Aneesh Durg

Email: aneeshdurg17@gmail.com | Website: `aneeshdurg.me` | Github: `github.com/aneeshdurg`

WORK EXPERIENCE

Senior Software Engineer/Team Lead   Feb 2021-Present
KatanaGraph Inc. — Austin, TX

- Leading a team of **5** to implement and support graph database querying and ingest.
- Implementing support for the **OpenCypher** query language.
- Implemented tools for distributed testing and developement, that reduced org-wide feedback cycles by **30x**
- Developed novel distributed graph pattern matching algorithms for large scale graph querying (tested on ∼**20B** nodes, **44B** edges)
- Improved pattern matching performance by **100x** in queries against the **LDBC** dataset and reduced memory usage by over **95%** on some benchmarks.

Member of Technical Staff   Aug 2019-Feb 2021
Qumulo Inc. — Seattle, WA

- Extended platform support for two new hardware configurations
- Designed a solution for eliminating server downtime during upgrades from 5 minutes to under 30 seconds in a team of four
  - Used containerization to avoid potentially slow boot times
  - Used **dbus** to allow processes to break out of a container
- Helped implement the following **SMB** features
  - SMB 3.1.1 negotiation, Server-side copy, Encryption
- Helped lead migration of **python2** code to **python3**
  - Modernized all python code by adding types and checking via **mypy**
  - Proposed and implemented a python dependency verification tool for customer and cloud deployments

Systems Programming Course Lead   Jan 2017-May 2019
CS241 @ UIUC — Urbana, IL

- Lead assignment developer, Lab assistant, Honors section lecturer/mentor.

PROJECTS

rainbow   python/openCypher
https://github.com/aneeshdurg/rainbow

- Arbitrary function coloring and callgraph rejection tool powered by **clang**
- Allows a user to supply simple rules for matching callgraphs that are syntactically correct, but would be invalid at runtime

Video Synth   Javascript/GLSL
https://aneeshdurg.me/video-synth

- Webapp for users to interactively build pipelines producing real-time video art.
- Implemented a **WebGL** rendering system that can mix multiple channels of output

What Is a Filesystem?   Javascript
https://aneeshdurg.me/what_is_a_filesystem

- An online interactive book/vizualization for students learning filesystem concepts.
- Implements a ext2-esque filesystem with animations to illustrate disk accesses occur.
- Features a terminal simulator which implements some standard `GNU/Linux` utilities.

CameraTheremin   JavaScript
https://aneeshdurg.me/CameraTheremin

- In-browser webcam gesture-based theremin (a musical instrument)
- Implemented all image processing functions required in Javascript/**WebGL**.

EDUCATION

University of Illinois at Urbana-Champaign
Aug 2015-May 2019

Recieved BS in Computer Science & Mathematics with **High Distinction**

PROGRAMMING LANGUAGES

C++, C, Python, Rust, OpenCypher, TypeScript, JavaScript, Bash, Go, D, Haskell, GLSL

LIBRARIES/ FRAMEWORKS

Containers/OS:
D-Bus, cgroups, sysfs, systemd, Docker, lxc, systemd-nspawn

ML/AI:
Caffe, OpenCV, PyTorch, TensorFlow

Web Backend:
Flask, Tornado, Django, Node.js

Web Frontend:
React, peerjs, WebGL, d3.js, JQuery