

Drew Ripberger

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EDUCATION

The Ohio State University

Columbus, OH

Bachelors of Science in Computer Science and Engineering; GPA: 3.92

Aug. 2020 – Expected December 2023

EXPERIENCE

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 create a pipeline to 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

Undergraduate Research Intern

Jun. 2022 – Aug. 2022

Microsoft Research

Redmond, WA (remote)

- Learned about zkSNARKs, proof systems, and other cryptographic primitives while being mentored by Srinath Setty
- Worked with Dr. Setty on demonstrating and understanding the efficacy of incremental SNARKs
- Created a provable end-to-end banking transaction processing library in Rust based on recently published Nova recursive SNARKs
- Wrote constraints to encode operations on merkle trees and signature verification into R1CS circuits

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>

TECHNICAL SKILLS

Languages: Go, Rust, C/C++, Java, \LaTeX , JavaScript, SQL, Python

Tools & Systems: Git, Docker, eBPF, Linux, Prometheus, Kubernetes

CITIZENSHIP AND WORK AUTHORIZATION

U.S. Citizen

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.
- [2] D. Ripberger, Y. Gan, X. Ren, S. Blanas, and Y. Wang. Isobugview: interactively debugging isolation bugs in database applications. *Proc. VLDB Endow.*, 15(12):3726–3729, 2022.