Irfan Sharif

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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 <u>RFC</u> 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 <u>proved</u> using TLA+
- Forked **grpc/grpc-go**, increased throughput by 12.8% batching syscalls/reducing GC pressure

Distributed SQL   Aug – Dec '16

- Constructed a distributed/parallel query execution engine based off the DistSQL <u>RFC</u>
- 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 <u>post</u>

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

VCompiler   *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 <u>HackerNews</u> 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*