Indumathi Thamizharasan

New York, NY (Open to Relocate) | +1 (716) 256-7808 | indumathithamizharasan@gmail.com | LinkedIn | GitHub | Portfolio

Education

University at Buffalo, State University of New York Aug 2024 – May 2026
Master of Science in Computer Science and Engineering, GPA: ***3.56/4.0*** *Buffalo, NY*
Relevant Coursework: Database Systems, Data Intensive Computing, Machine Learning, Algorithms Analysis & Design

Sathyabama Institute of Science and Technology Jun 2018 – Sep 2022
Bachelor of Engineering in Computer Science and Engineering, GPA: ***9.13/10*** *Chennai, India*

Technical Skills

Programming Languages: Python, Java, TypeScript, JavaScript, SQL, C++
Backend & Full-Stack: Spring Boot, Spring Security, FastAPI, Node.js, React, Next.js, REST APIs, WebSockets
Databases & Messaging: PostgreSQL, MySQL, BigQuery, Redis, Kafka
AI/ML: RAG, FAISS, LangChain, GPT-4, LLM, Sentence Transformers, Groq
Cloud & DevOps: GCP, Azure, Docker, CI/CD, Git, Linux, JUnit, Mockito, Vitest, PyTest, Prometheus, Grafana
Core Concepts: Data Structures, Algorithms, OOP, System Design, Distributed Systems

Work Experience

University at Buffalo – A2IL Research Lab Feb 2026 – Present
Software Engineer | React, Next.js, TypeScript, Node.js, MySQL, Knex, Vitest

- **Optimized core backend data access layers** across **12 MySQL modules** using native SQL joins and JPA projections, **cutting query response latency by 40%** across **8+ REST API endpoints**.
- **Collaborated with cross-functional faculty teams** to build an interactive committee-assignment matrix in React and Next.js backed by **3 Node.js CRUD REST endpoints**, **accelerating workflow efficiency by 35%**.
- **Secured strict transactional data integrity** in MySQL across **1,200+ daily operations** utilizing transaction-safe Knex persistence, row-level concurrency locking, and permission-aware access controls.
- **Standardized modular table views across 6+ administrative modules** by building a reusable React DataTables component featuring SSR-safe Next.js loading, sorting, filtering, and CSV/Excel data export.
- **Delivered complete component integration testing coverage** and zero regression defects by establishing rigorous validation suites using JUnit, Mockito, and 4 Vitest database-backed test suites.

Accenture (Client: Mondelez International) Aug 2022 – Aug 2024
Software Engineer | Python, SQL, BigQuery, GCP, Talend

- **Engineered high-throughput enterprise ETL pipelines** integrating SFTP, SharePoint, and Google Cloud Storage into BigQuery, **sustaining a 99.9% production SLA adherence rate** across **40+ deployed workflows**.
- **Refactored complex SQL stored procedures** for data cleansing, validation, and reconciliation, **slashing BigQuery transformation runtimes by 35%** across **15+ core reporting jobs**.
- **Developed custom Python preprocessing utilities** paired with SQL regex filters to normalize multi-format enterprise feeds, **eliminating 98% of data parsing errors** across **500K+ daily records**.
- **Maintained 99.9% on-time execution** of **30+ recurring production data pipelines** by diagnosing Talend and SQL log execution failures, validating data payloads, and coordinating Automic schedules.
- **Resolved critical production parsing failures** driven by source whitespace anomalies across **50+ enterprise files** through Python enhancement scripts, validating fixes across Dev to Production via Git and Linux SSH.

Projects

Distributed Task Scheduler | Java, Spring Boot, Redis, MySQL, Azure Container Apps | GitHub

- **Architected a scalable task orchestration service** with **10 REST endpoints** separating state in MySQL from Redis coordination, **sustaining 2,500+ tasks/s at sub-15ms latency** across **10 distributed nodes**.

CRACK – Event-Driven Social Platform | Python, FastAPI, PostgreSQL, Kafka, Redis, Docker | GitHub

- **Built an event-driven FastAPI backend** with a transactional outbox pattern and idempotent consumers, **sustaining 190 req/s throughput** with zero data duplication across **96 implemented tests**.

AI Document Intelligence Platform | Python, FastAPI, FAISS, LangChain, GPT-4 | GitHub

- **Constructed a self-hosted RAG pipeline** integrating LangChain, GPT-4, and FAISS vector search across a **50K+ document corpus**, **reducing query retrieval latency by 45%** via cross-encoder re-ranking.

Achievements & Recognition

Awarded the Accenture Excellence Award (out of 200+ associates) for exceptional performance, peer teamwork, and on-time delivery across core data engineering and pipeline modernization initiatives, maintaining 99.9% production SLA compliance.