
Summary

A generalist with a strong work ethic and a detail-oriented approach. Excels across a variety of roles and technologies: architect to developer to sysadmin, front-end to back-end, Windows to Unix to Android. Has the flexibility to do whatever is needed to get the job done right. Extensive experience working independently, in small teams, and early stage startups, where productivity, reliability, and clear communication are paramount.

Professional Experience

Independent Developer and Consultant

August 2016 – Present

Worked with many clients to identify, design, develop, and maintain a variety of solutions to address diverse business needs. Notable achievements include:

- Designed and prototyped a web-based construction work order management system using ASP.NET Core MVC 2 with Entity Framework Core (C#). Subsequently facilitated outsourced development through requirements analysis, iterative design and evaluation, and user testing.
- Automated reconciliation of home healthcare scheduling and claims to meet new compliance requirements in under 2 months, saving tens of employee hours per week across multiple offices using a custom Selenium-based web scraper and parser to ingest data for custom reporting.
- Developed a web-based payroll module for an existing home health care agency management system using ASP.NET WebForms (C#).
- Migrated an ASP.NET project from an ad-hoc source-based deployment system to pre-compiled WebDeploy to facilitate automation and pre-deployment checks, significantly reducing issues for developers and users.
- Developed tools for data synchronization to integrate BambooHR (via REST API) and Viewpoint Spectrum (via XML Web Services, WSDL, and SQL), including sophisticated reconciliation algorithms.
- Developed an optimized string edit distance (Longest Common Subsequence, Levenshtein, Damerau-Levenshtein) library in C with Python bindings. Contributed C library to CCAN.
- Docker-ized and deployed a scalable network service written in C++ to Google Kubernetes Engine.
- Authored OpenAPI definitions for multiple REST APIs (AppVeyor CI, BambooHR, Procore (partial)) with client code generation for C# using AutoRest and Java using OpenAPI Generator.
- Developed Excel-based job planning and analysis platforms integrated with Viewpoint Spectrum via SQL.

Honored to assist with hiring in-house developers, migrating projects to collaboration platforms (GitHub, Azure DevOps), co-developing with and mentoring junior developers.

Director of Engineering — Quantpost

May 2013 – June 2015

Architected, built, maintained, and administrated multiple iterations of stock option analysis/robo-advisor platform, infrastructure, and tooling around an existing C++ core as part of an early stage fintech startup team. Primarily used MongoDB, Express.js, AngularJS, and Node.js (MEAN Stack) on Google Compute Engine with Ansible automation. Managed contract developers for additional UI, graphical design, and specialized front-end tasks. Successfully launched multiple public versions of the product with very positive user feedback. Notable achievements include:

- Co-developed multiple iterations of public website, webapp, and REST API, from scratch, in coordination with other developers and designers.
- Developed MongoDB-based task queue with C++ and Node.js clients for managing portfolio optimization requests in real time.
- Developed Java-based consumer for Devexperts dxFeed market data which prepared and stored data for real-time portfolio analysis by the C++ core.
- Managed development of D3 visualization of optimization results and payout curves across predicted probability curves.
- Developed Ansible automation scripts for deploying all GCE machines and services from scratch.
- Contributed to solving challenging performance issues with multi-GB matrix operations using BLAS and Intel MKL on GCE to deliver complex portfolio optimizations in seconds.
- Created lead generation tools for scraping Twitter follower data and applying machine learning techniques.
- Created Twitter chatbot to provide real-time optimizations on demand.

Co-founder, CEO — Digital Engine Software, LLC

June 2009 – December 2011

Built a business to design, create, and customize a wide variety of software to meet the needs of a diverse regional clientele. Coordinated, planned, and conducted operations to successfully promote and grow the business, determine and fulfill client needs, and produce quality software. Notable achievements include:

- Created web-based practice management system for a home health care provider serving over 1000 active clients and employees, across 10 regional offices. Significantly improved information sharing between offices, data entry efficiency, and ability to gather operational analytics.
- Configured, deployed, and maintained MS SQL Server Merge Replication to allow offline data entry and retrieval. Overcame significant technical obstacles on an ongoing basis.
- Conducted environmental monitoring database consolidation and migration project merging structure and data for millions of records of field data from Access to SQL Server.
- Developed and integrated IPsec support for OpenWrt router firmware project.
- Created prototype for a historical information exploration website using Google Maps.
- Implemented stream prediction algorithm as an ArcGIS module for digital elevation model LIDAR data.

Technician/Programmer — Computer Troubleshooters

April 2008 – May 2009

Applied sound investigative techniques to isolate and resolve a wide variety of complex technical problems across several industries and systems. Designed, setup, and administered multiple Windows domains for small businesses, including SBS 2003, 2008, Exchange, and SQL Server products. Created and tailored utility programs to facilitate ongoing maintenance and to speed recurring tasks for clients.

CS Intern — Air Force Research Lab

Summer 2007

Contributed to design and implementation of Java-based wargame development platform and Asynchronous Chess (an AFRL-invented strategy game) AI research projects. Achievements include:

- Development of a 3D chess-playing agent and a viewer supporting animations and status tracking in real time.
- Design and preliminary implementation of environment system for the SimVentive wargame development platform.
- Presented SimVentive work at Huntsville Simulation Conference 2007

GIS Intern — Gallatin Valley Land Trust

Summer 2006

Gathered and manipulated field data to create and update trail maps using ArcGIS. Implemented Google Maps-based interactive online map of GVLT's conservation easements.

Educational Experience

BS in Computer Science — Cornell University

December 2007

- Graduated Magna Cum Laude from Cornell University College of Engineering.
- Cumulative GPA of 3.77. Dean's List for Spring 2007, Fall 2006, Spring 2006.
- Specialization in mathematics: Cryptography, Statistics, Discrete Mathematics.

Relevant Personal Experience

- Contributed multiple patches to the Linux kernel. Bisected and reported multiple issues from RC testing.
- Develop and maintain ~20 packages on npm.
- Added support for gzip content encoding to the widely-used request npm package.
- Develop WeeWX plugin for interactive weather graphs using Plotly.js; publicly hosted on a Raspberry Pi.
- Test nightly builds of Firefox and Thunderbird. Over 50 bugs investigated.
- Test and contribute to Debian GNU/Linux, with over 100 bugs investigated.
- Contributed over 50 package versions to Microsoft winget.
- Self-hosted personal website and email for over a decade using Apache, Postfix, and additional services.

Technologies

- Most proficient in C#, Python, C, JavaScript, SQL, Java, and shell scripting on Linux and Windows systems. Some experience with a multitude of other languages, platforms, and libraries.
- Proficiency with a variety of development tools including Visual Studio, git, Vim, Eclipse, and many others.
- Extensive experience with Debian GNU/Linux on mobile, desktop, and server platforms.
- Enjoy learning new languages, tools, techniques, and platforms suitable for a given problem.