

Joshua Kellerman | Principal Engineer & EM

New York / SF Bay Area / Charlotte, NC / Remote
<https://www.joshuamk.com/engineering>

Professional Summary

Results-oriented Software Engineering Leader with 10 years of experience designing and shipping distributed systems at scale for top-tier tech companies (Twitter, Credit Karma, Yubico). Proven track record of driving technical strategy, building/integrating generative and traditional AI/ML models, standardizing back-end infrastructure, and mentoring teams. Designed, built, and shipped "Safety Mode" on Twitter's Health and User Experience Team (disbanded) that served 36 million monthly users between 2021 and 2022. Strong expertise in Scala, Typescript (Node.js), Python (ML/AI/Web), and Cloud Services Architecture (AWS/GCP), combining deep technical hands-on ability with high-level organizational strategy.

Technical Skills

- **Languages:** Scala (Finagle/Finatra, Play, Cats), Python (Flask, Numpy, Pandas), Java, GoLang, TypeScript, Javascript, PHP, C, C++, C#. Functional Programming, Object-Oriented Programming, Procedural Programming.
- **AI & Machine Learning:** PyTorch, Tensorflow, NLP/NLU, Deep Learning (Feedforward, CNNs, RNNs, Transformers), Ranking, Knowledge Graphs, Generative AI (LLMs, Fine Tuning, Diffusion).
- **Infrastructure & Cloud:** AWS, GCP, Kubernetes, Docker/Rancher, Pubsub, Kafka, SQS, Hadoop, Spark, Aurora/Mesos, Terraform. CI/CD. Stats/Logging.
- **Data, Storage & Retrieval:** Vector and Graph Databases, Semantic/Similarity Search, MySQL, PostgreSQL, DynamoDB, NoSQL, MongoDB, Redis, BigQuery, Spanner, Elasticsearch, Memcached, etc.
- **Concepts:** Data-intensive Distributed Systems, Microservices Architecture, Event Driven Architecture, CI/CD, Agile/Scrum Leadership, Testing Frameworks.

Leadership

- **Engineering Management:** Served as EM at Echo360, interim EM at Twitter, and Lead at Credit Karma, Yubico, and Mosaix.ai; managed team health, performance reviews, hiring, and execution planning. Worked directly with VP and Director-level stakeholders to achieve goals.
- **Technical Mentorship & Team Building:** Established and led weekly engineering excellence workshops at Credit Karma to up-level junior and mid-level engineers in a Scala Functional Programming paradigm. Recruited and trained engineers at Mosaix.ai, Echo360, and Yubico.
- **AI-First Tech Strategy:** Designed features and thresholds for Safety Mode ML models with Twitter Health Data Science team. Integrated NLU captioning microservice at Echo360 as Principal Engineer and Architect. Designed features and trained ranking for NLU models at

Mosaix.ai under Google AI Scientist Ni Lao.

- **Cross-Functional Leadership:** Led high-stakes technical integration with major Credit Bureau to resolve critical data consistency issues affecting millions of users, measured **\$2 million annual** recovered profits. Led investigation into a major data inconsistency and brought a resolution to internal Data Team.

Experience

Credit Karma (Intuit)

Charlotte, NC

Tech Lead / Senior Backend Engineer

Dec 2024 – Present

- Serving as a Technical Lead for the core Credit Ecosystem team, driving and implementing architectural decisions for business-crucial offline data processing.
- **Staff-Level Impact:** Spearheaded a cross-team initiative to standardize Finagle Server Architecture, significantly reducing technical debt and unifying service patterns across the org.
- Designed and implemented the consolidation of fragmented microservices, optimizing costs and time-to-recovery, and improving system reliability.
- Led high-stakes collaboration with bureaus to resolve member population state drift, restoring data integrity for millions of users.
- Established a weekly Scala engineering excellence series to up-level junior and mid-level engineers.
- Led project managing six engineers to combine in-house LLMs and Knowledge Graphs for a PoC Agentic Coding and Documentation Bot “Docu-Bot” for Credit Ecosystem.

Self-Employed

New York, NY

Cloud Architecture Consultant

Dec 2023 – Dec 2024

- Delivered high-impact cloud architecture solutions for diverse clients, specializing in ML/NLP integration and legacy modernization.
- Advised startups on scalability strategies, containerization (Docker/K8s), and microservice decomposition..
- Directed implementation of encrypted, scalable data pipelines using Kafka and AWS Lambda for real-time processing applications.

Echo360

Washington, D.C.

Principal Backend Engineer & EM

Sept 2022 – Aug 2023

- **Dual Role:** Operated as both Principal Engineer and EM of a small backend team, leading technical delivery while managing team health and execution.
- Architected and delivered a video-chaptering microservice, delivering on promise to customers.
- Solved a critical distributed systems failure in AWS SQS that caused duplicate processing; designed an idempotent message handling pattern to guarantee idempotent exactly-once processing.
- Directed the modernization of a legacy two-channel cloud video capture monolith into four-channel capability, meeting quarterly deadlines.
- Oversaw three engineers to overhaul the UI of the Echo360 desktop application for the four-channel upgrade in GoLang and React, significantly improving user experience.

Twitter

San Francisco, CA

Senior Software Engineer (Contract, User Health Team)

Sept 2020 – July 2022

- **On track to Staff Engineer** with FTE offer: Owned architecture for high-visibility "Safety Mode", which served 36M+ monthly active users until retired in X.com takeover in 2022.
- Designed and implemented the "Smart Blocks" social graph edge TTL system using Hadoop, Kafka, and AWS Lambda; instrumental in the 2021 launch of "Safety Mode" for VIP users.
- Engineered a custom Timeline Mixer back-end in collaboration with the Social Graph team to allow users to see filtered abusive content in real-time and provide feedback to our model.
- Lead engineer on the migration of the Twitter Abuse Reporting Flow to a new architecture.
- SRE interim EM: oversaw the "Health Engineering Dashboard" (Python/React), aggregating deployment metrics and KPIs to drive engineering efficiency across the organization. Adopted by Twitter at large.

Mosaix.ai (Defunct)

Palo Alto, CA

Senior Backend / Machine Learning Engineer

2018 – 2019

- Re-architected the NLU (Natural Language Understanding) engine in Scala using a combination of FP and OOP, achieving a 4000% increase in query throughput and reducing latency by 50%.
- Designed, built, and delivered a machine-learned Recommendations engine for tight 1-month deadline, keyed by locality and language and personalized, with a Redis cache system. Fluidly served hundreds of thousands of requests daily.
- Designed features for and trained Ranking ML models for Semantic Search of an entertainment knowledge graph. Used CNNs for Named Entity Recognition.
- Optimized design of Spotify knowledge graph, resulting in 200% higher coverage and 4% better search accuracy.
- Built a comprehensive backend testing/debugging environment for the entire engineering department.
- Worked on business logic middlewares for user-facing web app in TypeScript and GraphQL (rate limiters, routes, etc.)
- Mentored on NLU and ML best practices by Google AI Scientist Ni Lao.

Yubico

Palo Alto, CA

Web Developer / Lead User Experience Engineer

2015 – 2018

- Single-handedly architected and engineered the "YubiKey for Windows Hello" Desktop Windows application, the first ever to use the Windows Hello Companion Device Framework for allowing login with YubiKeys, featured at the Microsoft Ignite 2016 keynote mainstage.
- Promoted rapidly to Tech Lead of Web Team; oversaw the redesign of Yubico's e-commerce platform.
- Designed the first User Experience flow for registering and naming YubiKeys as U2F devices, directly informing the FIDO alliance's FIDO2 standard for all hardware security keys.
- Trained as a software engineer in C and C# (APDU / Smartcard programming) during an intense bootcamp by Jakob Ehrensvar, CTO of Yubico.

Education

Columbia University

New York, NY

Masters Degree (MFA), Film

2020 – 2024

- Focus on Narrative Structure, Film Directing, and Screenwriting.
- Graduated with Honors.

Sciences Po: Aix-en-Provence

Aix-en-Provence, France

Year abroad: European Geo-Politics

2013 – 2014

- Journalist at French student newspaper, "L'Aixhaustif"

University of Wisconsin-Madison

Madison, WI

Bachelor of Arts, English / Computer Science

2010 – 2014

- Dean's List, 3 semesters.