering hours
 - Implemented a multi-node cache with LRU eviction, reducing latency for frequent lookups by 75%
 - Deployed Splunk integration for metrics tracking, using structured logs and HTTP Event Collector to minimize incident response time by 30%
- **Report Validation and Data Standardization:** Worked on identifying inconsistencies between source data and regulatory guidelines, ensuring standardized formats across downstream applications
 - Designed a Directed Acyclic Graph (DAG) based report validation workflow to model dependencies between multiple report components, improving error detection accuracy by over 50%
 - Executed data correction and remediation workflows to comply with the regulatory standards across multiple downstream systems, achieving a 95% reduction in data field discrepancies

PROJECTS

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- **Incident Root Cause Analysis AI Chatbot | MLH Data Hackathon 2025 | Track Winner:** Built an assistant to automate incident triage workflow that helps identify the root cause for unfulfilled orders
 - Utilized gpt-5 with the Model Context Protocol (MCP) Server to orchestrate dynamic tool execution
 - Designed SQL context configuration using JSON incident triage rules to provide the LLM with schema awareness
 - Implemented custom functions to autonomously select and execute SQL queries, achieving over 85% accuracy
 - Developed a chat interface with FastMCP for real-time bidirectional communication between DRI and LLM, maintaining conversation history
 - **Secure Shell MCP AI Agent | MLH Open-Source Hackathon 2025 | Top 10 Overall:** Built an MCP server that helps a user execute commands to navigate, search, and organize local files through natural conversation
 - Implemented validation mechanisms to restrict command workflows, enforce allowed directories, and block unauthorized commands
 - Developed functionality to work seamlessly across multiple OS, ensuring cross-platform compatibility
 - Reduced file navigation and search time by 60% compared to manual CLI usage
 - **HR Onboarding AI Assistant | Citi's Digital Innovation Challenge Hackathon 2023:** Built an AI chatbot leveraging LLM and Retrieval-Augmented Generation (RAG) to deliver role-specific onboarding guidance
 - Developed a microservice with FastAPI backend and persistent session storage, supporting scalable multi-user onboarding interactions
 - Implemented context retrieval leveraging ChromaDB embeddings for high-dimensional semantic search and dynamic context windowing to maintain session continuity
 - Integrated user metadata and role-based filtering to dynamically tailor responses

SKILLS

Programming Languages: Java, Python, SQL, JavaScript, CSS, HTML

Databases: Oracle, PostgreSQL, IBM Db2, MongoDB

AI / Automation: RAG, MCP, LangChain, OpenAI API

Proficiencies: Data Structures & Algorithms, Object-Oriented Programming, Distributed Systems

Tools & Platforms: Kafka, GitHub, Kubernetes, Docker, JUnit, Mockito, Spring Boot, RESTful APIs, Postman, Jenkins