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Career Summary	• Professions:	• Senior Software Engineer • Platform Engineer • Live Ops/Ops Engineering/DevOps	• Senior Server Engineer • Testing Infrastructure Engineer • Senior UI/UX Engineer
	• Industries:	• Games Industry • Web Site Development • Management Information Systems	• Cellular and WiFi/BT Testing • Disaster Simulation • Information Technology

Skills Language and API Technologies

• C/C++	<i>Expert</i>	• ImageMagick	<i>Strong</i>	• PowerShell	<i>Moderate</i>
• HTML/XHTML/AJAX	<i>Expert</i>	• jQuery/jQuery UI	<i>Strong</i>	• Azure DevOps	<i>Moderate</i>
• JavaScript/ECMAScript	<i>Expert</i>	• RPGIII/RPGLE	<i>Strong</i>	• Windows Batch	<i>Moderate</i>
• PHP	<i>Expert</i>	• TCL/Tk	<i>Strong</i>	• MSBuild	<i>Moderate</i>
• JSON	<i>Expert</i>	• sh/bash/ksh Scripting	<i>Moderate</i>	• Xcode	<i>Moderate</i>
• BASIC/QuickBASIC	<i>Very Strong</i>	• MATLAB/SIMULINK	<i>Moderate</i>	• Boost	<i>Moderate</i>
• CSS	<i>Very Strong</i>	• CLP (AS400)	<i>Moderate</i>	• Lua/Lua API	<i>Moderate</i>
• XML	<i>Very Strong</i>	• Makefile	<i>Moderate</i>	• ARM/Thumb Assembly	<i>Moderate</i>
• SQL/MySQL/SQLite	<i>Very Strong</i>	• OpenGL/OpenGL API	<i>Moderate</i>	• MFC	<i>Light</i>
• 6502/6510 Assembly	<i>Very Strong</i>	• PERL/Tk	<i>Moderate</i>	• Java	<i>Light</i>
• Qt/QML	<i>Strong</i>	• LZMA/LZW/Zip	<i>Moderate</i>	• Objective C	<i>Light</i>
• .NET/VB/Visual C++	<i>Strong</i>	• MIPS Assembly	<i>Moderate</i>	• DirectX	<i>Light</i>
• Python	<i>Strong</i>	• C#	<i>Moderate</i>	• VSTest.Console.exe	<i>Light</i>

General Abilities

• Software Testing	<i>Very Strong</i>	• Linux Administration	<i>Very Strong</i>	• Network Administration	<i>Strong</i>
• Mathematics	<i>Very Strong</i>	• Sketch Artist	<i>Strong</i>	• Game/Gameplay Design	<i>Strong</i>
• User Interface Design	<i>Very Strong</i>	• Graphical Layout	<i>Strong</i>	• Apache	<i>Moderate</i>
• Algorithm Design	<i>Very Strong</i>	• Controller Design	<i>Strong</i>	• Auto. Build Systems	<i>Moderate</i>
• Application Design	<i>Very Strong</i>	• Network Management	<i>Strong</i>	• Firewall Design	<i>Moderate</i>
• API Design	<i>Very Strong</i>	• Physics Modeling	<i>Strong</i>	• DNS Configuration	<i>Moderate</i>
• Tool Design	<i>Very Strong</i>	• System Modeling	<i>Strong</i>	• Windows NT Admin.	<i>Light</i>

Platform Programming Experience

• Linux/Unix	<i>Very Strong</i>	• Sunplus SPG2xx SPG290	<i>Strong</i>	• osCommerce	<i>Moderate</i>
• Commodore 64	<i>Very Strong</i>	• Gameboy DS	<i>Strong</i>	• Gameboy Advance	<i>Moderate</i>
• Windows	<i>Very Strong</i>	• Wii	<i>Strong</i>	• Xbox Series/One X/S	<i>Light</i>
• Web	<i>Very Strong</i>	• i5/AS400/System 38	<i>Moderate</i>	• Splunk/Grafana/Kibana	<i>Light</i>
• PlayStation 2	<i>Very Strong</i>	• Playstation	<i>Moderate</i>	• iPhone / Android	<i>Light</i>
• MacOS X	<i>Strong</i>	• OS/Kubernetes/Docker	<i>Moderate</i>	• PlayStation 5	<i>Light</i>

Experience	• Turn 10 Studios (a division of Microsoft; full-time remote) – <i>Redmond, Washington</i> <i>September, 2023 ~ December, 2024</i>		
	Senior Software Engineer; Testing Infrastructure; DevOps: Forza Motorsport <ul style="list-style-type: none">• Triaged and repaired build and test pipelines whenever they failed or became stuck in C++, C#, PowerShell, Azure DevOps, and other tools.• Identified and fixed long running unknown race condition that caused testing suites to end early when delegated to multiple test devices.• Led effort to identify and deprecate old, unused, and unneeded tests that were written in C/C++ and C#.• Wrote tool to enumerate, filter, and display available VSTest.Console.exe tests in DLLs in C# including flexible accessors using reflections.• Wrote unified tool for dumping executables on remote PCs and XBOXs (Series/One X/S) and soon PS5s in C#.• Extended initialization portion of testing framework to initialize PS5s for running tests in C#.• Monitored device test pool of PCs and XBOXs fixing and returning stuck devices from various issues including a nasty DNS poisoning issue.• Added API to Forza Motorsport for testing using AI based on specs used for testing Minecraft written in C/C++, WinSockets, and ZeroMQ.		
	• Activision Blizzard (full-time remote) – <i>Irvine, California</i> <i>November, 2020 ~ June, 2023</i>		
	Senior Server Engineer; Live Ops/Ops Engineering: Blizzard Entertainment, Hearthstone <ul style="list-style-type: none">• Investigated player issues that CS could not fix and perform live production data healups in Oracle SQL.• Wrote automated player data migration service to migrate old player data, which worked in conjunction with login, in C++, Oracle SQL.• Optimized and maintained code profiling library that ran on live production in C++.• Integrated all feature gate variables into company's monitoring library in C++.• Updated company's networking routing library and migrated API to new version in C++.• Updated various internal and third party libraries in C++, Oracle SQL.• Created API to link Optimizely to game to configure computer players in C++, HTML, JSON.		
	• Machine Zone – <i>Palo Alto, California</i> <i>September, 2017 ~ July, 2020</i>		
	Server Engineer: Distributed Backend for 6 MMO Mobile Games (Game of War, Mobile Strike, Final Fantasy XV, ...) <ul style="list-style-type: none">• Maintained/improved codebase of distributed backend server systems in PHP, Lua, MySQL, sqlite developed in Docker containers.• Principal maintainer of server kernel including custom Object-Relational Mapping and Controllers in PHP, MySQL, sqlite.• Rewrote transaction rollback to support broader database modification that was aware of internal and external data caching in PHP & MySQL.• Added support for "soft" deletion of models/rows that deactivate instead of removing to improve overhead of volatile tables in PHP & MySQL.• Primary maintainer and deployer of device tracking system in PHP, MySQL running on OpenShift on Kubernetes and Docker.• Wrote GDPR/CCPA management and data wiping backend and handled wiping requests during development in PHP, MySQL, Python, bash.		

- **Trion Worlds** – *Redwood City, California* *June, 2014 ~ February, 2017*
Platform Engineer, Glyph: Platform Launcher for Login/Auth and Downloading, Decompression, and Patching of Multiple Games
 - Updated/improved Glyph on Windows, MacOS X in C/C++, Qt, QML, JavaScript, CURL, LZMA, Zip, company STL and common libraries.
 - Updated company STL and common libs on Windows, MacOS X in C/C++ including STL, text manipulation, memory & process management.
 - Set up process to rebuild Qt and OpenSSL from source to target Windows XP on Windows using VS 2013 in Windows Batch, Makefile.
 - Reworked project files and install builder for more efficient build on Windows, MacOS X in MSBuild, Windows batch, AppleScript, bash.
 - Updated company build server client for Windows and created build of and automating of MacOS X builds in Python.
 - Updated and built existing mobile authorization apps on iPhone and Android in Objective C and Java.
- **LitePoint** (a division of Teradyne) – *Sunnyvale, California* *May, 2012 ~ May, 2014*
Senior Software/UI/UX Engineer, Test Plan Editor: Cellular and WiFi/BT Test Plan Creation and Editing Software Tool
 - Wrote from scratch based on UI layout request and existing file format in JavaScript, jQuery, jQuery UI, HTML, CSS, QtWebKit, C/C++, Qt.
 - Created API to access company SDK (in C/C++) through JavaScript/jQuery using QtWebKit with a HTTP request fallback.
 - Developed future file format and created module to convert file formats in Python.
 - Contributed to improvement of company SDK and plug-in modules in C/C++, Qt, JSON, and Python.
 - Learned about RF testing of cellular and WiFi/Bluetooth devices.
- **Contracting / Self-Employment** *March, 2010 ~ December, 2012*
 - **Bloomberg LP:** Senior Software Engineer; *August, 2011 ~ October, 2011*
 - Worked in Trade Order Management Systems fixing back-end bugs in C/C++, JavaScript, and ksh.
 - Wrote Bloomberg terminal command to schedule and delete trade book tickets in C/C++, JavaScript, ksh, and SQL.
 - **Swann Costume Shop:** Lead Software Engineer; *June, 2011 ~ July, 2011*
 - Wrote customer and inventory database to track rentals and charge late fees in TCL/Tk and SQLite.
 - **FlipSwitch Solutions:** Lead Software Engineer; *February, 2011 ~ April, 2011*
 - Wrote custom course management and scheduling with user registration in PHP, HTML, and CSS.
 - **LaFrance Corporation:** Senior Software Engineer; *July, 2010 ~ December, 2010*
 - Rewrote product upload tool adding robust error handling in Visual Basic .NET.
 - Finished osCommerce-based website in PHP, MySQL, HTML, CSS, JavaScript, JSON AJAX, VB, .NET, XML, and FedEx/UPS API.
- **Test & Evaluation Solutions** – *Warrenton, Virginia* *July, 2009 ~ December, 2009*
Senior Software Engineer, Integrated Recovery Model: Ship Disaster Recovery Modeling & Simulation for PC, Mac, and Linux
 - Rewrote and updated ship deck and compartment modeling program in TCL/Tk and SQLite.
 - Learned and participated in discussions about improving existing SQLite schema for ship data.
 - Applied for and received Secret Level U.S. Security Clearance.
- **Barking Lizards Technologies** – *Richardson, Texas* *January, 2008 ~ August, 2008*
Senior Software Engineer
 - **Wii, Playstation 2, and PC Game:** Naked Brothers Band
 - Wrote Playstation 2 Controller API and missing-controller display in C++.
 - Wrote Playstation 2 Memory Card API and display in C++.
 - Wrote Wii Power, Reset, and Exit handlers in C.
 - Wrote Wii disc error handler and display in C and C++.
 - Wrote Wii Home Button Menu handler in C++.
 - Wrote common microphone API interfacing to each platform library in C++.
 - **Gameboy DS Game:** Bratz, Girlz Really Rock
 - Scripted one of the five chapters for the RPG-like story mode in LUA including API additions in C.
 - Wrote pause menu, options menu, and initial version of main menu in C++.
 - Added multiplayer features to one game in C++.
 - Added touch-slider and radio button classes to the game in C++.
 - **PC Proof-of-Concept Game:** Client-Server Network Test in C++ with a data conversion tool in C
- **LaFrance Corporation (MIS Department)** – *Concordville, Pennsylvania* *August, 2006 ~ January, 2008*
Senior Software Engineer
 - Designed and wrote many auto-generating product reports in Crystal Reports with AS400 SQL interface.
 - Wrote web interface to graphic department's Windows file share to aid design search in PHP.
 - Designed, wrote, and maintained many inventory and billing apps in RPGIII, RPGLE, and CLP on AS400.
 - Rewrote Benmatt website, cleaned up data, and documented it in PHP, MySQL, HTML, CSS, and JavaScript.
 - Wrote Design-Your-Own-Product dynamic web pages in PHP, MySQL, HTML, CSS, JS, and ImageMagick.
 - Designed and wrote first version of LaFrance corporate library in PHP, MySQL, HTML, CSS, and JavaScript.
- **Contracting / Self-Employment** *March, 2006 ~ January, 2007*
 - **Atomic Orange Productions:** Senior Software Engineer; *September, 2006 ~ January, 2007*
 - Worked on SPG288 based PnP game, Bratz at the Mall, in C and SPG2xx ISA Assembly.
 - Worked remotely with team of 2 engineers, musician, and producer.
 - Wrote 2 games and pause, help, level complete, and hardware diagnostics screens in C.
 - Designed and wrote sound driver (4-chan mapped music and 2-chan fx) in SPG2xx ISA Assembly.
 - Wrote simple fixed-point physics module in C.
 - Modified text output driver to support 2 sizes and special characters in C.
 - Optimized and resampled sound effects for ROM space efficiency using Audacity.
 - Gave advice regarding music/sound on Sunplus/GeneralPlus audio chips under ROM constraints.
 - **Cold Fusion Entertainment:** Technical Advisor; *March, 2006 ~ August, 2006*
 - Collected information and wrote documentation and code for SPG290 in C.

- **SDI Technologies/Kiddesigns** (Tech2Go Division) – *Rahway, New Jersey* *November, 2004 ~ March, 2006*
Lead Software Engineer; Technical Direction; Systems and Network Administrator
 - **Plug-and-Play Game:** TMNT Way of the Warrior (on embedded SPG220 system)
 - Worked with GDD writer and added to game design.
 - Wrote graphics encoding tool in C and provided supplemental artwork using GIMP.
 - Wrote 5 games, main menus, pause, intros, and outros in object-oriented C.
 - Wrote kernel (core) functions and game engine in object-oriented C, C, and SPG2xx ISA Assembly.
 - Wrote all drivers: sound, music, video, sprites, et cetera in C and SPG2xx ISA Assembly.
 - **SPG290-based Children's Game Consoles:** Wizdome Edutainment VGC & Handheld
 - Wrote multiple drivers including: sound, music, video, sprites, etc in C and SPG290 ISA Assembly.
 - Wrote some kernel (core) functions in C and SPG290 ISA Assembly.
 - Wrote some hardware documentation to supplement Sunplus docs.
 - Provided technical direction and provided hardware support to clients.
 - Trained new software engineer on Sunplus hardware.
 - **Tech2Go Internal/External Network**
 - Set up and maintained Linux-based server, switch, router, and PCs running Windows XP.
 - Set up: FTP, Samba, SVN, BBS, and archiving and backup scripts in Bash Script on a Linux host.
 - Began designing for developer website for use by clients.
- **Drexel University & School District of Philadelphia** (Partnership) – *Philadelphia, Pennsylvania* *February, 2004 ~ September, 2004*
 - **Teaching Assistant:** Drexel University, University City High School, and Leidy Elementary
 - **Lab Tech Assistant:** University City High School
 - **Engineering Mentor for Robotic Club:** University City High School
 - **Administrative Assistant:** Broad Street Garage
- **Contracting / Self-Employment** *April, 2003 ~ January, 2004*
 - **Fez Works:** Software Engineer; *April, 2003 ~ January, 2004*
 - Wrote 3D collision detection in C++ and performed data analysis in Excel with VBScript.
- **Ringling Hill Orchards** (Family Business) – *Pottstown, Pennsylvania* *September, 2003 ~ November, 2003*
Orchard Worker
- **Majesco Entertainment** (Pipedream Interactive Division) – *Edison, New Jersey* *September, 2000 ~ March, 2002*
Software Engineer
 - **PS2 Games:** Soldier of Fortune & Star Trek Voyager: Elite Force
 - Wrote PS2 port of OpenGL (graphics library) on PS2 VU1 in C, PS2 VU Assembly, and DMA.
 - Wrote loading screens keeping load off main processor in C, MIPS Assem., PS2 VU Assembly, and DMA.
 - Wrote minimal MPEG (movie) player in C and PS2 MPEG Libraries.
 - Optimized inter-process communications (to lower data contention).
 - Final code optimizations (mostly involving graphics) in C, MIPS Assembly, and PS2 VU Assembly.
 - Ported some bone animation math to PS2 Vector Unit 0 in C and PS2 VU Assembly.
 - **Dreamcast Game:** Q*Bert
 - Wrote part of inter-executable API in C.
 - Designed high score font and a few minor graphics.
 - Wrote tool to extract and convert some game data in C.
 - Designed and wrote menus and menu effects in C.
 - **X-Box:** Began learning DirectX shaders on NVIDIA GeForce 3 in C and Shader Assembly.
- **Drexel University** – *Philadelphia, Pennsylvania* *January, 2000 ~ June, 2001*
 - **Electrical and Computer Engineering Department Senior Design Coordinator**
 - **Teaching Assistant**
- **LaFrance Corporation** (MIS Department) – *Concordville, Pennsylvania* *March, 1997 ~ September, 1997; March, 1998 ~ September 1998*
Software Engineer; Systems & Network Administrator
- **Allegheny University of the Health Sciences** – *Philadelphia, Pennsylvania* *September, 1995 ~ March, 1996*
Software Engineer; Web Designer; Software Tester and Trainer
- **Ringling Hill Orchards** (Family Business) – *Pottstown, Pennsylvania* *September, 1992 ~ February, 1993; September, 1993 ~ February, 1994*
Orchard Worker
- **Drexel University** – *Philadelphia, Pennsylvania* *September, 1999 ~ 2001*
Masters of Science in Computer Eng. (Computer Controls) Thesis: "Self-Erecting Pendulum: An Example in Computer Controls for Undergrads"
- **Drexel University** – *Philadelphia, Pennsylvania* *August, 1994 ~ September, 1999*
Bachelor of Science in Electrical Engineering (Systems and Controls) Minor in Computer Science
Bachelor of Science in Computer Engineering GPA: 3.713, Magna Cum Laude, Distinguished Honors

Education