Zac Joffe

3A Software Engineering

zacharyjoffe@gmail.com
github.com/ZacJoffe
zacjoffe.com

SKILLS

Languages: C++ • C • Rust • Golang • Java • TypeScript • JavaScript • Python • Bash • SQL
Technologies: MongoDB • Redis • gRPC • Node.js • Express • React • Vue.js
Infrastructure: Docker • Kubernetes • Jenkins • Terraform • Bazel • Azure • AWS • Datadog • Kibana

EXPERIENCE

Systems Engineering Intern – FreeBSD Foundation   Remote / Sept - Dec 2020
- Implemented a compiler-level stack clash exploit mitigation for FreeBSD's **LLVM** toolchain
- Developed new features for the FreeBSD operating system and extended core functionality through bug fixes, security enhancements, and performance optimizations

Backend Engineer Intern – TextNow   Waterloo, ON / Jan - Apr 2020
- Developed a phone number reconciler service using **Golang** that keeps the internal inventory up-to-date, which discovered over **2.1 million** unused numbers and saved **$500,000**
- Deployed the reconciler using **Kubernetes**, provisioned **AWS** with **Terraform**, and analyzed metrics in **Datadog**
- Authored a **Golang** service to determine cost markup for phone calls with **200%** improvement in efficiency

Full Stack Developer – Emailtopia   Mississauga, ON / Jan - Aug 2019
- Constructed a subscription-based billing service in **Golang**, saving over **50** hours/week of accounting work
- Automated building, testing, and scaling of microservices using **Kubernetes** and CI/CD **Jenkins** pipelines
- Implemented a custom **JWT**-based web authentication system to secure backend APIs
- Developed a library to use **Azure Key Vault** for securing secrets in the source code and deployed it in each **AKS** cluster using Active Directory Pod Identity configurations

Software Developer – Segmentech   Markham, ON / June - Aug 2018
- Improved efficiency of tasks by upwards of **200%** through automating manual work with **Python** and **Bash**
- Architected **Python** scripts to perform data wrangling and analysis for datasets in **MySQL**

PROJECTS

NES Emulator   github.com/ZacJoffe/znes
- Built a cross-platform, cycle-accurate emulator of the *Nintendo Entertainment System* using **Rust** and **SDL2**
- Accurately simulated the CPU, graphics, audio processors, and vendor-specific game cartridge hardware
- Extended support to over **1000** games published for both the *NES* and Japanese *Famicom*, such as *Super Mario Bros.*, *The Legend of Zelda*, and *Metroid*

Text Editor   github.com/ZacJoffe/text-editor
- Implemented a lightweight vim-like terminal-based text editor in **C** with syntax highlighting for **C** and **C++**
- Designed for efficient text editing with a focus on performance and simplistic, intuitive keybindings

EDUCATION

Candidate for Bachelor of Software Engineering   University of Waterloo
3.7/4.0 CGPA (Dean's Honor List)   Sept 2018 - Apr 2023