

SAMARTH KULSHRESHTHA

(669) 272-4449 | smkuls@gmail.com | smkuls.github.io

INDUSTRY EXPERIENCE

Google

Senior Software Engineer, Network Infrastructure

Software Engineer, Network Infrastructure

Sunnyvale, CA

Apr '23 – Present

Jun '19 – Apr '23

- Designed and led the implementation of various projects within multiple subsystems of Google's SDN - intent based network modeling, intent based switch configuration management, intent based network operational state management
- Experienced in designing, building and operating large-scale distributed systems running in a 24x7 production environment
- Experienced in sharding legacy services to improve reliability and availability without customer impact
- Experienced in leading and delivering cross-team projects spanning multiple semesters
- TL of a highly available and distributed network telemetry service which exports terabytes of data per day

Nvidia

Software Intern, Distributed File Cache

Santa Clara, CA

May '18 – Aug '18

- Implemented various features including APIs to query extended actions, checksum validation on warm GET, range read of objects, throttling of LRU eviction strategy, and migration of DFC APIs to the *Open API 3.0* specification (fka *Swagger*)
- Enhanced the hashing performance by 90% using an optimized version of *Rendezvous Hashing*

Microsoft

Software Engineer, Azure StorSimple

Bangalore, India

Jun '16 – Jul '17

- Designed and developed a new cloud service, *Data Discovery and Insights*, to search and retrieve files stored across backups
- Designed the schema for storing file metadata across tables to optimize for storage and transaction costs

Software Engineering Intern, Azure StorSimple

Jan '16 – May '16

- Implemented the core logic for *Data Transformation Service* to trigger backups, clone and cleanup volume containers
- Implemented the host agent to estimate the workload for the execution phase

Software Engineering Intern, Azure StorSimple

May '15 – Jul '15

- Integrated *Azure Site Recovery* with *Azure StorSimple* to facilitate a one-click unified failover through *Azure Automation*, this enabled the two products to be pitched as an integrated end to end backup solution to the customers
- Conducted performance analysis to identify bottlenecks involved in the import of StorSimple data to *Azure Blobs*, the results from this analysis laid the ground steps for a completely new standalone product – *Azure StorSimple Data Manager*

EDUCATION

Master of Science, University of Illinois Urbana-Champaign

Computer Science

Aug '17 – May '19

GPA: 4.0/4.0

Bachelor of Technology, Manipal Institute of Technology

Computer Science and Engineering, *Gold Medalist*

Aug '12 – May '16

GPA: 9.77/10.0

RESEARCH EXPERIENCE

Decentralized Systems Lab

Graduate Research Assistant, Advisor: [Prof. Andrew Miller](#)

Jan '18 – May '19

- Worked on [HoneyBadgerMPC](#), a new Multi Party Computation implementation with robust online and optimistic offline phase
- [Master's thesis](#)

Parallel Programming Laboratory

Graduate Research Assistant, Advisor: [Prof. Laxmikant Kale](#)

Aug '17 – May '18

- Worked on adding support for distributed section creation in Charmpy, a Python version of the Charm++ framework

PROJECTS

Scheduling for modern distributed systems

- Designed a class of scheduling algorithms achieving high throughput, low latency, balanced load, scalability and fault tolerance
- Demonstrated its effectiveness through preliminary experiments and theoretical analysis
- Awarded one of the *Best Research Projects* for the *Advanced Distributed Systems* class

Distributed Graph Processing System

- Developed a fault-tolerant distributed graph processing engine from scratch, based on the Gather-Apply-Scatter model on top of a self implemented flat distributed file system

RESEARCH PUBLICATIONS

HoneyBadgerMPC and AsynchroMix

D. Lu, T. Yurek, **S. Kulshreshtha** et al. at [ACM CCS 2019](#)

LANGUAGES AND TECHNOLOGIES

Languages: C++, Golang

Tools and Technologies: Microsoft Azure, Amazon Web Services, Git, Bash, Powershell