Michael Karb

3931 Wedonia Dr, Cary, NC 27519 • (847) 418-1041 • mdk804@gmail.com

EXPERIENCE

IBM — Research Triangle Park, NC
Band 7 Software Engineer — June 2022 - Present

- Designed and led the implementation of a reusable event-driven architecture leveraging Kafka, REST APIs, and cloud-based microservices, with automated testing in JUnit and CI/CD with Jenkins. This architecture supports enterprise-grade services—such as Pepsi, IBM Sales Cloud, and Salesforce—that collectively manage $20M+ in contract and ERP data, ensuring scalability and reliability.
- Architected and deployed an automated, configurable service that connects and relates distributed data across multiple sources, facilitating DB2 transactions, S3 uploads, and MongoDB storage. Empowers 25+ teams and handles 10,000+ calls per minute, processing millions in transactional data daily. Reduced deployment time for configuration-related changes and became the most frequently used service. Due to its effectiveness, the idea is currently in the process of being patented.
- Implemented substantial code enhancements using Java concurrency, reducing the frequency of duplicate active transactions in backend databases by 99% and significantly improving system efficiency and reliability.
- Inner sourced multiple high-impact internal projects, including a company-wide CI/CD pipeline. Enhanced development efficiency for 1,000+ employees and decreased deployment time by 50%.
- Co-developed an AI onboarding assistant with Watson Assistant, reducing developer non-technical workload by 20%.
- Led a 50 TB cloud migration on S3 from Frankfurt to Dallas, creating a reusable Jenkins job, boosting throughput from 5 Mb/s to 80 Mb/s.
- Upgraded Java, Spring Boot, and Tomcat to enhance performance, security, and resolve 300+ vulnerabilities.
- Designed a microservice to concurrently orchestrate multiple REST API calls, reducing redundant requests per process by 66%.

IBM — Research Triangle Park, NC
Band 6 Software Engineer — August 2021 - June 2022

- Led agile team to develop a high-performance publish/subscribe system. Built robust microservices on IBM Cloud leveraging Kafka Connect and ksqlDB, which now supports 30+ teams and 20,000 daily users.
- Optimized Kafka-DB2 integration with custom SQL queries. Reduced queries from minutes to seconds and increased throughput by 500%.
- Created Kafka consumer, producer, and admin applications in Java, saving 100+ hours by streamlining development for other teams

EDUCATION

Master of Computer Science — December 2024
University of Illinois - The Grainger College of Engineering — Urbana-Champaign, IL

Bachelor of Computer Engineering — May 2021
University of Minnesota – Twin Cities - College of Science and Engineering — Minneapolis, MN

SKILLS

Programming Languages: Python, Java, C/C++, SQL, JavaScript
Frameworks & Libraries: Spring Boot, REST, Kafka, React, React Native, OpenGL, WebGL, NumPy, Pandas, PyTorch
Tools & Platforms: IBM Cloud, AWS, Google Cloud, Git, JIRA, Docker, Jenkins, Maven, Gradle, Kubernetes, OpenShift, Godot
Databases: DB2, MongoDB, PostgreSQL, Redis

OTHER

Projects: Emotional intelligence mobile app for AONest using React / Native (Volunteered 2024-2025), Link-state network router with 100 nodes in C (2024), Watson AI automated daily task summarizer with Jira integration (2023), Object-oriented full-feature 3D Ray Tracer with Bounding Volume Hierarchy in C++ (2023), Discord translator bot using Google Translate APIs in Python (2022), PyTorch Road Damage Detection Algorithm with Smartphone Application (2021)

Leadership: IBM Next - Vice President (2024), Watson Challenge Hackathon Team Lead (2023), Carolinas Tech Exchange Conference Symposium Speaker (2023), IBM Site Showcase Speaker (2022)

Certifications: Intelligent Workflow Extraction and Characterization Patent (Pending 2025), IBM Level 2 Certified Developer (2024)