Pinglei Guo

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Work Experience

AWS: Software Engineer - AWS X-Ray Vancouver, Canada Sep 2020 - Present

- Enhanced API scalability and reduced latency for AWS X-Ray, a distributed tracing service.
- Contributed to the open source CloudWatch Agent and OpenTelemetry Collector.

Google: Software Engineer - Batch job on Kubernetes Sunnyvale, CA May 2019 - Nov. 2019

- Developed gRPC server and client in Go and Python, backed by Spanner, deployed on Borg and Kuberentes.
- Improved reliability of custom batch job controller for Kuberentes, eliminating job lost during controller service restart.
- Reduced startup latency of debug session from 2 minutes to 40 seconds.

PayPal: Software Engineer - Multi cluster container orchestration platform in Go San Jose, CA May 2018 - May 2019

- Worked on internal multi cluster container orchestration platform using Apache Mesos, Aurora and Docker.
- Introduced new deploy strategy (e.g. canary) and implemented readiness gate, reduced rollout failure rate by 20%.
- Built Kubernetes operator for running stateful services like database with in house underlay container network solution.

PayPal: Software Engineer Intern - Admin Server & Dashboard in Go San Jose, CA June 2017 - Sep. 2017

- Built API gateway with RBAC for internal container orchestration platform using Go.
- Enhanced dashboard using Angular 4, wrote a new dynamic table component from scratch.

Dongyue Web Studio: (Part-time) Full stack web developer & Tech lead Shanghai, China Sep. 2013 – Jan. 2016

- Led web and mobile team. Rewrote online event booking website tongqu.me, used by thousands of students.
- Utilized Redis as cache and rate limiter, increased QPS by 120%, reduced database load by 40%, filtered out most bot traffic.
- Migrated frontend from jQuery to AngularJS, reduced page loading speed by 60% using Ajax.

Project Experience

Distributed database benchmark system github.com/benchhub UCSC Nov. 2017 – March. 2018

- Designed a specification for running database benchmark for RDBMS and TSDB in distributed environment.
- Implemented a continuous integration service that stores benchmark results in databases to detect performance regression.

Distributed Time Series Database github.com/xephonhq/xephon-k UCSC Nov. 2016 – Present

- Implemented a distributed time series database on top of Cassandra in Go. Support both JSON and Protobuf via HTTP/2.
- Designed a columnar storage engine modeled after Parquet and InfluxDB with high compression and less write amplification.
- Created benchmark suite for Xephon-K, OpenTSDB, KariosDB, InfluxDB using a generic client for different TSDB.
- Surveyed popular TSDB design and implementation, made an interactive online report awesome-time-series-database.

GPU accelerated in-memory time series processing github.com/at15/ts-parallel UCSC Apr. 2017 – June 2017

- Expanded benchmark suite for different C++ GPU computing framework on CUDA and OpenCL, Thrust, Boost, ArrayFire.
- Implemented OLAP queries like top-K, group by for multi dimensional time series data on both CPU and GPU backends.

Education

MS. Computer Science University of California Santa Cruz Sep. 2016 – Mar. 2018

BS. Materials Science Shanghai Jiao Tong University Sep. 2012 – June 2016

Skills

Language	Go, Java, JavaScript, Python, Rust, C++, SQL
Database	DynamoDB, Cassandra, MySQL, Elasticsearch, Redis, Prometheus
DevOps	AWS, Kubernetes, Docker, Terraform, GCP