

IRFAN SHARIF

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SUMMARY

- Experience with distributed systems, ML, storage and search engines, file systems, SAT solvers

EDUCATION

University of Waterloo 2014 – 2019
Bachelor of Applied Science in Honours Computer Engineering (with Distinction)

EXPERIENCE

Cockroach Labs *Toronto, ON*
Senior Software Engineer (Transactional KV) 2019 – Present

- Leading admission control: overload protection, work prioritization, and inter-tenant fairness
- Built elastic CPU limiter using patched Go, protecting latencies from in-process background work
- Improved schema count scalability from $O(10k)$ to $O(1M)$, re-architecting for multi-tenancy
- Worked on flow control for quorum writes, upgrades infrastructure, bazel-ifying monorepo, tracing

LinkedIn *Sunnyvale, CA*
Software Engineering Intern (Machine Learning Infrastructure) 2018

- Worked on model serving, versioning, runtime and deployment across thousands of hosts

Amazon *Palo Alto, CA*
Software Engineering Intern (Search Relevance) 2018

- Used sequence-to-sequence learning to generate alternative search suggestions, authored query reformulation modules to improve system recall, and incorporated OCR text into ranking models

Cockroach Labs *New York, NY*
Backend Engineering Intern (Storage, Distributed SQL) 2016 – 2017

- Designed dedicated storage engine for Raft, contributed to TLA+ verified PreVote extension
- Implemented aggregations, sorting, n -way parallel joins, and row de-duplications for query engine

Shopify *Ottawa, ON*
Production Engineering Intern (Infrastructure) 2016

- Built an auto-scaling build system with dynamic workload distribution handling 1000+ builds/day

PUBLICATIONS

- [1] Rebecca Taft, **Irfan Sharif**, et al. CockroachDB: The Resilient Geo-Distributed SQL Database. In *Proceedings of the ACM SIGMOD International Conference on Management of Data*, 2020.
- [2] Nathan VanBenschoten, Arul Ajmani, Marcus Gartner, Andrei Matei, Aayush Shah, **Irfan Sharif**, et al. Enabling the Next Generation of Multi-Region Applications with CockroachDB. In *Proceedings of the ACM SIGMOD International Conference on Management of Data*, 2022.
- [3] **Irfan Sharif**. Hitchhiker’s Guide to Transactions. In *Hydra: Computing Conference*, 2021.

RESEARCH

Waterloo Artificial Intelligence Institute (SAT/SMT solvers) 2016
· Studied search space pruning, clustering and parallelization techniques under Prof. Vijay Ganesh

PROJECTS

- **Kura** – An E2EE, synchronized, distributed file system with live-sharing and file streaming
- **Solver** – SAT solver library in Go (wraps around Google’s Operational Research Tools)
- **CFilter** – Cuckoo Filter implementation with 770+ stars and 35+ forks on GitHub