

# Jonathan Jin

Machine Learning Infrastructure Engineer

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## EXPERIENCE

Present 03/2021	<b>Spotify</b> SENIOR MACHINE LEARNING SOFTWARE ENGINEER <span>New York</span> <i>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.</i> <ul style="list-style-type: none"><li>➤ Implemented standardized, per-team resource quotas to mitigate risk of noisy neighbor effect in centralized Kubeflow clusters;</li><li>➤ Oversaw comprehensive formalization of SLO-tracking strategy, using Terraform to formalize SLOs in GCP for all clusters in our multi-cluster in reproducible fashion;</li><li>➤ Spearheaded development of a custom metrics exporter, transforming Kubernetes events into actionable Prometheus metrics to address gaps in our observability/reliability strategy.</li></ul> <div>TensorFlow TFX Kubernetes Kubeflow GCP Terraform Prometheus gRPC</div>
01/2021 12/2019	<b>NVIDIA</b> SENIOR SYSTEMS SOFTWARE ENGINEER, AI INFRASTRUCTURE <span>New York</span> <i>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&amp;D.</i> <ul style="list-style-type: none"><li>➤ 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;</li><li>➤ 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";</li><li>➤ Authored self-service, reproducible, and traceable workflows to generate "miniaturized" production datasets, enabling rapid iteration/prototyping of training infrastructure refinements</li></ul> <div>Kubernetes TensorFlow Horovod Ray gRPC Bazel SwiftStack</div>
12/2019 08/2018	<b>Twitter</b> MACHINE LEARNING SOFTWARE ENGINEER <span>New York</span> <i>Member of Cortex, Twitter's central ML platform organization. Worked on: workflow orchestration; experiment management/iteration; and overall ML engineering productivity.</i> <ul style="list-style-type: none"><li>➤ Core contributor to ML Workflows, Twitter's Airflow-based platform for productionizing ML pipelines</li><li>➤ Spearheaded initial integration and cross-compatibility of TensorFlow Extended (TFX) with ML Workflows to increase agility of workflow development, iterative execution/experimentation, etc.</li><li>➤ Enabled distributed training of TensorFlow models in Apache Mesos from an Airflow pipeline via Deepbird, Twitter's TensorFlow-based model training/evaluating/serving framework</li></ul> <div>Apache Airflow Apache Aurora TensorFlow</div>
07/2018 07/2016	<b>Uber</b> SOFTWARE ENGINEER <span>New York</span> <i>Member of Observability Applications. Worked on forecasting and anomaly detection for time series metrics.</i> <ul style="list-style-type: none"><li>➤ Re-architected time-series metric forecasting pipeline to support concurrent batch backfilling; reduced asymptotic burden on underlying data store by 90%</li><li>➤ Extended M3-based anomaly detection platform to support multiple forecasting models; carried out migration to intercommunicating services with zero downtime and full backwards compatibility</li></ul> <div>Go Java M3 Apache Thrift Cassandra</div>
07/2016 07/2015	<b>OkCupid</b> SOFTWARE ENGINEER <span>New York</span> <i>Contributed to backend service development as part of a 10-person backend engineering team.</i> <ul style="list-style-type: none"><li>➤ Implemented prototype collaborative filtering functionality for matching between prospectively compatible users.</li></ul> <div>C++</div>

## 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