Sai Varshini Thupakula

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Backend Engineer with 2+ years at IBM building Java/Spring microservices and REST APIs. Experienced in data-layer work (PostgreSQL & MongoDB), performance tuning, and CI/CD automation.

EDUCATION

Northeastern University — Boston, MA
Master's in Computer Science — *Sep 2025 – Present (Expected May 2027)*
- Courses: Programming Design Paradigm, Database Management Systems, Algorithms, Cloud Computing.
- Activities: Research Engineer at MonIoTr Labs (Cybersecurity/Networking); Web Developer at SHEROS of Color.

Vasavi College of Engineering — India
Bachelor's in Computer Science — GPA: 3.7/4.0 — *June 2019 – May 2023*

SKILLS

Languages & Frameworks: Java, Python, JavaScript, Spring Boot, Node.js, Express.js
Backend: REST APIs, Microservices, Authentication/Authorization (JWT), Concurrency (Threads/Locks)
Databases: MongoDB (Indexes, Aggregation, Replica Sets), PostgreSQL, MySQL, Query Optimization
DevOps: Docker, Jenkins (CI/CD), Git, Maven/Gradle, Linux/RHEL, Bash

EXPERIENCE

IBM, Software Engineer — Aug 2023 – June 2025
India Systems Development Labs (ISDL) — *India*
- Modernized backend services by migrating **15+** legacy OSGi modules to **Spring Boot**; resolved dependency injection and shared-module coupling issues to improve release reliability.
- Led data consolidation from **PostgreSQL to MongoDB** (**5M+** documents); designed collections, indexes, and aggregation-based reads to optimize key workflows.
- Improved **REST API** performance under peak usage by refactoring multithreaded session handling and tuning connection pooling to reduce request latency on critical endpoints.
- Co-owned **RHEL 8.7 to 9.5** upgrade by validating kernel/runtime compatibility and coordinating rollout steps with infrastructure and QA teams.
- Hardened services by patching high-severity CVEs and enforcing modern TLS configurations; partnered with security teams to reduce recurring findings across releases.
- Automated release packaging and deployments using **Jenkins** and **Docker**, improving repeatability across multi-environment setups.

IBM, Software Engineer Intern — Jan 2023 – July 2023
India Systems Development Labs (ISDL) — *India*
- Built a Resource Management Platform with Node.js/Express and MySQL; implemented JWT auth, role-based access, and Dockerized local environments to speed up internal provisioning workflows.
- Integrated Python-based monitoring modules streaming CPU/memory metrics to dashboards to improve operational visibility for lab resources.
- Optimized Docker builds with multi-stage images, reducing environment setup time from **45 minutes to 15 minutes**.
- Automated test workflows for IBM Storage Protect Plus using CBA framework to reduce manual QA effort for routine validation.

PROJECTS

MoveMind — React + Node/Express + MySQL | Live | Source: Full-stack logistics platform with JWT authentication, user-scoped isolation, and middleware authorization. Designed normalized MySQL schema (12+ tables) with foreign-key constraints and cascading deletes. Implemented hierarchical navigation and QR-code generation.

Track-It — MERN Stack | Source: Job application tracker with secure REST APIs for auth and CRUD operations (MongoDB). Implemented bcrypt password hashing, JWT-based login, and rate limiting (10 requests/IP). Built filtering and sorting by title/company/date with a responsive React UI and state management using Hooks.

Automated Glaucoma Detection — Published Paper: Diagnostic system integrating CNN, SVM, and KNN models, achieving 94% accuracy on the RIGA dataset (2,664 retinal fundus images). Applied preprocessing (contrast normalization, ROI segmentation, noise filtering) and evaluated with 5-fold cross-validation and confusion matrices.