Drew Ripberger

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Education

The Ohio State University — Columbus, OH
Bachelors of Science in Computer Science and Engineering; GPA: 3.94 — *Aug. 2020 – Expected May 2024*

Experience

IsoDiff Research Group — Jan. 2019 – Present
The Ohio State University — *Columbus, OH*

- Explored ways to group and characterize cycles from a serialization graph
- Tested and collected data on accounting applications so the violations of their isolation level could be found
- Created a front-end tool with Python and D3.js for the IsoDiff tool to assist users in identifying problematic SQL statements they are executing

Software Engineering Intern — Mar. 2020 – Aug. 2020
Nirmata — *San Jose, CA (remote)*

- Worked to help develop observability solutions to supply data upstream to Nirmata's Kubernetes management dashboard
- Used Go, eBPF and the Kubernetes API to construct a DaemonSet that monitors a cluster's network
- Presented the project to the CEO, CTO and VP of Engineering and wrote the project's announcement blog post
- Spoke at KubeCon + CloudNativeCon North America 2020 about my work developing kube-netc and entering the Kubernetes space: "A High-Schooler's Guide to Kubernetes Network Observability"

Summer Research Intern — Apr. 2021 – Aug. 2021
HyperThought Group at Ohio State — *Columbus, OH (remote)*

- Created infrastructure for parsing and storing unstructured image metadata using Python
- Developed code to detect defects in metals from electron microscopy images using OpenCV
- Collaborated with the Air Force Research Labs to interface and upload images and metadata onto the HyperThought system for further analysis and identification
- Assisted in writing an extended abstract and talk for Microscopy & MicroAnalysis 2021 on how HyperThought can help doing large scale analysis of microscopy data

Projects

kube-netc | *Go, Docker, Prometheus, Kubernetes, eBPF, TravisCI* — Mar. 2020 – Present

- An open source network observability tool for tracking network statistics across Kubernetes clusters
- Utilized eBPF to pull raw networking data from Linux containers
- Created Go libraries to process and expose the networking data as Prometheus metrics
- Was the focus of my 6 month internship at Nirmata
- The source code may be found on the GitHub repository: https://github.com/nirmata/kube-netc

Dinghy | *Go, SQLite, R, LaTeX, gnuplot* — Nov. 2018 – May 2019

- Proposed a method to allow Raft clusters to better horizontally scale
- Wrote a simulated Raft cluster in Go to assess Dinghy's effectiveness
- Analyzed and plotted the results of the tests in R and gnuplot to show Dinghy's efficacy
- Won the UC Presidential Scholarship at the University of Cincinnati Science and Engineering Fair
- The source code and paper may be found on the GitHub repository: https://github.com/drewrip/dinghy

Technical Skills

Languages: Go, C/C++, Java, LaTeX, JavaScript, SQL, Python
Tools & Systems: Git, Docker, eBPF, Linux, Prometheus, Kubernetes

Publications

[1] Y. Gan, X. Ren, D. Ripberger, S. Blanas, and Y. Wang. Isodiff: debugging anomalies caused by weak isolation. *Proc. VLDB Endow.*, 13(12):2773–2786, July 2020. ISSN: 2150-8097. DOI: 10.14778/3407790.3407860.