Jonathan Fung

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Experience

Scale AI – *Software Engineer, Infrastructure*

San Francisco, CA / 2020 - present

- Led the design and development of the task dispatch framework v2. Introduced retroactive searching, mandatory tracing, caching, and logging for increased explainability into the task dispatch service. Decreased P95 latency of dispatch endpoint by **>95%**. Project enabled a **7-digit revenue stream** opportunity by supporting a 20x higher task labelling throughput and **eliminating lock contention**.
- Migrated the task dispatch framework, the highest throughput API endpoint at Scale. Gathered feature parity requirements from engineering and operations teams and coordinated a feature flag based zero-downtime online migration.
- Designed and built Scale's **blob storage proxy microservice** to separate logical and physical data storage. Fronted multiple underlying source of truth storage backends (S3, Azure, GCP). Provides transparent **per-customer encryption key** management. Designed unified HTTP Json API for cross-language support. Project enabled multiple signifigant revenue streams due to increased security from per-customer encryption keys.
- Shipped data lake functionality in the blob storage proxy microservice. Supports **arbitrary metadata tagging/search** built on top of Dynamodb and Elasticsearch.
- Rolled out first **metrics library** to increase system observability. Deployed first internal **code search tool** with double-digit millisecond tail response latency.
- Implemented the general **data linting framework** used by all data labeling queues at Scale. Spearheaded the development of asynchronous linters, allowing for the use of long-running ML jobs in linting processes. Linters are a key competitive advantage of Scale.
- Wrote and tested multiple coding and debugging engineering interviews. Ramped other engineers up on interview processes and questions. Mentored intern with successful return offer.

Pinterest – *Software Engineer Intern, Kleiner Perkins Fellow*

San Francisco, CA / Summer 2019

- On the Visibility team, working with logging and metrics.
- Built metrics reporting pipeline to support accurate, t-digest based **by-host horizontal aggregation methods.** Processing **8 million metrics per second**.
- Reduced infrastructure costs by **$1.2 Million per year.** Achieved **99% reduction** in metrics storage volume.
- Project featured on the Pinterest Engineering Medium blog.
  post: jonfung.me/mediumpost

Stripe – *Software Engineering Intern*

San Francisco, CA / Summer 2018

- On the **Developer Productivity** team. On the team that made the Ruby Static Typechecker (Sorbet)
- **Implemented Sorbet Ruby enums** for Stripe's codebase, reducing the amount of fall-through bugs in the previous string-based case logic.
- Code refactored ~2,000 modules to a new enum format.
- Added LSP (Language Server Protocol) support for Sorbet. Features added include Jump-to-Definition and Type-on-Hover, all accessible through the VSCode IDE or any other code editor.

Education

University of California, Berkeley

B.S. Electrical Engineering and Computer Sciences
GPA: 3.90/4.0 / Class of 2016 - 2020

- Magna Cum Laude (High Honors)
- HKN EECS Honor society
- TBP Engineering Honor Society
- Regent's and Chancellors Scholarship (Top 2% Incoming)

Skills

Languages

- Java, Python, Typescript, Ruby
- Scala, Golang

Technologies

- Unix, Docker, Terraform, AWS, GCP, Kubernetes
- Mongodb, Redis, Kafka, Elasticsearch, Dynamodb
- Thrift, HTTP frameworks (flask, express)

Concepts

- Metrics, Observability, Developer Productivity
- Large-scale code migrations

Awards

- **Accel Scholars (2018 Cohort)**
  Industry Mentorship Program run by VC firm Accel
- **Kleiner Perkins Engineering Fellow (2019 Cohort)**
  Fellowship Program run by VC firm Kleiner Perkins
- **Jane Street Electronic Trading Contest 2018 1st place**
- **Calhacks 2016 (Social Impact Award)**

Projects

PinGREP – *Pinterest's real-time source code search tool*

- Pinterest Hackathon 2019. Productionized internal forks of open source projects (Livegrep, Webgrep) to provide real-time source code search across all source repositories with **double-digit millisecond median query latency**.
- Fully integrated with Pinterest internal services. Implemented as a **scalable, fault-tolerant service mesh** with load balancing, internal auth, and multi-zone redundancy.
  (made fast ctrl-f across whole codebase)

mp3-fft – *Headphone recommender using fourier transform on music*

- Application that takes mp3 files and recommends 100+ headphones based on price, form factor, and music sound signature (bass-heavy, neutral, mid-forward, v-shaped).
- Uses the Fourier Transform and Welch's method to generate a power spectral density estimation of the song and classify sound signature.
  site: https://headphone-recommender.herokuapp.com/