Stephen D. Williams

Software Engineer - Systems Architect - Security Engineer - Leadership

Full-stack Web, mobile, embedded, robotics, scalable cloud apps/APIs, security/crypto, startups

This resume: sdw.st/resume PDF: https://sdw.st/sdw2020c.pdf Technical details: sdw.st/resumefull

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github.com/sdwlig Demo of last project: Yebo simulation web training: sdw.st/y.mp4

Opportunity Fit

With a deep technical, creative, interpersonal, and business background, I comfortably fit a wide range of roles. Seeking opportunities with teams that have an important purpose needing multifaceted, deeply skilled technical talent. I am interested in a growth opportunity with stability at an important organization.

Recent Activity

For several years, I have been building an ambitious single page web app, 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 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 patent & mechanical design; formed a large ANA Avatar XPRIZE contest team creating an avatar system: remote telerobotics for home healthcare & elder care, travel. *Working with Linux, ROS, ROS2, WebRTC, WebSockets, Oculus Quest, mechanical design.*

Experience includes: deep mobile dev (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. Google Mobile Android (Java/C++) and desktop Qt (C++) programming, Java/C++/JNI, XML, web services, rendering. Vision recognition. Cray XT3 installation, repair, mgmt.

Experience

Exploratory projects   **Sunnyvale, CA / Vallejo, CA**   **4/2020 To Present**

WebXR, *Android, React, React Native, WebRTC, Google Cloud Platform (GCP), Firebase.*
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.
Chatbots, NLP, translation, GAN, video scene understanding.

Renovo Motors - Senior Developer - UI / full stack   **SF Bay Area**   **9/2020 to Present**

Leading UI team, rewriting & extending management & visualization UI for ADAS (advanced drivers assistance systems - self-driving / autonomous driving technology) research support. *React, webpack, lerna, GraphQL, WebSockets, GoLang, AWS, Docker, Kubernetes, Grafana, Postgres / RDS, Timescale, Influx, NATS, MQTT. Providing other technical architecture & detailed support as needed: security architecture, scalability, Linux, embedded.*

Yebo Technologies, formerly: Change My Path - CTO/founder   **San Francisco, CA**   *5.5 yrs* **10/2014 To 04/2020**

https://helloyebo.com/ Demo video: https://sdw.st/y.mp4 https://cped.co/d
Creating a scalable self-reinforcing social education platform, entertainment with learning to solve the job skills training gap, meta-learning deficiencies, and later to revolutionize life-long learning in general. Sourced near-shore team members in Mexico & Honduras. Negotiated & closed sales, pitched to investors, board meetings.

Deep Javascript, web dev, CSS, full-stack, webGL, ThreeJS, WebComponents, Polymer, Lit-Element/Lit-HTML, haproxy, nginx, docker, dgraph, NodeJS, AWS, Auth0, Cloudinary.
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** *2.5 yrs* **4/2012 To 10/2014**
Building embedded software and SDK for revolutionary depth array camera technology for mobile devices.

- 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. Overseeing IT, saved approximately $100,000.
- *C++11, CMake, apps & dev for Android / web / Qt - MacOS / Qt - Windows. Movidius Myriad 1, JavaGlue, Java*

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   **San Jose, CA** *contract max 1.5yrs* **5/2010 To 9/2011**
 Mobile & desktop eReader - Android, Qt/C++, 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++.
- Reading view: 2 page mode, RtoL, zoom/pan, page-flip anim., prerender, font swap, bookmarks, and highlights.
- 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..

High Performance Technologies, Inc. - Senior Technical Director Arlington, Reston, VA ~8yrs. 10/2001 To 1/2009
 Development, security, and consulting for 5 main agencies / projects (US Treasury, HHS, DOJ, DoD ATL, unnamed, DoD HPC), several additional exploratory projects and agencies.
- Active and successful in architecture, development, consulting, management, business development, proposal writing, market and technology research & evaluation, technical interviewing, and program assessment. Projects:
- Army supercomputers, temporal graph analysis, W3C Efficient XML Interchange, DoD Acquisition review team
- DOJ CIO PKI/Security, HHS PKI CA, Treasury FMS Secure Payment System
- Qt/C++, Java, Javascript, Linux, HPC / supercomputers (Cray)

Previous experience:
Concinnous Consulting, Inc. - Owner / Senior Consultant   **Ashburn, VA**   *8 yrs.* **2/1992 To 9/2001**
 Geico, Chief Architect Geico's first viable web auto insurance quoting system. MPEG4 File Format encoder.
 Contracts:
 America Online, Inc., Senior Consultant   **Tyson's Corner, Reston, Dulles, VA**   *3 yrs.* **4/1995 To 5/1998**
  Developed Buddy List. Part of Smithsonian permanent collection. (Timeline) Created video IM system (Instant Images), **first for large video IM service.** Digital notary, **rate-based protocol video streams.**
 Bank of America, Consultant Firewall and internal and external web servers - **first public web server for any bank**.
 Lexis-Nexis, Consultant *3 yrs.* Feed search engine in C++, RDBMS. Stock quotes in C++, satellite data reception.

Jabber.com, **CTO**   Enhanced features, roadmap for extending Jabber's open IM/Presence system.
Insta.com, **Founder**   Fusion of presence, instant messaging, dynamic web pages, and customer service.
ReverseAuction.com, CTO Architected auction web application, resulting in successful release, scaleup.
GE Aircraft Engines *2.5 yrs.*   Distributed process diagnostic, recovery. Ported g++, Emacs, Kerberos to HPUX.
Computer Sciences Corp. *1 yr* Created language, forms in C++ much like today's HTML Web forms, inline scripting.
GE Lighting *1.5 yr* Embedded control bulb machine. New class of bulb: **half of the re-lighting Statue of Liberty in 1986.**

Education & Training
- American University - **Master of Science, Computer Science** - 4.0 GPA (completed 2013)
- Stanford online: AI: Thrun/Norvig, Machine Learning: Ng; audited: Robotics, Graph Reasoning, Discrete Math
- CISSP 54017, NSA INFOSEC Assessments, Lifetime AAAI. FBI Infragard. IETF, W3C, Certified Scrum Master

Innovation Highlights
- 2021: Filing new patent related to a new joint approach combining low cost / noise / weight with strength, simplicity, 3D printable, few parts, compact support of multiple joints.
- Patent published SPIVT robotic actuator: filed pro se. Patentable novel web panel responsive algorithm.

- Patent issued for image to texture in 3D games, contributor. Patent filed on May 2010 eReader features..
- Independently invented [CAPTCHA](#) in 1999. Created IM-based multi-person video chat system at AOL.
- Wrote & scaled AOL's Buddylist, inventing independent claims in AOL's Buddylist patent US7454709.
- Founded early ISP, have run Internet servers continually since. Implemented satellite delivery of Usenet.

Examples

[github.com/sdwlig](#) - [W3C XBC Measurements Methodology](#) - [W3C EXI Measurements Note](#) - [ESXML](#)

Soft Skills

My purpose and the values that drive me are simply: I strive to make myself maximally useful, making the world a better place in whatever large & small ways that I can, for a worthwhile journey. This means improving the personal & professional lives of those around me, those I have connection to, and to humanity as a whole. The ways that I have nurtured my children, been supportive and collaborative of my partners, coworkers, and mentees, and attempted to contribute to various communities have been guided by this viewpoint. I have avoided industries & companies and left positions due to values conflicts. Conversely, when compatible, I completely adapt to and internalize the goals and ethics of my organization.

What I want to know about you: How does your mission improve the world? How would my contribution improve that?

Striving to reach full potential, a wide range of awareness, understanding, skills, and experience has been acquired. While I put in significant effort in trying to see what is coming and where there are opportunities for innovation, I know that many forward-thinking people tend to have similar ideas around the same time. Only luck, perseverance, and sometimes obscurity lead to truly outstanding ideas. I strive for breakthroughs not because I am better than other competent people in an area, but because it is persistent effort & interest on top of deep preparation that allows for interesting possibilities. Often, I'm just trying to solve a unique problem in a clean way. I pursue creative solutions knowing that collaboration and teams are needed to build most interesting systems. It is important to be comfortable and competent as part of a collaborative team, leading when that is appropriate, and also as an independent & self-sufficient developer.

Some of my recent goals and activities have been toward:
- Improving education & job prospects for blue collar workers & everyone (Yebo, Blue Scholar Foundation),
- Solving commute & worker shortages while enabling disabled freedom through telerobotics (VolksDroid),
- Creating a true usable visual knowledge base allowing better capture, organize, and share all information, and
- Writing a pair of books to entertain while improving lives & society.

My best days have been when:
- My team members are happy after accomplishing a task using new ideas, techniques, and levels of complexity.
- Team members have thanked me for helping them grow professionally, personally, and even for saving their lives.
- We have launched a product or service that is changing people's lives in positive ways. AOL's Buddylist for instance.
- When I learn a new idea or technique, meet someone extremely interesting who I can learn from, or notice an exciting new opportunity.
- I get bursts of joy reading AI / ML papers about newly discovered approaches, when I finally find a solution to a hard problem (SPIVT, PanResp, Keaton, message windowing, etc.), or think of a way to perhaps solve nearly intractable problems (distributed moderation of end-to-end encrypted messaging, Need Work Now).

I have always had broad curiosity, widely reading & researching a wide range of topics. This broad awareness & my experience allows me to quickly use known methods, and often gives me useful creative insights when those are not enough. With enough consistent success to be confident, I bridge most gaps. After plenty of mistakes & difficulties, which naturally comes from usually focusing on challenges, I usually avoid being too overconfident. I do however fearlessly take on difficult problems, generally confident that I can ramp up and innovate as needed. This is fun for me.

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 nurtured, taught, and raised my children to adulthood, including an MBA, an engineer, and a medical school student: valuable interpersonal & management experience. I am adept at resolving conflicts between people and excel at debugging complex problems within complex systems.

I run 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, PADI scuba certified, rock climb, ski, and snowboard. I'm 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 usual stamina and energy on projects I select.

One of my publishing venues:

https://medium.com/missed-points

A recent article:

https://medium.com/missed-points/the-promise-and-realities-of-technical-education-computer-science-6743035e506b