Robert Fielding

Backend programmer with 30 years of fully technical experience

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EXPERIENCE

Leidos —Computer Programmer

September 2023 - October 2024

Worked on the Prosight project at Leidos, which is a very successful and high-prole airport physical security project. I mostly worked on the body scanner, to get it integrated into the Prosight network. I also worked on the Explosives and Drugs detection machine to get that also integrated into the network. To a lesser degree, I also worked on the carry-on bag scanner machines as well. I got the integration with Keycloak working on these devices; which involved C# and Golang. Much of the work involved traveling on-site to do the reverse-engineering work; capturing network HTTPS with a proxy to reverse engineer protocols. Was on a Tabular data generation project, to train models with Pytorch/Python.

C# 9 months
Go 9 months
Python/Pytorch 3 months
Cryptography/mTLS 4 months

greymatter.io, Alexandria VA — *Computer Programmer*

October 2015 - July 2023

Worked for a hybrid commercial/government startup from its inception. I introduced Go into the company. The major product that I worked on (commercial side, delivering to government), was a very successful service for handling le uploads (hundreds of terabytes in production, and in production for many years with few major bugs. It allowed for high performance audio, video, document attachments with enforced security labels, and made of Go, S3, MySQL; using nginx/gatekeeper/mTLS for the mesh. I also worked on iterations of its successor that also supported non-government uses, prototyped in Python, similarly made of Go, S3, MongoDB. Used AWSRekognition AI to recognize faces, label content, detect inappropriate content, and navigate between familiar faces; in addition to ElasticSearch indexing all results (including the ML labeling). Got reinforcement learning tasks GPU automated for intern teams.

Golang 8 years
Java 4 years (intermittent fixing dependencies as needed)

SKILLS

Go, Java, Python, C. Performance testing, build automation, security analysis, cryptography.

AWARDS

2015 Application Of The Year
Defense Intelligence Agency awarded us for our work on Object Drive, for a CAPCO/NATO classification protected dropbox-like application with full-text searching.

LANGUAGES

Go, Java, Python, C, bash, etc. Some C#, Javascript, etc. OpenSCAD (3D printing), Arduino (embedded hardware C++). Erlang, Lean4, TLA+.

MySQL 4 years
Mongodb 4 years
Docker 8 years
Linux 8 years
Cryptography/mTLS 6 years

NFR Security / Check Point Software — *Computer Programmer*

October 2004 - October 2015

NFR was one of the early IPS/IDS pioneers, with its ncode language for

inspecting networks in real-time. Was on the team that built the Java desktop based user interface, The Alert Browser, and the JBoss based application server (highly altered J2EE), with a MySQL backend. Sentivist Alert Browser had excellent performance, handling a few million events per day per customer; with intuitive real-time visualizations of the alert stream.

Daily work included network-analysis, reading packet captures (ie: decoding HTTP, packet reassembly), automating network setup and

firewall rules. Responsible for automating the build that checked out source code and burned an ISO containing a windows client installer and linux installers after the build was gathered from the machines that did the compilation.

Built a WFC (a Windows C# UI framework) based debugger for the ncode language (rebranded as cpcode); which involved the C# code invoking a cygwin built runtime for the C-based cpcode engine. Also worked on the cpcode engine (C based) as it was included in a Linux kernel module for the IPS functionality.

Worked on the Check Point ExtJS (Javascript front-end) web console to the server for about a half year. SensorNet - A project that was experimenting with Hadoop analysis -PageRank over the graph of nodes connecting to each other. Project MSSP - A web based log collector. It collected logs from customers's CheckPoint firewalls that were subscribed to this service.

C and C++ 4 years
ExtJS, PHP 2 years
Java 6 years
Python, Celery, Rabbit 2 years
Linux 10 years
Cryptography 8 years

Wizdom Music — *iPhone/iPad self-employment*

October 2010 - October 2012

A month after the iPad was released, I produced an app called Mugician which saw significant real-world use from well-known musicians (Underoath, Dream Theater, Gorrillaz, The Flying Eyes, etc). I worked with other iOS developers on MIDI implementations to handle special problems that a continuous multi-touch surface allows.

Signal Processing 2 years
C, C++, and Objective C 2 years
iPhone development 2 years

EDUCATION

George Mason University, Fairfax, Virginia — Computer Science BS

1993 - 1996

Computer Science degree. Focus on compilers, operating systems, discrete mathematics. C, Java, C++ programming. Compilers, and Operating Systems analysis. Computer graphics (before OpenGL libraries were available on Windows)

Java 2 years, since HotJava Alpha version
C 4 years
C++ 2 years
Linux 2 years