Zacharie Day

Software Engineer

Education

2016 - 2020 **The George Washington University**, Washington, DC, BS Computer Science
- Graduation in December of 2020
- Select CS courses: Operating Systems, Computer Security, Network Security

Software

Composite OS Contributor to Composite, a research microkernel with security and isolation guarantees
- Ported NASA's satellite flight runtime software (cFS) to Composite.

OpenNetVM Contributor to OpenNetVM, an application that virtualizes packet-level network applications and TCP edge applications via Intel's DPDK
- Implemented a transparent scaling layer for virtualized applications

sunneed Head architect and project leader for sunneed, a Linux supervisor application for multi-tenant solar-powered computers that enforces power usage constraints on tenant applications
- Utilized dynamic shared library linking, IPC middleware, and integrated with a container-based security platform

Professional Experience

June 2018 - Now **Systems Analyst and Software Engineer**, *SEAS Computing Facility*, The George Washington University, HPC maintenance and end-user support, head software designer.
- Provided support to users on the Colonial One and Pegasus Slurm-powered HPC clusters
- Administrated servers on the GWU campus, including performing setup, security, and software updates
- Wrote programs to automate many slow manual procedures, greatly reducing the staff required to complete ticket requests

Skills

Languages **C**, **C#**, **Python**, **TypeScript/JavaScript**, **Java**, **Rust**, **C++**, **Kotlin**, **Shell scripting**

Platforms **Android** (Java and Kotlin), **Web-app frameworks** (HTML/CSS, React, etc.), **.NET**, **Linux**, **SQL**, **CI pipelines** (Travis, Azure), **Build systems** (CMake, Gradle)

Other
- Deploying and maintaining libraries on repositories like PyPI
- Contributing to open-source software projects as a hobbyist

Papers and Awards

December 2017 **"Preliminary Investigations into a Microkernel OSAL for cFS"**

10th Flight Software Workshop - Port of NASA's flight runtime software (cFS) to the Composite microkernel

Summer 2017 **SUPER Research Fellow**

Summer Undergraduate Program for Engineering Research - Sponsorship to research and write the Preliminary Investigations paper

April 2019 **"Chaos: a System for Criticality-Aware, Multi-core Coordination"**

RTAS 2019 - A system for separating high-criticality processes into an independent runtime environment, minimizing interference from lower-criticality processes

October 2019 **Randolph A. Graves Founder's Award**

GWU SEAS Student Research Showcase - Received in recognition creating a webapp and backend for faculty judges in the SEAS R&D Showcase, a student research competition. This was made to replace the previous error-prone paper-based solution.

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