

# Michael Francis Shick

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## Summary

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Michael is a software engineer, team leader, and system administrator with a focus on backend software.

## Employment

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### **Highfive Vet** *Chief Technology Officer.* 2023-2024.

- Architected, implemented, and maintained a microservice backend powering mobile apps and websites.
  - Low-latency domain-specific services with isolated database storage. **Ruby, gRPC, Protobuf, SQL, Postgres, Rake, Docker.**
  - API frontend. **Ruby, Sinatra, REST.**
  - Web admin panel for non-technical employees. **Ruby, Sinatra, Firebase.**
  - Flexible, reliable cluster for backends. **Kubernetes, Terraform.**
- Designed and implemented a mobile app for Android and iOS. **Dart, Flutter, Riverpod, Firebase, ChatGPT.**
- Deployed, customized, and maintained an ERP platform for ecommerce operations. **Python, Postgres, Odoo, GitOps.**
- Automated extraction of data from human-oriented websites. **Javascript, Node, Puppeteer.**
- Hired, organized, and managed independent contractors spanning global timezones.
- Represented Highfive on-stage for startup competitions and pitched to potential investors.
- Managed relationships with technical business partners, including Amazon.

### **Google** *Software Engineer.* 2014-2023.

- Developed, maintained, and managed a live-traffic cookie usage enforcement system which filters millions of HTTP requests per second. Responsible for averting millions of dollars in potential fines. **C++.**
- Designed and implemented a configuration ecosystem for representing a large corpus of policy rules to be edited by non-experts. Used by teams across Google.
  - Expressive, ergonomic, and error-resistant language for declaring cookies and usage rules. **GCL, DSLs.**
  - Flexible but strict spider for linting and compiling human-organized directories of policy files into machine-enforceable rulesets. **C++.**
  - Packaging pipeline to deliver rulesets to enforcers in production. **Python.**
- Squashed bugs, refactored, and integrated client requests into a privacy-safe general purpose user data store used by Gmail, Photos, and others. **C++, Metaprogramming.**
- Maintained and improved ecosystem of documentation and supporting tools. **Python, C++.**
- Performed Build-Cop duties: triaged, troubleshoot, and mitigated build system failures. Google proprietary.
- Analyzed and debugged traffic patterns. **SQL.**
- Led a small team of engineers for three years, including client relations.
  - Port of enforcement logic beyond C++ to expand the reach of cookie enforcement. **Java.**
  - Total refactor of core enforcement logic into a library to drastically improve testing and tooling. **C++.**

### **Naval Postgraduate School** *Research Associate.* 2012-2014.

- Developed multiplatform digital forensics tools for analysis of bulk disk and network data. **C++.**
- Administrated a research network and curated an associated 70 terabyte data corpus. **Linux, RAID.**
- Scripted extensively to aid in system administration. **Python, Bash.**

### **Freelance** *Software Engineer.* 2011-2014.

- App for reviewing and monitoring app permissions across a mobile device. **Java, Android.**

- SaaS recruitment and resume processing platform. **Ruby, ActiveRecord.**

## Personal Projects

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Source code for many of my projects is available under libre licenses at [fossil.shick.xyz](http://fossil.shick.xyz)

### Home Lab

- Home-built server providing continuous public and private services for over a decade. **Linux, Debian, Ruby, Python, Apache, Postgres, SSH, iptables, FTP, CGI.**
- Home-built workstation with custom Linux distribution. **Linux, Gentoo.**
- 7 drive, 10 TB storage array built and operated without data loss for over a decade. **RAID, Python.**

### Configuratrix

Language for concisely, flexibly, and safely declaring script interfaces. **Ruby, DSLs, Metaprogramming, YAML.**

### Build-a-Coin `build-a-co.in`

Cryptocurrency source code generator with over 50,000 coins created. **Go, Postgres, SQL, C++.**

### Lock Pattern Generator

App for creating secure Android-style lock screen patterns with over 5 million downloads and numerous imitators. **Java, Android.**

### Goodiebag

Simple engine for creating portfolio websites. **Go, Sqlite, SQL, CGI.**

### DASH Bus Schedule

First ever digital schedule available for the DASH bus of Alexandria, Virginia. **Java, Android, Sqlite, SQL, GTFS.**

### ParseJSON

Toy JSON parser from first principles. **Python, JSON.**

### Blobsrv

Lightweight, convergently-encrypted file host and pastebin. **Ruby, CGI, SQL, Sqlite.**

## Education

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**B.S. Computer Science** The George Washington University, 2012.