Samiur Khan

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Education

University of Michigan, Ann Arbor *Class of 2020*

- B.S.E. in Computer Science and Engineering - took classes on operating systems, compilers, computer organization, and distributed systems.
- Worked with a team of seven to write a web search engine. Achieved an upper bound search latency of 1 millisecond. Worked on the indexing system where we achieved a 10x compression rate on crawled web pages. Used linux memory map calls to speed up data throughput from 250 MB/second to 1.2 GB per second (factor of 4 improvement). Maintained a budget for the team and managed our compute infrastructure (providing SSH permissions to our Google Cloud VMs, spinning up production and testing machines when needed).
- **Awards**: Gates Millennium Scholar, merit and needs based scholarship granted to less than 2% of around 55,000. Shipman Scholar, merit scholarship granted to less than 1% of 15862 incoming students.

Professional Experience

Google – Site Reliability Engineering – San Francisco, CA *May 2019 - Present*

Software Engineering Intern

- Working on a job scheduler for a virtual data center cluster turnup service. Made changes to free unused compute capacity within the same product.
- Worked on adding memory control group page statistics to the Linux kernel.
- Lead and managed a volunteering event where Googlers provide mock interviews to participants of Success Center SF's Code on Point program.

Google – Data Infrastructure and Analysis – Mountain View, CA *May 2018 - August 2018*

Engineering Practicum Intern

- Worked with a team to develop an internal logging system for a distributed data processing framework called Conduit
- Built and tested a data processing pipeline to tail other data processing pipelines for their transaction history. Filtered out data we didn't need and partitioned the data we need into files to allow Conduit developers to search the history of a running data processing job using an SQL like API. Reduced the search space by 93%. Reduced search time from 30-60 minutes to 3-5 minutes.
- Designed an API to read transaction history with a lower memory footprint than pre-existing APIs

Google – Street View Infrastructure – Mountain View, CA *May 2017 - August 2017*

Engineering Practicum Intern

- Worked with a team to prototype an internal tool that showed animations of Google Street View data
- Designed and implemented a video encoder using FFMPEG that can encode MP4s, FLVs, and WebM videos. Worked with a team to incorporate CPU benchmarking tests to verify that it was servable over HTTP requests.
- Deployed the video recorder with a C++ based HTTP server that can handle video generation for different input requests.

University of Michigan Electrical Engineering and Computer Science Department *June 2017 - Present*

Teaching Assistant for EECS 201 - Computer Science Pragmatics

- Class teaches how to learn about and how to use the various tools used by computer scientists (like continuous integration and testing tools, source code managers, IDEs/editors, build systems, package managers, debuggers, etc...
- Worked with a team to write a new course site (cspragmatics.com) and wrote a new autograder that eliminated *all* manual grading done in class.

Personal Projects

UTF String *January 2019 - Present (on pause)*

- A C++ string library with native support for UTF8 encoding. Learn more: github.com/samiurkh1n/utfstring

Skills & Interests

Languages and Technologies: C, C++, Go, Python, Linux, Docker, Kubernetes, Google Cloud, Shell Scripting

Skills: Software system design, API design, software testing, documentation, algorithm design and analysis, familiarity with computer architecture (including ARM Assembly, Digital Logic, Pipelined Processors, Caching).