Charles Fyfe, Ph.D.

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Summary

Twelve years of experience with distributed Linux systems, plus a variety of tools and languages. Comfortable taking ownership of complex systems with many stakeholders. Open to opportunities in cloud infrastructure, server-side development, or somewhere in between.

Experience

Software Engineer: Messaging Infrastructure — Facebook, 2021–Present

- Unified message request logic for Facebook and Instagram in **PHP**/**Hack**. Extended publishers, subscribers, and data structures while enforcing strict backwards compatibility.
- Owned testing, metrics, and resiliency for a code path handling billions of daily user requests. Maintained a baseline of zero stuck cursors.
- Migrated 30 billion active mailboxes from legacy systems without downtime. Implemented real-time validation to guarantee 99.999% accuracy despite collisions and race conditions.

Visiting Assistant Professor of Physics — St. Olaf College, Fall 2020

- Coached undergraduate juniors in advanced problem solving techniques, including numerical modeling and data visualization in **Python**.
- Coordinated the efforts of two TAs to ensure each student's grasp of core concepts.

Software Engineer: DevOps and Testing — Cray Inc, 2016–2021

- Led development of a monitoring framework for **Ansible**, **Kubernetes**, and hardware configuration on supercomputers. Published live updates to Slack and Jira via **REST API**.
- Wrote **CI/CD pipelines** to build, test, and deploy RPMs and **Docker**-based services in support of 100+ engineers.
- Provisioned distributed resources via **Google Cloud** and **Terraform** for automated testing.
- Centralized access and analysis of supercomputer log files via multithreaded **Python**. Processed terabytes of text to diagnose hardware failures on a $70 million customer installation.

Research/Teaching Assistant — University of Minnesota, 2009-2016

- Optimized simulations in parallel **Fortran**. Analyzed hundreds of gigabytes of data in **Python**.
- Instructed hundreds of college students on the fundamentals of data analysis.

Education and Certifications

Professional Scrum Master 1 — *Scrum.org, 2018*

Ph.D. (Plasma Physics) — *University of Minnesota, 2016*

B.A. (Mathematics & Physics) — *St. Olaf College, 2009*