Aneesh Durg

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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.

- 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