Jonathan Jin

Machine Learning Infrastructure Engineer

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Experience

Present – 03/2021 | **Spotify** Senior Machine Learning Software Engineer | New York

Member of ML Platform. Working on: centralized, multi-tenant ML orchestration infrastructure with Kubernetes and Kubeflow; and user-facing pipeline-authoring SDK based on TFX.

- Implemented standardized, per-team resource quotas to mitigate risk of noisy neighbor effect in centralized Kubeflow clusters;
- Oversaw comprehensive formalization of SLO-tracking strategy, using Terraform to formalize SLOs in GCPfor all clusters in our multi-cluster in reproducible fashion;
- Spearheaded development of a custom metrics exporter, transforming Kubernetes events into actionable Prometheus metrics to address gaps in our observability/reliability strategy.

TensorFlow | TFX | Kubernetes | Kubeflow | GCP | Terraform | Prometheus | gRPC

01/2021 – 12/2019 | **NVIDIA** Senior Systems Software Engineer, AI Infrastructure | New York

Member of AI Infrastructure. Contributor to MagLev, NVIDIA's AI infrastructure for autonomous vehicle development. Also contributed to Modulus, the deep learning SDK for autonomous vehicle R&D.

- Initiated development of solution for "hybrid data/model parallelism" using a Ray-based parameter server design and Horovod to enable horizontally-scalable multi-task training;
- Co-delivered a Kubernetes-based scheduling mechanism to enable priority access to cluster resources for select use cases, e.g. prep for upcoming external demos, via virtual "resource shares";
- Authored self-service, reproducible, and traceable workflows to generate "miniaturized" production datasets, enabling rapid iteration/prototyping of training infrastructure refinements

Kubernetes | TensorFlow | Horovod | Ray | gRPC | Bazel | SwiftStack

12/2019 – 08/2018 | **Twitter** Machine Learning Software Engineer | New York

Member of Cortex, Twitter's central ML platform organization. Worked on: workflow orchestration; experiment management/iteration; and overall ML engineering productivity.

- Core contributor to ML Workflows, Twitter's Airflow-based platform for productionizing ML pipelines
- Spearheaded initial integration and cross-compatibility of TensorFlow Extended (TFX)with ML Workflows to increase agility of workflow development, iterative execution/experimentation, etc.
- Enabled distributed training of TensorFlow models in Apache Mesos from an Airflow pipeline via Deepbird, Twitter's TensorFlow-based model training/evaluating/serving framework

Apache Airflow | Apache Aurora | TensorFlow

07/2018 – 07/2016 | **Uber** Software Engineer | New York

Member of Observability Applications. Worked on forecasting and anomaly detection for time series metrics.

- Re-architected time-series metric forecasting pipeline to support concurrent batch backfilling; reduced asymptotic burden on underlying data store by 90%
- Extended M3-based anomaly detection platform to support multiple forecasting models; carried out migration to intercommunicating services with zero downtime and full backwards compatibility

Go | Java | M3 | Apache Thrift | Cassandra

07/2016 – 07/2015 | **OkCupid** Software Engineer | New York

Contributed to backend service development as part of a 10-person backend engineering team.

- Implemented prototype collaborative filtering functionality for matching between prospectively compatible users.

C++

Skills

Programming Languages	Python, Go, Bash, C++, Java
Machine Learning	Kubeflow, TensorFlow Extended (TFX), TensorFlow
Distributed Systems	Kubernetes, gRPC
Infrastructure Tooling	Bazel, Prometheus, Grafana, M3, Cassandra, Apache Airflow
Cloud Infrastructure	Google Cloud Platform (GCP), Terraform

Education

2015 **University of Chicago**, B.S. Computer Science, B.A. Economics