Tech-focused Polymath Seeks Challenge: Stephen D. Williams

Software Engineer - Systems Architect - Security Engineer - Inventor

Specialties: Web & mobile apps, embedded, robotics, scalability & services, security & crypto, startups
This resume: sdw.st/sdwresumeful.docx PDF: https://sdw.st/sdw2020full.pdf Fewer details: https://sdw.st/resume
650-450-8649 **SF Bay Area**; PO Box 40, Mountain View, CA 94042 Fax:703-995-0407
sdw@lig.net stephendwilliams@gmail.com **https://twitter.com/Scienteer**

Contents: Opportunity Fit - Experience - Skills & Education - Purpose & Character

Opportunity Fit

With a deep technical, interpersonal, creative, and business background, I fit a wide range of roles.
I am looking for the best overall opportunity & challenge: Organizations with important purpose & goals requiring uniquely multifaceted, deeply skilled technical talent. Most suitable roles: lead architect & developer, hands-on CTO/CIO/CISO, VP/director of engineering / SW development / R&D, or related consulting. I am broadly open to mutually interesting suggestions.

Experience

This is a concise summary; full version available. As a technology enthusiast, I have deeply explored most related topics.

Recent Activity

For the last 5+ years, deeply involved in current SPA (single page web app) & scalable cloud technology, developing a complex integration of 3D game engine (WebGL, ThreeJS), 3D editor, video, rich text editing, slides, and scripting in a highly responsive web app using web components. Several tools and approaches have been published as open source: Merkle Hash web cache builder, completely new panel responsiveness system, async module loading system, Docker, websockets, graph database based app stack.

In parallel, bootstrapping a new approach for robotic actuators, self-filed a patent & mechanical design; forming a large ANA Avatar XPRIZE contest team creating an avatar system: remote telerobotics for home health & elder care, travel. Performed deep & broad research, attended trade shows, and established partners.
Working with Linux, ROS, ROS2, WebRTC, WebSockets, Oculus Quest, mechanical design.

Past experience includes: deep mobile development (Android), cameras & imaging, ebook readers, scalable server apps for millions of users, secure app dev, insurance quoting, banking, encryption, PKI CAs, various databases, protocols & standards work (IETF, W3C), and embedded factory machine control. I've run my own servers with DNS, email, web, usenet, and apps on the Internet since 1992. AI, ML, vision, and NLP have been deep research interests for decades, intersecting certain projects. I'm a bit of a legal geek, especially IP.

Computational imaging array camera integration, optimization, and product development. Google Mobile Android (Java/C++) and desktop Qt (C++) programming, Java/C++/JNI, XML, web services, rendering. Vision recognition. Cray XT3 installation, repair, mgmt. Patent consulting. Stealth knowledge organization startup. CPU simulator visualization.

Comprehensive Background:

VolksDroid - CTO/founder - Exploratory R&D   **Vallejo, CA**   **5/2019 To Present**
   https://volksdroid.org/exec.pdf
   ANA Avatar XPRIZE team, startup creating an affordable, highly effective remote teleoperated robotic system.
   Have unique actuator solution, hand design, novel touch sensing, haptics, and low-latency remote reality solutions.

   Linux, Oculus Quest app, ROS, ROS2, CANbus, WebRTC, websockets, Ortelio cloud robotics, C++, Python, JS.
   Mostly ready to be certified as a patent agent. AR/VR/RR. Trained on Udacity's robotics curriculum.

Blue Scholar Foundation - CTO/founder - unpaid   **Vallejo, CA**   **9/2019 To Present**
   Forming a nonprofit corporation with global partners and board to promote college education for everyone by working to make it possible, flexible, very affordable, and socially desirable.

Yebo Technologies, formerly: Change My Path - CTO/founder   **San Francisco, CA**   **10/2014 To Present**

https://helloyebo.com/ Demo video: https://cped.co/d
Creating a scalable self-reinforcing social education platform that combines entertainment with learning in innovative ways to solve the job skills training gap, meta-learning deficiencies, and later to revolutionize life-long learning in general. Sourced developers at conferences, online, including near-shore team members in Mexico & Honduras, interviewing widely in India, plus South American companies and individuals. Hired, trained, dismissed as needed. Negotiated & closed sales, pitched to investors, participated in board meetings.

Deep Javascript, web dev, CSS, full-stack, webGL, ThreeJS, WebComponents, Polymer 1/2/3, Lit-Element/Lit-HTML, haproxy, nginx, docker, dgraph, NodeJS, AWS.
Instructional design R&D, novel theory of knowledge - concept morphology, invented "panel responsiveness", Merkle hash web cache system, no-build web module load system, anti-browser memory leak techniques.

Pelican Imaging - Director Software Engineering   **Mountain View, CA   4/2012 To 10/2014**
    Building embedded software and SDK for revolutionary camera technology.
- C++11, CMake, apps & dev for Android / web / Qt - MacOS / Qt - Windows. Movidius Myriad 1, JavaGlue, Java
- Screened and interviewed hundreds of candidates. Developed a particularly revealing Socratic interview problem.
- Solved numerous management, product, and technical problems while managing and working with technical teams, direct and offshore. Acted in management, product, team lead, and deep hands-on development roles.
- Suggested and drove key product, product marketing, optimization, imaging, computer vision, technology, and methodology ideas, features, and implementation details.
- Closely monitored, participated in, and improved IT choices and processes, saving approximately $100,000.

GREE / OpenFeint - Principal Android Engineer   Burlingame/San Francisco, CA / Tokyo   10/2011 To 3/2012
    Built new generation social gaming and casual gaming platform API for Android.
- Building concise API for game developers use of GREE / OpenFeint social and casual game support features.
- Support Android, mobile (iOS), and scalable server architecture and development environment and process.
- Implementing OAuth, JSON, image acquisition, and other capabilities on Android.

Sony Electronics - Consultant through OptimaLogic & Triple Crown Consulting San Jose, CA   5/2010 To 9/2011
    Mobile & desktop eReader - Android, Qt, OAUTH, XML, Adobe RMSDK, DRM, Java, C++, Eclipse, CMake
- Heavy problem solving, developed new eReader app for Android in Java & C++ and desktop in Qt and C++.
- Implemented all of OAUTH, multi-threaded apps, DRM, Android, Qt applications.
- Created a DOM-like XML parser in Java from scratch with a Java-optimal API, built-in SAX parser.
- Forked the XBig Java->C++ integration code generator to become the JavaGlue project.
- CMake system: MacOS/Linux/Windows/Android, C++/Java/Java->C++/C++->Java, multi-project..
- Reading view: 2 page mode, RtoL, zoom/pan, page-flip anim., render ahead, font swap, bookmarks, and highlights.

Kerosene and a Match - Consultant, Chief Scientist   Mountain View / Orange County, CA   10/2010 To 2012
    New Product Development - pre-funding startup.
- Researched and built product prototypes: AI vision recognition, matching, and real-time AR / mixed reality apps.
- Participated in multiple on-site product demos, partnership exploration, and investor pitches.

i365, a division of Seagate - Development Team Lead   **Santa Clara, CA**   **9/2009 To 3/2010**
- Development Team Lead, SW architect for Russian offshore team: Enterprise secure backup system, dedupe.
- *AWS EC2, Java, Linux, RabbitMQ / AMQP, protobufs, Maven, IntelliJ Idea, optimization, JBoss Netty, C++.*

OptimaLogic, Inc. - President / CTO   **Mountain View, CA**   **2/2009 To Present**
- Consulting & product development: Mobile, web apps, medical device, social networking.
- *C++/Qt, GWT, git, Android/Java, .Net/C# GUI, MS SQL, network connections.*

Startup - Medical Device R&D - CTO   **San Diego, CA**   **4/2009 To 6/2009**
- Investigated ultrasound transducers, embedded imaging, algorithms for vascular flow device for cardiovascular health.
- Then and since, researched components, partners, and regulatory concerns at BIOMEDevice SJ, CES 2020.

Sempra Energy - Senior Security Architecture Consultant   **San Diego, CA**   **2/2009 To 5/2009**
- Evaluated project components, configuration, policy, and performance for very large application renewal projects.
- Performed penetration testing, verification, and validation of fixes and remediations.

High Performance Technologies, Inc. - Senior Technical Director Arlington, Reston, VA 7+yrs. 10/2001 To 1/2009
Active and successful in architecture, development, consulting, management, business development, proposal writing, market and technology research & evaluation, technical interviewing, and program assessment. Selected projects:

HPTi Projects:
Army High Performance Computing Resource Center   Moffett Field, CA   6/2007 To 1/2009
- Security, network, system lead for Cray XT3 & X1E and Liquid IQ supercomputers, Linux systems, Cisco, and VPN.
- Planned, installed, managed Army DREN supercomputing center as lead security/network engineer, Unix admin.
- Prepared and documented DoD CSA and ATO certification of systems, security, and process.

Semantic Web, Temporal Analysis, SPARQL, Graph Analysis   Arlington, VA   4/2005 To 5/2007
- Developed semantic **RDF database visualization** components as an **I2 Analyst Desktop** plug-in tool.
- Researched **temporal analysis and graph query** to create correlation search plug-in tool.

W3C Efficient XML Interchange Working Group, Semantic Web Ashburn, VA   5/2004 To 9/2007
- Key participant in the EXI and XBC working groups, wrote and edited public documents.
- Participated in W3C Semantic Web interest groups with creators and implementers of semantic web and RDF.

DoD Acquisition, Technology, and Logistics   Crystal City, VA   6/2006 To 9/2006
- Investigated, analyzed, reported, and briefed on several **large DoD program assessments** at the Pentagon.
- **Deep interviewing of government and contractor teams** and generating program and technical assessments.

Scalable Awareness Framework (SAF) for intelligence   Ashburn, VA   6/2003 To 6/2006
- Conceived and architected a processing and meta-data framework that manages large data flows, data sets, and synthesis goals over a large distributed processing system, dubbed **Knowledge Oriented Architecture** (KOA).

Department of Justice CIO PKI/Security Consulting   Washington, DC   1/2003 To 3/2005
- Technical lead for the PKI Task and **expert for both PKI and security areas**, provided in-depth investigation, architecture, planning, and input to the creation of a **public key infrastructure and security architecture**.
- Wrote *PKI Enabling and Secure Application Development Handbook* for FBI development teams. This document recently became the basis for the *PKI Developer Guide* at Treasury FMS, helped edit.

Health and Human Services Office of Regulatory Affairs   Washington, DC   1/2003 To 1/2003
- Performed final **IV&V for PKI Certification Authority** policies, architecture, and procedures.

Treasury FMS Secure Payment System, Sr. Architect & Lead   Hyattsville, MD   10/2001 To 12/2002
- **Architected very highly-secure Java applet and layered server Internet application**. Incorporated Java, HTTPS, XML, Entrust / PKI / SmartCards, JMS/MQ, HP Virtual Vault, and DB2 SQL servers.
- Security architecture, secure database model, signed XML, object intermediary layer, validation engine, message orientation, GUI isolation layer, look and feel, 508 (accessibility), and audit. Innovations greatly enhance security & verifiability while reducing development & maintenance.

Concinnous Consulting, Inc. - President / Senior Consultant   Ashburn, VA   8 yrs. 2/1992 To 9/2001
ObjectVideo, Consulting Developer   Reston, VA   3/2001 To 7/2001
- **MPEG4 File Format encoder** and RealPlayer plugin player, descriptor parser, and **BIFS scene graph** handling.

Geico, Consulting Chief Architect and Team Lead   Bethesda, MD   4/1998 To 3/1999
- **Architected** maintainable N-tier web interface to Geico's first viable web auto insurance quoting system.
- Elements Advisor rule engine, Netscape Application Server, and Oracle RDBMS**: rule-based web application**.

America Online, Inc., Senior Consultant   Tyson's Corner, Reston, Dulles, VA   4/1995 To 5/1998
- Developed Buddy List, starting the IM revolution. Part of Smithsonian permanent collection. (Timeline.)
- Conceived and developed an end-user video IM system (Instant Images), **first for large video IM service.**
- Developed digital notary and **a rate-based protocol**, allowing over 10 bidirectional video streams.

Bank of America, Senior Consultant   Concord, CA   8/1994 To 2/1995
- Installed Dec SEAL firewall and internal and external web servers - **first public web server for any bank**.

Lexis-Nexis, Senior Consultant   Miamisburg, OH   2/1992 To 8/1994
- New document processing architecture for **online search engine** in C, C++, SunOS, Motif, Interviews, RDBMS.
- Rewrote X.25 external stock quote system in C++ for online service. Wrote satellite data reception system.

Jabber.com, Chief Technical Officer   Denver, CO   11/2000 To 3/2001
- Detailed technical training, scalability, enhanced features, interoperability, roadmap for extending Jabber's open IM/Presence system into an XML platform for general P2P and other transactional applications.

Insta.com, President and Chief Scientist   Washington, DC   7/1999 To 1/2001
- **Founded startup** based on fusion of presence, instant messaging, dynamic web pages, and customer service.

ReverseAuction.com, Chief Technical Officer   Washington, DC   3/1999 To 10/1999
- **Architected systems** for operations and auction web application, resulting in successful release and operation.

GE Aircraft Engines, Senior Consultant   Cincinnati, OH   2.5 yrs.   6/1989 To 1/1992
- Wrote an **expert system shell library in C++** for a distributed process diagnostic and auto-recovery tool.
- **Ported gcc, g++, Emacs, Kerberos**, and other tools to HP and Apollo platforms.

Computer Sciences Corp., Member Technical Staff   Dayton, OH   1 yr.   11/1987 To 8/1988
- **Postscript-like language, scrolling forms in C++ much like today's Web forms, inline scripting and HTML-like page definition.** Used in the following projects:
- An **expert system-**based application for military logistics with PC to mainframe interchange.
- Real-time formatted email system on early Internet DDN using PCs, C++, and a multithreading kernel on MSDOS.

NCR Corp., Staff Consultant   Dayton, OH   1.5 yrs.   5/1986 To 11/1987
- NCR Flex benefits application as team lead under tight deadline, **distributed to all 33,000 NCR employees**.

GE Lighting Business Group, Research Lab Developer   Cleveland, OH 1.5 yrs.   2/1984 To 8/1985
- Developed embedded control system for rotary indexing bulb forming machine in Pascal MT+ and Z80 assembly. A new class of bulb, **output of this machine formed half of the [re-lighting of the Statue of Liberty in 1986.](#)**

Other Limited Engagements:

Alexus C++ ASP custom scripting engine, MSSQL, Javascript: Dev., UI design, mgmt. tech/art team. – 2000 Ashburn, VA
Network LLC CTO, Architect, managed technical support & dev team of 5 people, marketing. – 1997 Arlington, VA
WareOnEarth Consulted on encrypted USPS communication product and development process. – 1999 McClean, VA

Skills & Education

Education, Certifications, and Organizational Membership
- American University - **Master of Science, Computer Science** - 4.0 GPA (completed 2013)
- Historic Stanford Open Online Classes: Artificial Intelligence by Thrun & Norvig, Machine Learning by Ng.
- Stanford University CompSci AI Cert. Program - audited (2009)(Robotics, Graph Reasoning, Discrete Math)
- Cray X1 and XT3 Series System Administration (2008)
- HPTi Effective Writing for Bus. and Proposals (2007), HPTi Bus. Dev., Proposal Writing, Project Mgmt. (2005)
- Certified Information Systems Security Professional (CISSP) (2003), NSA INFOSEC Assessment Meth. (2003)
- NSA / General Dynamics Taclane/Fastlane KG training (2002), Netscape Application Server (1998)
- Certified Master Unix Administrator - Brainbench (2000).
- Member of ACM, IEEE, CISSP, Infragard, AOPA, lifetime AAAI, and W3C. Was active in IETF & AC rep at W3C.
- ISA/TS SCI security clearance - inactive
- Primarily and continuously self-taught. Frequently engaged in personal R&D.
- Certifications & Memberships:
    - ISC2 CISSP (54017) since 2003
    - NSA INFOSEC Assessment in 2003
    - Brainbench Master Unix Admin in 2000
    - CSM - Scrum Master in 2009
    - AAAI - lifetime member
    - IEEE, FBI Infragard, AOPA, IETF, W3C, ACM - Senior Member

Technical Skills
SW Languages: C/C++, Java (+Scala), Kotlin, Javascript, Bash, C#, Perl, Python, Old: Lisp, Erlang, Haskel, PHP, Matlab
Platforms & Operating Systems: Linux, Unixen (Solaris, Cray, AIX, HPUX, IRIX, SCO, Interactive), MS Windows, OS X, Android, WebOS, MVS, VMS, embedded factory, Stratus
Methodologies: Scrum/Agile, Extreme, Old: Rational Process, OOA/D, Taylor, Booch, Structured, Many SDLCs
Databases: dgraph, MySQL, old: Oracle, MS SQL, Sybase, Access, Progress, Postgres
CM Systems: Git / github, old: Subversion, CVS, RCS, SCCS, SourceSafe, Rational Clearcase
Information Assurance: CISSP, NSA IAM, secure application development, biometric products and APIs, PKI (CA policy, development, deployment, Kerberos/SSH/Login, PKI smartcards & server accelerators), several penetration testing tools, network scanning (Nessus, Retina, nmap, nc, tcpflow), DREN CSA system hardening, NIST 800-53, several DCIDs, several FIPS, DISA STIGs (Unix, Windows), FISMA, DIACAP, NSA Type 1 encryptor training (Taclane / Fastlane)

Patterns: Architectural Form: Comm. Concentrator, Expert System, Explicit Pseudo threading, Small Language, Form Language, web scripting language, Digital Notary, Document Database, Secure App architecture, mobile code, knowledge oriented architecture, multi-stream video player, MVC, Business Delegate, Front Controller, Intercepting Filter, Transfer Object, **System Design:** Builder, Factory Method, Prototype, Singleton, Adapter, Composite, Decorator, Facade, Proxy, Command, Interpreter, Iterator, Mediator, Memento, Observer, Template, Visitor, Data Access Object / Service

Innovation Highlights:

After sufficiently mastering existing engineering in a certain area, creative application of broad knowledge can lead to innovative problem solving. This list highlights a few of the more interesting insights that, at the time, stood out.

- 2019: Patent filed Nov. 2019 for SPIVT robotic actuator: sole inventor, filed pro se.
- 2018: Patentable novel web panel responsive algorithm put into use.
- 2016: Patent issued for image to 3D model texture transformation in 3D games, contributor.
- 2011: Patent filed on May 2010 eReader idea, assigned to Sony Electronics.
- 2008: New UI paradigm, Efficient RDF Interchange, Kycycle, wheel alignment sensing.
- 2004-7: esXML: hybrid byte alignment, char. sets w/ escapes, continuations, XML Meta Structure, Elastic Memory.
- 2005: Designed fully-decoupled knowledge oriented architecture (KOA).
- 2002: Combined novel architectural features to create highly-secure web-based payment application.
- 1999: Founded web CRM chat startup, independently invented CAPTCHA (apparently first by a year).
- 1998: Created new Internet application pattern: combined expert system, XML, and Java application server.
- 1996: Created IM-based multi-person video chat system at AOL, including rate based protocol and digital notary.
- 1995: Wrote & scaled AOL's Buddylist, inventing independent claims in AOL's Buddylist patent US7454709.
- 1995: Created early web publishing system with image and text conversion.
- 1994: First bank web server: Setup firewall and first public bank web server and firewall for Bank of America.
- 1992: Founded early ISP, have run Internet servers continually since. Implemented satellite delivery of Usenet.
- 1988: Created curses-based web-like scrolling forms with scripting in a custom Postscript-like language.

Document Examples

W3C XBC Measurements Methodology
W3C EXI Measurements Note
ESXML Slides

Soft Skills

My purpose of life: Make myself useful by making the world a better place in whatever large and small ways that I can, so that my journey has been worthwhile. How does your mission enable that? How are you significantly improving the world? Is there a way that I can play a key role? Some of my recent goals and activities have been toward: greatly improving education & job prospects for blue collar workers and everyone (Yebo / Change My Path, Blue Scholar Foundation), solving commute & worker shortages while enabling disabled freedom through telerobotics (VolksDroid), creating a true usable visual knowledge base (VKMaps) to allow people to better capture, organize, and share all information, and writing a pair of books to improve lives & society.

I continually learn, grow, and transform, adjusting my goals to fit available opportunities and perceived best use of my abilities. I have an extremely deep and diverse range of experience, skills, connections, and interests. I'm well-rounded, self-sufficient in broad ways, and internally driven in multiple senses, always considering and tracking a stream of options at all levels. I am continually creative & inventive, frequently synthesizing new approaches, ideas, and solutions after I thoroughly understand a new area. I rapidly absorb and adapt to new environments, technology, people, and culture, adopting both enterprise and customer problems as my own, and rapidly internalize constraints and available tools to productively solve problems and answer needs.

From my early teenage years through today, I have had broad curiosity, voraciously reading & researching an extremely wide range of topics. This broad awareness, coupled with my diverse work experience, often gives me unusually useful creative insights. I have had enough consistent success to be confident I can bridge gaps in most cases, and enough mistakes and difficulties getting there to usually avoid being overconfident or truly arrogant. I do however fearlessly take on difficult projects, problems, and environments and am generally confident that I can ramp up and innovate as needed. This is fun for me. I am highly cognizant of Dunning-Kruger. I have raised several children, including adopted, the last two as a single father since my youngest was 12. I repeatedly coached & refereed sports and academic teams, volunteering in various ways. I have worked with a very large number of coworkers & customers, performed deep technical screening & interviews of hundreds, and have mentored many. I have managed teams of 20+, coaching teams formally and informally. I am adept

at resolving conflicts between people and excel at debugging complex problems within complex systems.

I am very healthy, running multiple half marathons and other races every year, biking, mountain hiking, kayaking, sailing, and inline skating. I have run at least 20,000 miles. I am a private pilot (haven't flown for a while), PADI scuba certified, used to rock climb, and ski & snowboard. I am an avid semi-pro photographer: over 100,000 photos taken globally, including at night in the street on skates in Tokyo at 20mph. The day before I spoke at a conference in Montreal, I walked 43 miles taking pictures. All of this has contributed to and illustrates my stamina and energy on projects that I focus on.