

# RIDWAN SHARIF

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## SKILLS

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- 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

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**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

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**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

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- **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

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**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<sup>th</sup> percentile)