

# IRFAN SHARIF

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## SUMMARY

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- Experience with database/storage engines, distributed systems & performance/system profiling
- Go, Haskell, C/C++, Ruby, Python; working knowledge of Rust

## EXPERIENCE

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### Cockroach Labs, Inc.

New York, NY

*Storage/Core*

May – Sept '17

- Designed a flow-control/throttling mechanism for write operations reducing long tail latencies
- Authored & implemented an RFC introducing a dedicated storage engine for Raft's access patterns/persistent state; increased overall system write throughput
- Patched Raft Pre-Vote mechanism (from the thesis paper) in the **etcd/raft** implementation

*Distributed SQL*

Aug – Dec '16

- Constructed the distributed & parallel query processing engine in CockroachDB ([git.io/vMKFV](https://github.com/cockroachdb/vMKFV))
- Implemented distributed sort algorithms & parallel aggregations for analytics workloads
- Designed distributed row de-duplication & highly performant  $n$ -way parallel SQL joins
- Improved existing SQL join performance by an order of magnitude using in-memory hash tables

### Shopify

Ottawa, ON

*Production Engineering*

Jan – Apr '16

- Designed a dynamic & flexible continuous integration system with auto-scaling build agents
- Built infrastructure to support dynamic workload distribution across shared worker pools
- Optimized the overall scheduling system to handle 1,000+ builds per day saving 60,000 USD/mo

### Solink

Kanata, ON

*Cloud Migration*

May – Sept '15

- Decomposed a single monolith platform into inter-connected & resilient microservices

## RESEARCH

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### uWaterloo Computer Aided Reasoning Lab

Oct – Dec '15

- Researched SAT solvers optimizing search; studied clustering & parallelization strategies

## PROJECTS

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### Haskal

[git.io/v7cGZ](https://github.com/irfansharif/v7cGZ)

- Completed our compilers course (ECE 351) entirely in Haskell, was the first student to do so
- Implemented register allocation, code generation, common sub-expression elimination, etc.

### CFilter

[git.io/v6GkV](https://github.com/irfansharif/v6GkV)

- Research paper implementation; HN front page with 30,000+ views, 670+ stars & 30+ forks

*Open-source contributions:* [uber/go-torch](https://github.com/uber-go-torch), [coreos/etcd](https://github.com/coreos/etcd), [graphql-go/graphql](https://github.com/graphql-go/graphql)

## EDUCATION

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### University of Waterloo

Sept '14 – Apr '19 (*expected*)

*Honours Bachelor of Applied Science in Computer Engineering*

*GPA 3.7*