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

Modal Labs   *New York, NY*
Software Engineer   2023 – Present

Cockroach Labs   *Toronto, ON*
Senior Software Engineer (Transactional KV)   2019 – 2023
· Led admission control: CRDB's overload protection, work prioritization, and fairness mechanism
· 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 AI Institute – Studied SAT/SMT solvers, with Prof. Vijay Ganesh   2016

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