

Michael Karb

3931 Wedonia Dr, Cary, NC 27519 • (847) 418-1041 • mdk804@gmail.com
[linkedin.com/in/michael-karb-a27631162](https://www.linkedin.com/in/michael-karb-a27631162) • mdk8414.github.io/michael-karb-portfolio

EDUCATION

University of Illinois Urbana-Champaign

Master of Computer Science - The Grainger College of Engineering

Urbana-Champaign, IL

December 2024

University of Minnesota Twin Cities

Bachelor of Computer Engineering - College of Science and Engineering

Minneapolis, MN

May 2021

EXPERIENCE

IBM

Band 7 Software Engineer

Research Triangle Park, NC

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 that collectively manage \$200M+ 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 S3 cloud migration, creating a reusable Jenkins job, boosting throughput from 5 Mb/s to 80 Mb/s.
- Designed microservices to concurrently orchestrate multiple REST API calls, reducing redundant requests per process by 66%.

IBM

Band 6 Software Engineer

Research Triangle Park, NC

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 custom DB2 SQL queries used for Kafka. Reduced queries from minutes to seconds, increasing throughput by 50x.
- Created reusable Kafka consumer, producer, and admin applications in Java, streamlining development for other teams.

SKILLS

Programming Languages: Java, Python, C++, C, JavaScript, SQL

Frameworks & Libraries: Spring Boot, REST, Kafka, React, Tailwind CSS, React Native, WebGL, Three.js, Pandas, PyTorch

Tools & Platforms: Git, GitHub, Jira, Docker, Jenkins, Maven, Gradle, Kubernetes, OpenShift, AWS, IBM Cloud, Godot

Databases: DB2, MongoDB, S3, 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 (Hackathon 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)

Patents: Intelligent Workflow Extraction and Characterization Patent (Pending 2025)