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Rithvik Dhanpal

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Summary

Full Stack Software Engineer and Data Scientist with 3+ years of experience designing Java Spring Boot microservices, scalable web platforms, and data pipelines supporting analytics and machine learning workflows. Strong background in distributed systems, CI/CD automation, SQL optimization, and GenAI-based retrieval systems.

Work Experience

MedPlus (Optival Health Solutions)
Software Engineer *Jul 2021 – Dec 2023*

- **Designed** and operated distributed **Java Spring Boot microservices** and **REST APIs** across user management, finance, and warehouse domains, adhering to stateless service principles and domain-driven service boundaries to support scalable enterprise workflows
- **Contributed** the migration of legacy **Spring-based monolithic** components into a **microservices architecture**, improving horizontal scalability, deployment isolation, fault tolerance, and release velocity across dependent systems
- **Developed** full-stack presentation layers using **React, Angular, and JSP**, enabling seamless end-to-end integration with backend services while designing **ETL data pipelines** that connected the MedPlus Data Lake to downstream analytics platforms for forecasting and machine learning use cases
- **Optimized SQL and JPA** persistence layers through query refactoring and index tuning, while implementing **RBAC-based security** and automating **CI/CD** and infrastructure workflows using Linux, Git, Jenkins, Docker, RabbitMQ, and Redis

Montclair State University Montclair, NJ
Graduate Assistant & Supplemental Instructor *October 2024 – Present*

- Delivered structured technical instruction and mentorship to 200+ students across **Python**, **Java**, **Data Structures**, **Databases**, **Web Development**, and **Machine Learning**, emphasizing algorithmic reasoning, debugging methodologies, and backend system design through Supplemental Instruction sessions
- Collaborated with faculty to design and validate **Spring Boot REST API** labs and **SQL** exercises, while performing survey data analysis using **Python** and **SQL** and developing analytical dashboards and visual reports to communicate trends in student engagement and academic outcomes

Projects

Enhanced Parallel and Distributed Computing via Graph-RAG [GitHub]
Designed a distributed **Graph-RAG architecture** combining graph-based retrieval with **LLM** inference to achieve sub-second semantic search latency

PCOS Prediction System (MLOps) [GitHub]
Built an end-to-end machine learning pipeline with **feature engineering, model evaluation**, and **Dockerized REST APIs** achieving approximately **92 percent** accuracy

BERT-Based Medical Entity Recognition [GitHub]
Implemented a **transformer-based** NLP pipeline using **BERT** to extract and classify medical entities from unstructured clinical text

Additional Projects: HPCTutor Agent, AI Stylist – Personalized Outfit Recommendations,Global Earthquake Analysis Dashboard and additional systems available via portfolio [Link]

Skills

Programming, Systems, and Data: Java, Python, SQL, JavaScript (ES6+), TypeScript, R with strong foundations in object-oriented design, microservices architecture, distributed systems, data pipelines, feature engineering, and model evaluation including AUC, Precision–Recall, and RMSE

Frameworks, Cloud, DevOps, and GenAI: Spring Boot, Flask, FastAPI, Dash, PyTorch, TensorFlow, Scikit-learn, Spark, Hadoop; React, Angular, RESTful APIs; PostgreSQL, MySQL, Oracle, MongoDB, Neo4j, vector databases; AWS (EC2, S3, IAM, CloudWatch, Bedrock, SageMaker, Titan), Docker, Jenkins, Git, Linux, Solaris, RabbitMQ, Redis, LLM systems including LangChain, Graph-RAG, RAG, prompt engineering, semantic search, Stable Diffusion with RBAC and OAuth 2.0

Education

Montclair State University Montclair, NJ
Master of Science in Data Science GPA 4.0 *December 2025*