

Skillset

Passionate, personable technologist and engineer. Quick learner, problem solver, and thrives in high-stakes environment.

Very passionate about making things run as fast and reliably as possible.

Specialties in networking, virtualization, and operating systems, both with respect to development and implementation.

Expertise in both Windows and Unix environments, heavy professional user of C, C++, C#.

Professional Experience

D.E. Shaw & Co.

(August 2018 -)

- Significantly revamped monitoring infrastructure
 - Implemented Telegraf, Prometheus, and Grafana from the ground up on both Windows and Linux.
 - Implemented Microsoft System Center Operations Manager (SCOM) from the ground up for monitoring Microsoft SQL Servers, Exchange, and core Windows Server services such as Active Directory.
 - Utilized SNMP and IPMI to allow for out-of-band monitoring of server hardware and network devices.
 - Developed an application to perform offline dependency analysis and resolution of SCOM Management Packs. (PowerShell)
- Contributed to a high-level ops rotation administering Windows and Linux systems, as well as network infrastructure.
- Assisted in development, implementation, and operation of a new HPC cluster / compute grid scheduling application. (Python)
- Assisted in maintenance and diagnostics of UDP multicast market data feed lines.
- Implemented and administered various third-party applications from the ground up including GitHub Enterprise.
- Developed low level tooling to investigate Windows driver memory bugs. (C)
- Contributed significant expertise to developing a secure and segregated Linux and Windows computing environment to facilitate trustworthy computing in an extremely untrustworthy environment for a new office in China.

Acuity Brands Lighting

(March 2017 - August 2018)

- Designed and built an API to allow efficient access to commercial lighting controlled by the nLight protocol. (C++, C)
- Implemented an internet firmware update service for embedded products from the ground up. (.net Core, C#, Web front-end)
- Implemented JSON parsing on extremely resource-constrained devices
- Contributed expertise towards integration of a new wireless nLight product into the existing platform. (C#)
- Rebuilt a critical build server, which resolved significant delays and improved development efficiency. (VSTS)

Microsoft

(May 2015 - Nov 2016)

Windows Fresh Start

(Dec 2015 - Nov 2016)

- Designed and built a Windows feature that can quickly clean a PC of all software while keeping drivers and files. (C, C#, C++)
- Experimentally implemented automatic user-mode application virtualization and containerization. (C, C++)
- Implemented various graphic user interface (GUI) components. (C#)

Windows Networking

(May 2015 - Dec 2015)

- Led bug fixes across an enormous codebase (Windows) while in charge of maintaining VPN, Enterprise Wi-Fi, and Ethernet features.
- Utilized big data analysis expertise to answer business questions. (SQL, internal technology)
- Designed test software for Hyper-V Software Defined Networking Quality of Service. (Hyper-V, TCP/UDP, C, C++)

Microsoft Intern Program (May 2014 - August 2014) - Windows Networking

- Developed a Cloud Platform System (Azure Stack) orchestration and management client, utilizing REST/JSON.
- Contributed to Windows NDIS source code, wrote the first network device driver for Windows 10 (C)

Microsoft Intern Program (May 2013 - August 2013) - Windows Networking

- Developed a UDP NAT (Network Address Translator) and Router. (C, C#)
- Created software to orchestrate a dynamic TCP/IP traffic stress test and benchmark across thousands of VMs and hosts in a multi-tenant environment. (C++)

Microsoft Intern Program (May 2012 - August 2012) - Windows Networking

- Designed and developed an automated test system for Connected Standby low power mode. (C)
- Created tooling to track and graph Windows Connected Standby sleep states, and system power consumption. (C, C++)

Professional, Independent and University Projects

Windows Kernel-mode Memory Map (C, C++, 2019)

- Implemented a tool that maps kernel-mode memory allocations on Windows to assist in diagnosing kernel-mode memory leaks,

Hidden DNS Services (NodeJS, 2017)

- Wrote an authoritative DNS server that allowed for both normal lookups and steganographic traffic tunneling and data exfiltration.
- Developed a client that exposed a SOCKS proxy that tunneled arbitrary traffic over DNS.
- Developed a client / server application that could provide access to specific web pages as TXT records.

Performant PHP Web Server (2013 - 2014)

- Developed a full, high-performance web server written in PHP.

High Performance University CMS and style sheet (2010-2014)

- Built a content management system to facilitate user uploaded and designed web pages by untrusted parties.

Near Field File Sharing (PHP, Node, 2014)

- Developed software to facilitate quick and easy sharing of files between physically near computers via UDP Multicast or Internet.
- Conducted extensive research into platform-agnostic zero-config communication.

iBeacon payment and location tracking platform (2014)

- Designed and built out an experimental platform for locating customers within a retail environment, tracking their movements, and facilitating payments and interactions with other objects based on location within the building.
- Implemented an iBeacon simulation API and front-end to allow for demonstration and testing of this platform.

Bootable Tor Hidden Site Server (2013 - 2014)

- Created a minimal embedded Linux system that could be booted from read-only media and serve a Tor hidden site.
- Utilized the Performant PHP Web Server (mentioned above).

Small Windows 95 (2007, 2010)

- Created a Windows 95 installation that could be booted from floppies without other local storage for running specific embedded applications.
- Componentization and dependency mapping was used to only include components required by the specialized applications that would be used, similar to standard Windows XP Embedded.

Skills and Professional Applications

Programming Languages	C	C++	C#	Java	Erlang	Elixir														
Scripting / Query Languages	PowerShell		Python	PHP	Perl	Shell / Bash	Windows Batch	JavaScript	SQL	PromQL	Verilog	VHDL								
Databases	Microsoft SQL Server			Oracle SQL Server	sqlite	redis	MySQL													
Servers	VMWare ESXi	nginx	Apache	IIS	Citrix XenApp	Active Directory	System Center	SCOM	SCCM	Prometheus										
	Grafana	Telegraph (monitoring application)			GitHub Enterprise	Microsoft SQL Server	NetApp	Enterprise Vault	macOS Server											
Operating Systems (Development and Administration)																				
	Windows Server 2012-Present			Windows 7, 8, 8.1, 10		Linux (RHEL, CentOS, Ubuntu, Debian)		OpenBSD	Unix	macOS										
Legacy Systems (Development and Administration)	Windows XP			Windows Server 2000 / 2003 / 2008		Windows 9x	Windows NT	Windows 3.x	OS/2	Citrix WinFrame	MS-DOS									
APIs	WINAPI / Win32s		MFC	Windows Forms	WPF	WinSock														
Applications	Adobe Audition		Adobe Illustrator	Adobe InDesign	Adobe Photoshop	Adobe Premiere	AutoCAD	COMSOL MultiPhysics												
	Maple	MATLAB	Transsoft GUIDSign	Microsoft Visio	Microsoft Project															
Development Tools	Git	Perforce	SVN	Vim	Xcode	Visual Studio	Visual Studio Team Services	Visual Basic for Applications												
Networking	Cisco iOS	Ubiquiti UniFi		Client / Server programming		Low-level stack and driver implementation														
Cloud	Microsoft Azure		Amazon AWS	Google Cloud	DigitalOcean	Vultr	Twilio	Office 365												

Hackathon Projects

WubLink

- Developed backend for an app that allows crowd interaction with a live DJ that authenticates via an audio watermark.

Ultimate Party Playlist

- Developed a web app that analyzed Facebook friends at an event, then created RDIO playlist based on collective interests.

GoToEvent

- Developed a web app that allowed sending and tracking of event invitations via E-Mail, SMS, and telephone calls via Twilio.

Other Experience and Awards

UHACK 2014 - 2nd Place Winner:

- Ultimate Party Playlist

UHACK 2012 - Best Use of Twilio:

- GoToEvent

Engineering Advisory Board (University of Miami)

- Director of Technology (Jan 2011 - May 2014)

Dickinson Scholarship, University of Miami

EPA 608 and 609 Certified Technician

Education

University of Miami (Miami, FL)

2010 - 2014, Computer Software Engineering / Computer Science