Aanand Kainth

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SKILLS

Languages: Python, Java, JavaScript, TypeScript, Kotlin, Go, Bash
Frameworks/Libraries: React, Node.js, Next.js
Databases/Systems: Kafka, PostgreSQL, PGVector, MongoDB, Firestore
Tools/Platforms: AWS, Docker, Git, Linux/Unix

EXPERIENCE

Software Engineer @ **Amazon Web Services (AWS) Managed Kafka** Feb 2024 – Present

- Led team of 3 to migrate cluster health monitoring system from Flink 1.8 to Flink 1.20 while processing 8 MBps
- Identified 100k connection storms triggered by 3 open source connectors, and reduced CPU from 100% to 31%
- Optimized Kafka compute reservations by **$73k/month** with binomial models of canary activity by availability zone
- Implemented reporting of orphaned Kafka partitions, enabled customers to reduce 3+ brokers for affected clusters
- Developed tooling to tear down dev infrastructure to save **$31k-$124k / month**
- Reduced execution time for a build process from 11m to 1m (**91% reduction**) using Stackprof and memoization
- Mentored intern to create workflows to refresh Kafka cluster certificates without restarts, reducing downtime by 40%

Software Engineer Intern @ **Amazon Web Services (AWS)** Jun 2023 – Sep 2023

- Prototyped a new service backend to ingest 1k OpenTelemetry traces per second using Go and Docker on ECS
- Authored a 3-page iOS retail store app using Swift to test collecting load time/crashes from mobile apps
- Instrumented retail store website to discover parity between OT and AWS instrumentations and identify integrability

Software Engineer Intern @ **Plume Design Inc.** Jun 2021 – Sep 2021

- Developed 12+ REST HTTP APIs backed by MongoDB in a distributed Node.js microservice, tested with Sinon
- Standardized Protobuf schemas and endpoints to gRPC to reduce service load and latency

Fellow, Facebook AI Research (VISSL) @ **Major League Hacking** Feb 2021 – Apr 2021

- Identified and fixed long-standing bug, repairing the performance and consistency of 20+ models
- Implemented square-root LR scaling for ~10% faster convergence for parallel workloads
- Revamped event system to pluggable storage, including Tensorboard, HiPlot, and 2 more integrations

Fellow, BentoML @ **Major League Hacking** Jun 2020 – Sep 2020

- Collaborated with maintainers to refactor the public interface, reducing average size of PRs by ~40%
- Integrated PySpark ML, to support **1k+ users** deploying 20+ models quickly and scalably

Software Engineer Intern @ **Plume Design Inc.** Jun 2019 – Sep 2019

- Overhauled front-end data rendering using Chart.js, **reducing load times by 0.6s**, saving engineers 10 hrs / month
- Migrated an 50k SLOC AngularJS application to Angular 8 over the course of 1 month, and upgraded to ES6

EDUCATION

BSc in Computer Science @ **University of California, Santa Cruz** Oct 2020 - Jun 2023

GPA: 3.93 (Magna Cum Laude)

ADDITIONAL EXPERIENCE

President @ **UCSC Rocket Team** Oct 2020 - Jun 2023

- Coordinated 26 students to build & launch a $5,500 rocket, placing 26th in the NASA University Student Launch
- Devised an in-flight path prediction algorithm using gradient descent and least squares regression for accuracy in 10 ft
- Simulated the effect of aerobrakes on achieving a targeted apogee of 5280 ft and tuning PID parameters by writing an OpenRocket extension using Kotlin, achieving precision within 20 ft