

Karthik Kumar

Senior Software Engineer at Netflix

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Work Experience

Senior Software Engineer Oct '20 - Present

Netflix (Remote)

Building Distributing Tracing infrastructure as a member of Observability Engineering.

- Core contributor to a new storage system for trace data, modeled after data lake architectures, which **reduced cost by 60% while improving search and aggregation capabilities**.
- Lead the design and implementation of a new system for trace collection.** Developed a sidecar/collector to support higher volume, more reliable transport with lower overhead
- Introduced a new form of sampling for trace data** allowing mid-tier applications to make sampling decisions. Implemented platform libraries and deployed across the fleet ([design](#))
- Scaled tracing infrastructure by 20x** to handle increased load from new domains
- Currently leading a fleet-wide migration to OpenTelemetry

Senior Software Engineer Sep '18 - Sep '20

Lightstep (acq. by ServiceNow) in San Francisco, CA

Built tools for **robust root-cause analysis** of latency and errors based on distributed traces, system metrics and logs from spans.

- Core contributor to an **industry-first product** that provided **flexible analysis** of large collections of traces ([blog](#))
 - The feature allowed **complex filtering and grouping of distributed trace data and identified system attributes** that are correlated with **high latency & errors**
 - As part of this project, designed and migrated a core monolithic service into a **distributed leader-worker model** that **horizontally scales** to meet demand
- Developed a product to **visualize system architecture** as a **nodes & edges diagram** derived from distributed trace data ([blog](#))
- Led a project to integrate with other open-source tracing libraries (Jaeger, Zipkin) to **improve data ingestion** flexibility and capability
- Proposed and prototyped several ideas that expanded analysis capabilities and were eventually integrated into the product

Senior Software Engineer, Tech Lead Jan '16 - Sep '18

Rally Health in San Francisco, CA

- Led a team of **six engineers** building features for Rally Engage. A consumer product that **promotes healthy habits** through rewards & incentives
 - Built a **robust recommendation system** to suggest relevant activities based on a user's health goals and habits which led to **increased engagement and participation**
 - Architected and implemented a **foundational system for translating strings** on-demand based on a user's locale
 - Migrated a legacy, monolithic application into several scalable, independently deployable services. These microservices had **lower latency, higher test coverage** and **better error handling** ([blog](#))
- Member of Eng. Tech Staff, serving as a **technical leader** on many large initiatives
 - Led a "Night's Watch" team of **ten engineers** that triaged and fixed critical performance bottlenecks and **successfully scaled services** to meet increased demand on Jan 1

Software Engineer Jun '13 - Dec '15

Opower (acq. by Oracle) in Arlington, VA

- Core contributor to a **data integration platform** for ingesting **100 billion utility data points/year** from over 100+ unique clients ([blog](#))
 - Migrated a legacy data import framework into a batched process, which reduced data import time from **several hours to a few minutes**
 - Developed several data validation techniques, **improving data quality and accuracy** and tools to **visualize ETL process** and surface data quality issues to client

Summary

I'm a **product-minded engineer** building Observability infrastructure at Netflix. I'm passionate about the **performance and reliability of distributed systems**. I have over **14 years** of experience **leading complex projects** and **reliably delivering results**.

I'm looking for opportunities to grow my skills and work with interesting people on challenging problems.

Education

M.S. Computer Science

Georgia Tech, Artificial Intelligence

B.S. Computer Science, Honors

Virginia Tech, Minor in Math

Summa Cum Laude

Values

- Communicate with clarity and transparency
- Embrace challenges to grow
- Build trust through accountability and empathy

Interests

- Distributed Systems
- API design
- Observability
- Back-end software development
- Scalability and Reliability
- Developer Productivity

Technologies

- Languages:** Go, Java, Scala, Python, JavaScript
- Databases:** MySQL, MongoDB, Elasticsearch, Druid, Kafka
- Platforms:** Kubernetes, GCP, AWS, Docker
- Frameworks:** Spring Boot, gRPC, ReactJS, Rails, OpenTelemetry, Django, Akka, Apache Parquet, Apache Arrow
- AI:** Claude Code, LangChain