Ridwan Sharif

ridwanmsharif.github.io — ridwan.sharif@uwaterloo.ca — in/ridwanmsharif — github.com/ridwanmsharif

Skills

- Experienced with Go, C, C++, Ruby, Python, Lisp, SQL; Rails, Docker, and gRPC
- Interested in distributed systems, databases, infrastructure, backend, performance and systems design

Work Experience

Cockroach Labs May – Aug '19
Backend Engineering Intern (SQL Optimizer) *New York, NY*

- Worked on query compilation, transformation and optimization of joins, limits, indexes, and more
- Incorporated segmented sort and look-up joins into the optimizer to improve query performance
- Implemented index-skip-scans to improve index scan performance by an order of magnitude
- Leveraged check constraints to create rules that plan partition look-ups instead of full table scans
- Expanded the Cockroach SQL suite to include multi-table mutations and ordered aggregations

Cockroach Labs Sep – Dec '18
Backend Engineering Intern (Storage/Performance) *New York, NY*

- Designed and implemented load based splitting to replicate and distribute ranges of data across nodes
- Improved overall read/write throughput by over 60% and reduced end-to-end latency by over 45%
- Added transactional request ordering, savepoints and idempotency to solve the Halloween Problem
- Improved the data placement model for more granular of control geo-partitioning and data compliance

Shopify Jan – Apr '18
Production Engineering Intern (Infrastructure) *Ottawa, ON*

- Led multiple engineering initiatives outlining measures to improve observability across Shopify
- Added instrumentation around reporting mechanisms, cluster health, performance metrics and SLOs to the incident response system – featured on the Shopify engineering blog

NCR Corporation May – Aug '17
System Software Engineering Intern (Infrastructure) *Waterloo, ON*

- Designed a NIST compliant password manager to manage private credentials for multiple teams
- Used throughout the infrastructure division across multiple teams, saving ~18,000 USD annually

Research

uWaterloo Database Systems Group May – Aug '18
Undergraduate Researcher (Prof. Grant Weddell) *Waterloo, ON*

- Researched main-memory databases that use dynamic code-generation as part of its execution model

Projects

- **raft** — Implemented a fault tolerant and performant distributed consensus algorithm resilient to lossy networks, network partitions and node failures — based on Diego Ongaro's thesis paper
- **mqueue** — Constructed an in-memory Kafka-esque message broker in Go over an HTTP API

Other notable projects: **lispy**, **gcache**, **go-workerpool**, **pRSA**, **fzysearch**, **airport**

Education

University of Waterloo Sept '16 – Apr '21 *(expected)*
Bachelors of Computer Science, Honours

- UW Robotics Club, Hack the North (2017, 2016), President's Scholarship (95^{th} percentile)