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Nakul Chawla

SKILLS

Golang, Python, Kubernetes, Docker, SQL, GCP, Spanner, AWS, Microsoft Azure, Opentelemetry, k6, Helm, BigQuery.

EXPERIENCE

Cruise, San Francisco – Sr. Software Engineer

November 2021 – PRESENT

- Led optimization of a **high-volume data ingest pipeline**, scaling to process **100M+ files daily into BigQuery** with 100% reliability and resource efficiency. Designed the next-generation v2 system, projected to achieve 10x scale with significantly improved reliability, showcasing both immediate impact and strategic foresight in data infrastructure evolution.
- Leveraged complex SQL queries to uncover key **data insights**, which enabled the changes to a system that **tripled the deduplication rate, saving ~\$1M annually** by reducing compute job overhead on the simulation platform.
- Performed zero-downtime migration of multi-region data to single-region bucket, **saving \$150K annually**; Proposed and delivered **new retention tagging system for data lifecycle management** at Cruise.
- Made improvements to an existing **vertical scaling architecture**, enabling multiple simulations on a single worker and leading to **improved resource utilization** with significant time and cost savings.
- Proposed and delivered **end-to-end automated pipeline for testing compute agent on custom silicon architectures**, reducing lead time from 2 weeks to 4 hours
- Developed a **plugin to parallelize asset and artifact upload/download for simulations on custom silicon**, boosting **throughput by 35%** through concurrent operations.

Visa, Foster City – Sr. Software Engineer

September 2019 – November 2021

- Architected and implemented a high-performance fraud detection system, featuring **real-time processing of live transaction** feeds and an intelligent event generation framework. This system efficiently aggregated and analyzed large-scale financial data streams, triggering targeted communications and integrations across multiple platforms to enhance fraud identification and response capabilities.

IBM, Costa Mesa – *Software Engineer*

January 2019 – September 2019

- Led development of critical fintech infrastructure, including a cross-border payment microservice leveraging Stellar cryptocurrency and CBDC, while streamlining DevOps processes through a **Golang-based deployment automation service**

Dash Core Inc, Phoenix – *Software Engineer Intern*

May 2018 – August 2018

- Optimized block payload by encoding the already broadcasted transactions into a bloom filter and an Inverted bloom lookup table (IBLT), keeping the False positive rate (FPR) adjustable by the sender.

Target, Bangalore – *Business Intelligence Developer*

May 2013 – August 2016

- Spearheaded the modernization of a manually maintained, macro-heavy spreadsheet tax system into a secure, **full-stack web application with SQL database integration, fine-grained RBAC, and robust CI/CD pipeline**, eliminating data loss risks

EDUCATION

Arizona State University, Tempe – *MS, Computer Science* Thesis:

Digital fountains for multi-node aggregation of data in blockchains.

M.S Ramaiah IT, Bangalore – *Bachelor of Engineering, Information Science*

PUBLICATIONS

Velocity: Scalability Improvements in Block Propagation Through Rateless Erasure Coding N Chawla, HW Behrens, D Tapp, D Boscovic, KS Candan, IEEE International Conference on Blockchain and Cryptocurrency