

Full-stack software engineer and diverse technologist, with specific focuses on networking, virtualization, cloud infrastructure, and high-performance multi-user systems.

Professional Experience

Microsoft (May 2015 - November 2016)

Windows, Fresh Start (December 2015 - November 2015)

- Designed and implemented a significant and technically complex feature of the Windows operating system. (**C#, C, C++**)
- Developed a core Windows component related to migration of installed software between Windows installations. (**C, C++**)
- Implemented various versions of a graphic user interface (**C#**)
- Contributed significant debugging and system design expertise, and added features directly to the Windows source code.

Windows, Networking (August 2015 - December 2015)

- Led bug fixes across various parts of the network stack, while in charge of quality for VPN, Enterprise Wi-Fi, and Ethernet.
- Utilized data analysis expertise to answer questions using big data. (**SQL, proprietary internal big data language**)
- Contributed directly to the Windows source code. (**C, C++, some GUI stuff in C#**)

Windows, Networking (May 2015 - August 2015)

- Designed a test for Software Defined Networking Quality of Service (**Hyper-V/ Network Stack, implemented in C, C++**).
- Provided significant testing expertise to the Windows 10 client release.

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

- Developed a Cloud Platform System (Azure Stack) orchestration and management client, utilizing REST/JSON. (**C#, PowerShell**)
- Developed an automated end-to-end scenario test using the client. (**C#**)
- Contributed directly to the Windows NDIS (Network Core) 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 Translation) and Router. (**C, C#, prototype implemented in PHP**)
- Created a large-scale, fully automatic stress test for Hyper-V Virtual Networking. (**C#, PowerShell**)
- Special focus on UDP Multicast as a control mechanism.

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

- Designed and Developed an automated test system for Connected Standby, which enables Intel and ARM Windows PC devices to have a sleep mode similar to that of smartphones. (**C, C++**)
- Worked directly with Windows source code.

Hackathon Projects

WubLink (2014)

- Designed and Developed PHP (Hypertext Preprocessor) backend for an app that allows crowd interaction with a live DJ. (PHP)
- An audio code can be played by a DJ, and matched by a smartphone to set up interaction.
- 24-Hour Hackathon project, team of four.

Update Party Playlist (2014)

- Built a web app that analyzed a group of Facebook friends at an event, and created an RDIO playlist based on collective interests.
- 24-Hour Hackathon project, team of four. **Second Place Winner. (PHP).**

GoToEvent (2012)

- Built a web app that allowed for the sending and tracking of event invitations via E-mail, SMS text messages, and telephone calls.
- Used Twilio's HTTP to telephony API (via **cURL**)
- 24-Hour Hackathon project, team of two. Best use of Twilio award. **(PHP).**

Independent Projects

Performant PHP Web Server (2013 - 2014)

- Developed a high-performance web server in the **PHP** programming language.
- Server can handle substantial numbers of requests in a low memory footprint.
- Developed a virtual appliance for a Tor Hidden Service.

Road sign image generation software (2013 - 2014)

- Designed and Developed a REST API that generates graphics of road signs accurate to MUTCD specifications.
- Parses complex strings to produce route markers, or guide signs which may contain route markers. **(PHP, ImageMagick)**

High performance University content management and style-sheet (2010 - 2014)

- Designed and Developed a Content Management System to facilitate user-uploaded and designed web pages by untrusted parties.
- Style sheet provides identical appearance to existing University web sites, but loads 20 times more quickly.
- Utilized by various customers throughout the College of Engineering. **(HTML/CSS, PHP, sqlite, MySQL)**

Small Windows 95 (2008 - 2009)

- Attempted to produce a Windows 95 installation that was as small as possible.
- 3.5 MB with most functionality, 1.6 MB with only the core user interface working.
- Also produced a 600 KB Windows 3.1 system.

University Projects

Near Field File Sharing (September 2013 - May 2014)

- Developed software to facilitate quick and easy sharing of files between physically near computers.
- Files transferred via UDP (User Datagram Protocol) Multicast, or Internet.
- Conducted extensive research into platform-agnostic zero-config communication.

Vector Highway Map Application (2011 - 2012)

- Designed and developed a map application which loaded data, displayed a map with elevation data, cities, and highways.
- Could calculate driving directions between cities.
- **Java** implementation, and native Win32 WinAPI ANSI C implementation with significantly improved performance.

Technologies

Programming Languages

C++ (11 years) C (10 years) Java (9 years) PHP (8 years) JavaScript (4 years) C# (3 years)
Verilog (Some Experience) VHDL (Some Experience) bash (Some Experience) sh (Some Experience)
Elixir (Some Experience)

Other Languages and Technologies

HTML (12 years) CSS (6 years) SQL (8 years) JSON REST

APIs

Microsoft.net (7 years) Windows API (5 years) XAML (Windows Modern Apps)

IT Skills (Operating Systems, Advanced Management)

Windows (10, 8.1, 8, 7, Vista) OpenBSD, FreeBSD, NetBSD Mac OS X Windows XP, 2000/NT
Windows-on-ARM Legacy Macintosh (OS7 - OS9) Legacy Windows 9x/3.x6 DOS

Embedded Platform Design and Development

Windows 7 Embedded Windows XP Embedded

Server Operating Systems

Windows Server 2016/2012(R2)/2008(R2)/2003 (6 years) OpenBSD/FreeBSD (3 years)
Linux (Some Experience)

Virtualization

Microsoft Hyper-V (Expert) VMWare ESX/ESXi (Some Experience) VirtualBox (Some Experience)
VMWare ThinApp (Some Experience) Xen (Some Experience)

Server Software

Apache IIS OpenBSD pf Active Directory VMWare View WinNAT Citrix

Databases

sqlite MySQL Microsoft SQL Oracle SQL

Applications (very familiar)

Altera Quartus II Autodesk AutoCAD Adobe After Effects Adobe Audition Adobe Flash Apple Logic Pro
Adobe Photoshop Adobe Premiere COMSOL MultiPhysics ESRI ArcGIS Microsoft Office
Microsoft MapPoint ModelSIM Transoft GuidSign SMAART vi / vim Xilinx ISE

Other Experience and Awards

Dickinson Scholarship (University of Miami)

Institute of Electrical and Electronics Engineers (IEEE) member, 2010 - present

Association for Computing Machinery (ACM) member, 2010 - 2015

National Fire Prevention Association (NFPA) Member, 2013 - present

American Society of Civil Engineers (ASCE) Member, 2014

Engineering Advisory Board (University of Miami), Director of Technology (Jan 2011 - May 2014), Public Relations Chair (Feb 2013 - May 2013)

UHACK 2014 2nd Place Winner: Ultimate Party Playlist

Certified EPA 608 Type I (Small Systems) Technician

Certified EPA 609 (Mobile Systems) Technician

Education

University of Miami, 2010 - 2014, Computer Software Engineering