Irfan Sharif

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SKILLS

PROGRAMMING

C++ • C • Ruby • Go • Python
Java • C# • BASH • MATLAB
Lua • R • Haskell

TOOLS

Git • vim • AWS EC2 • Redis
ElasticSearch • Rails • Chef • UNIX
Docker • Memcached • NGINX

EDUCATION

UNIVERSITY OF WATERLOO

Candidate for Bachelor of Applied Science in Honours Computer Engineering
Expected April 2019 | GPA: 3.92
Concentration in Software Engineering

Coursework
Operating Systems
Embedded Microprocessor Systems
Algorithms & Data Structures
Digital Computers
Discrete Mathematics

Online Coursework

Machine Learning	(Stanford)
Programming Abstractions	(Stanford)
Introduction to Algorithms	(MIT)
Artificial Intelligence	(MIT)
SICP	(MIT)

AWARDS

Shopify Hackdays Winner	(3rd Place)
Presidential Scholarship	(98th percentile)
Oxford Intelligentsia	(1st Place)
Dean's Merit List Awardee	(95th percentile)

ACTIVITIES/INTERESTS

Piano, Football, Skating & Chess
Participated in various software mentorship programs for incoming first-years, developed strong interpersonal skills & leadership qualities

EXPERIENCE

COCKROACH LABS, INC. | Software Engineering Intern

Backend Engineering | Sep 2016 –

- Interning for the Fall '16 semester, SQL/Distributed SQL team.

SHOPIFY | Software Engineering Intern

Production Engineering | Jan 2016 – April 2016

- Designed a robust build system with agents running on AWS Spot Instances
- Engineered termination-resilient agents with dynamic workload re-distribution
- Heavily optimized test orchestration system handling **10,000** builds per day across multiple nodes with cost savings of **60,000 USD** per month

SOLINK | Software Engineering Intern

Cloud Migration Team | May 2015 – Sep 2015

- Decomposed monolith platform into independent & resilient microservices
- Migrated SQL datastore to load-balanced & distributed ElasticSearch cluster

RESEARCH

UWATERLOO COMPUTER AIDED REASONING LAB | Researcher

Sep 2015 – Jan 2016 | Waterloo, ON

Worked on boolean SAT solvers optimizing search strategies. Independently discovered parallelization algorithm by clustering SAT clauses.

PROJECTS

CFILTER | Go — git.io/v6GkV

- Bloom filter replacement for approximated set-membership queries
- Flexibility to add and remove items dynamically, based on cuckoo hashing storing each key's fingerprint with highly compact hash tables
- Uses less space than conventional Bloom filters, for applications that require low false positive rates (< 3%)

DIT | Go — Private Project

- Distributed version control system for directories synced with Dropbox
- Replicated git workflow including cheap branching model, commits, log, multiple remotes, clones, merge strategies & garbage collection

CHAOS-MONKEYS | Ruby — Shopify Hackdays Winner

- DSL for defining infrastructure as a connected graph & inducing multi-level failure scenarios to test/tune resiliency algorithms
- Chaos-monkeys run 'monkey scripts' that introduce network lag, fill disk space, shut down nodes, fail databases & throttle load-balancers

MQUEUE | C — git.io/vr3ZK

- Lightweight wrapper built around POSIX priority message queues
- Thread-safe asynchronous callbacks allowing 'subscription' to queues
- Benchmarked to **425,000 RPS** across multiple producers/consumers

CEREBRUM | Ruby — git.io/vwRxF

- Implementation of artificial neural networks using the back-propagation algorithm, benchmarked to **0.052%** training error & correctness of **93%**