James Adam Buckland

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Work Experience

2022-2023

Google – Fuchsia   Software Engineer
New York, NY   *Rust*

Engineer with the Software Delivery and Identity team(s) within Fuchsia, a next-gen capability-based microkernel OS. I designed and worked on components such as secure package updates, user account login, physical volume encryption, password authentication, and various cryptography internals. I worked to migrate our secure package update component to an ECDSA-based scheme with stronger privacy guarantees. I also implemented an encrypted userdata storage layer atop a novel, low-wear flash memory filesystem; this helped our team prototype and demo a personal computer product. My work involved system design and local testing with hardware.

2018-2022

Google – Cloud Networking   Software Engineer
Cambridge, MA   *C++, Python, Go*

Engineer with the Cloud Networking team. I worked on a variety of cloud offerings including regional and global L7 network proxies and a CDN. My duties involved design work and feature development, reliability, productionalization and rollout engineering. At Google I contributed to Envoy, an open-source proxy written in C++. My work helped launch several new cloud networking products and led to onboarding a few large cloud customers. I worked prominently on internal cryptography / SSL libraries and other tasks involving TLS internals. My work also focused on distributed systems and performant logging/monitoring.

2021-2022

Google – 20% Project   Software Engineer
Cambridge, MA   *Python, Tensorflow*

Experimental research project involving automated character layout within CJK font design software. I used a GAN trained on existing Chinese-language fonts to generate realistic designs for the extended Unicode plane of CJK characters. (See github.com/google/autocjk.)

2016-2018

Peak6 Investments   DevOps Engineer
Chicago, IL   *Python, Bash, assorted config languages*

DevOps engineer at an options trading firm with a wide range of duties. I served on a real-time 24-hr production issue rotation and managed microservice deployment, logging, and monitoring. I also led design and implementation for in-house monitoring and alerting tools.

Education

2012 – 2016

Mechanical Engineering, B.S.   *University of Illinois, Urbana-Champaign*
Key courses: Control Systems, Robotics, Fluid Dynamics, Dynamical Systems

2014

Cognitive Computation Group   Software Engineer
Design and maintenance for linguistics demo web server and interactive data visualization.

2013

Continuous Casting Consortium   Software Engineer   *FORTRAN, C++*
Software refactor feasibility study for continuous steel casting numerical simulation software.

2014 – 2015

Sustainability Engineering   *KTH Royal Institute of Technology, Stockholm*
Key courses: Renewable Energy Tech., Computational Methods, Modeling of Energy Systems

About me

Very familiar: Rust, C++, Python

Pretty familiar: Golang, Haskell, Javascript

Interests: Security, Cryptography, PLT, Correctness and testing theory

Open source projects: Contributor with Envoy and Fuchsia. Author of quadtree_rs, a quadtree library for Rust; plotz_rs, a 2D geometry + vector graphics suite

Other hobbies: Language learning, Puzzle hunting, Project Euler, Pub trivia