Irfan Sharif

irfansharif.io — irfan@irfansharif.io — in/irfansharifm — github.com/irfansharif

Summary

· Experienced with Go, Haskell, C, C++, Ruby, Python with working knowledge of Rust
· Exposure to performance profiling using pprof, perf, kcachegrind/callgrind and flame graphs

Experience

Cockroach Labs, Inc. *New York, NY*
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/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

Distributed SQL Aug – Dec '16

· Constructed the distributed and parallel query processing 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 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 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*
Cloud Migration May – Sept '15

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

Research

uWaterloo Computer Aided Reasoning Lab *Waterloo, ON*
Researcher Oct – Dec '16

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

Projects

Compiler *git.io/v7cGZ*

· Wrote a compiler in Haskell for a subset of VHDL, authored a transpiler to Java for simulation
· Added code generation, register allocation, common sub-expression and dead code elimination

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

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

Education

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