Irfan Sharif

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Education

University of Waterloo Sept '14 – Apr '19 *(expected)*
Honours Bachelor of Applied Science in Computer Engineering GPA 3.7

Summary

· Experienced with Go, Rust, Haskell, C, C++, Java, Ruby, Python; learning OCaml
· Interested in infrastructure, distributed systems, storage engines and performance engineering

Experience

Cockroach Labs, Inc. *New York, NY*
Backend Engineering Intern (Storage/Performance) May – Sept '17

· Designed a flow-control mechanism for all write operations to reduce 99-th percentile latencies
· Authored and implemented an RFC introducing a dedicated storage engine specialized for Raft's access patterns and persistent state, increased total system write throughput by 14.6%
· Patched **etcd/raft**'s PreVote extension from the Raft thesis paper, formally proved using TLA+
· Forked **grpc/grpc-go**, increased throughput by 12.8% batching syscalls/reducing GC pressure

Cockroach Labs, Inc. *New York, NY*
Backend Engineering Intern (Distributed SQL) Aug – Dec '16

· Constructed a distributed/parallel query execution engine based off the DistSQL RFC
· Implemented distributed sort algorithms and parallel aggregations for analytics workloads
· Designed distributed row de-duplication and highly performant n-way parallel SQL joins
· Improved JOIN performance by an order of magnitude, the subject of an engineering blog post

Shopify *Ottawa, ON*
Production Engineering Intern (Infrastructure) Jan – Apr '16

· Designed a dynamic and 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*
Software Engineering Intern (Cloud Migration) May – Sept '15

· Decomposed a single monolith platform into inter-connected and resilient microservices

Research

uWaterloo Computer Aided Reasoning Lab *Waterloo, ON*
Undergraduate Researcher (SAT/SMT Solving) Oct – Dec '16

· Researched SAT solvers and search space pruning, studied clustering and parallelization strategies

Projects

CFilter *git.io/v6GkV*

· Implemented the Cuckoo Filter paper, a probabilistic data structure for set-membership queries
· Trended on the front page of HackerNews with 30,000+ views, 670+ stars and 30+ forks on GitHub

VCompiler *git.io/v7cGZ*

· Wrote a compiler in Haskell with register allocation, code generation, dead code elimination, etc.

Open-source contributions: **coreos/etcd**, **grpc/grpc-go**, **uber/go-torch**, **cerebrum**, **mqueue**