# Md Ahmedkhan

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## EXPERIENCE

**Software Engineer** — February 2024 – Present
*Deutsche Bank* — *Cary, NC*

- Designed and delivered bulk payment processing pipelines handling 5000+ weekly transactions for Corporate Banking, optimizing batching, concurrency, and asynchronous workflows to increase high-volume transaction throughput, reduce latency, and ensure data consistency.
- Designed and implemented full-stack features for the client portal platform, integrating React-based UI components with Spring Boot REST APIs and microservices on Google Kubernetes Engine (GKE) to improve scalability, reliability, and access to notifications, balances, invoices, and client data across US and EMEA regions.
- Evolved and owned multiple Spring Boot microservices deployed on GKE, driving architectural improvements including asynchronous processing, service-to-service communication, and a refactor that reduced system latency by 20% while improving fault tolerance, observability, and reliability using Terraform and Google Cloud Platform (GCP).

**Software Engineer Intern** — June 2023 – August 2023
*Deutsche Bank* — *Cary, NC*

- Built a cloud observability and monitoring pipeline to detect anomalous behavior, performance bottlenecks, and failures in a large-scale single payments system, improving operational visibility and incident response.
- Designed and implemented a Google Cloud–based analytics pipeline leveraging Vertex AI, Python, and SQL to process market-consensus data and generate predictive insights for internal banking analytics teams.

**Data Science Intern** — June 2022 – June 2023
*Dime Community Bank* — *New York, NY*

- Designed SQL data models, optimized database schemas, and constructed data marts to support analytics, reporting, and ETL workflows across marketing and finance teams.
- Developed Python and SQL automation scripts to generate recurring financial and operational reports, supporting business decision-making for a $12 billion asset portfolio.

## TECHNICAL SKILLS

**Backend & Distributed Systems**: Java (Spring Boot), Python (FastAPI, Flask), RESTful APIs, microservices architecture, asynchronous processing, multithreading, event-driven systems, service-to-service communication

**Cloud & DevOps**: Google Cloud Platform (GCP), Google Kubernetes Engine (GKE), Terraform, Docker, GitHub Actions, CI/CD pipelines, infrastructure-as-code, observability & monitoring (Grafana)

**Development Tools**: Terraform, Google Cloud Platform (GCP), GitHub Actions, Docker, Grafana

## PROJECTS

**Spring Boot RAG Query Engine** | *Spring Boot, Postgresql, Google Gemini, Docker*     github.com/nycweather/peppermint
Built an AI-powered backend service enabling conversational queries over structured and unstructured data using vector similarity search (pgvector), PostgreSQL, and large language models (LLMs). Implemented a custom retrieval, ranking, and triage pipeline to deliver context-aware responses, exposed via REST APIs and deployed using Docker.

**Real-Time Social Multiplayer Web Game** | *React, Bun, TypeScript*     wave.nycweather.me
Designed and implemented a server-authoritative real-time multiplayer system using WebSockets, managing concurrent connections, session state, room lifecycles, and synchronized game state updates. Built a state-machine–driven backend with deterministic logic, fault-tolerant reconnect handling, and minimal client-side trust.

## EDUCATION

**Queens College** — Flushing, NY
*Bachelors in Economics, Minor in Computer Science* — *2020 – 2024*