

## Sheldon Linker, Ph.D.

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Extensive experience as a project leader, systems programmer, man-machine interface programmer/designer, scientific programmer, business programmer, documenter, business analyst, tester, applications' DBA, researcher, and professor. Languages and operating systems are shown below in bold-face. In addition to computer skills, I work well with coworkers and customers, and am a good documenter. As a manager, I tend to be ahead of schedule and under budget. I've supervised testing to aerospace, commercial, and other standards. (Note that a skills summary follows. Also note that below, there is some overlap. That's because I tend to get called back for additional full- or part-time work.)

### WORK EXPERIENCE

2014-Present, 2002-2008: PIBT: Fixed bugs in their reporting system, as well as enhanced the speed of their system (some modules as high as 1,800 times) through optimizations, and added a host of new features using **Borland-Builder C++**, **Crystal Reports**, **T/SQL**, and **Oracle PL/SQL**. Became project manager and a programmer on their web-sites, using **ASPX/C#** front end and a **Oracle PL/SQL** back end server. Acted as a business analyst to optimize work flow. Wireframed and built new application areas. Added HCR/ACA/"Obamacare" functionality to their system. Roles: Programmer, DBA, System analyst, Project manager, and at times, de facto CTO.

2016-Present: University of Maryland University College: Adjunct Professor of Software Engineering, teaching Requirements and Development Methodologies. (Part-time, online only)

2015-2017, 2007-2012: Friar Tux Shops: Enhanced their inventory system using **SQL Server's ETL** and stored **T/SQL** procedures and reporting using **Crystal reports**. Enhanced their internal information web-site using **HTML** and **VBScript** under classic **ASP** and another using **Java/J2EE**. Role: Programmer.

2015, 2012-2013: Saddleback College: Adjunct Professor of Computer Science, teaching Introduction to Computer Science, CS-1A (basic intro and C++) and Introduction to Unix/Linux, CIMN-230 (including **shell** scripting). (Part-time, evenings and online only)

2013-2016, 2011, 2001-2009: Delta Dental: Fixed bugs in their reporting system, as well as enhanced the speed of their system (some modules as high as 1,800 times) through optimizations using **C**, **CL**, **Crystal Reports**, embedded **DB/2 SQL** (Same as Pro\*C) on their **i/Series** systems, **Java/J2EE/EJB/JSP**, **JavaScript**, **XML**, **Access**, **ASP**, **Visio**, **RPG**, and **Visual Basic**. Did business analysis and use cases for revision of their reporting system, and work-flow improvement on their overall system. Some **UML** work was done in the design phase of each sub-project. Some modifications were made to their **SharePoint** system. Wireframed and built new web-sites. Assisted in data conversion into an **Oracle-based Pro\*C** system. Roles: Programmer, DBA, and business analyst.

2015: Cast & Crew: Assisted in clearing their backlog of payroll projects. Work was done in **C**, **shell script**, **Unify**, **SQL**, **RPT**, and **Perl**. Role: Programmer.

2012-2013: Toshiba: Web programming, involving **HTML**, **CSS**, **Javascript**, **JQuery**, **Ajax**, **JSP**, **Java**, and **SQL**; also QA. Role: Programmer.

2011-2012: Ness: phone-screening of applicants for jobs, ascertaining their technical abilities in various languages and facets of computer science and work abilities, using a combination of verbal and written tests. Role: Screener & tester.

2011-2012: PayPal (Ebay): Worked on the Payments 2.0 team, implementing and enhancing functionality using **C++**, **Java**, **SQL**, **Spring**, **Perl**, **Python**, and **Hibernate** under **Linux**. Created new "tools" for them using **Yacc**, **C**, and **Dot**. Role: Programmer.

2011: Fair Isaac Company (FICO): Worked on their fraud detection system, using **Java**, **C++**, **C**, **Ant**, and **Make**. Roles: Programmer & analyst.

2010-2011: Intuit: Worked on internet banking security, using **C**, **C++**, **Perl**, **SQL**, **HTML**, **Java/J2EE**, **Javascript**, and shell scripts under **AIX**. Roles: Programmer & security analyst.

2009-2010: Western Dental: Western Dental has a conglomeration of systems working together to some extent. There, I consulted on ways of improving their system, as well as worked to improve some of the programs on their Alpha Microsystems computer using **AlphaBasic** under **AMOS**. Roles: Programmer & system analyst

2008-2009: Cesar Millan Inc.: Wrote the checkout and order-tracking component of an existing shopping cart system using **HTML**, **PHP** and **JavaScript**, with a **MySQL** back-end (**LAMP** environment). Communications with the credit card agency and the shipping-house were with **XML** via HTTP Post. You can see an example of this work at: <http://www.cesarmillaninc.com/products> Role: Programmer.

2008: Innovation By Design, Inc.: Improved their front-end code, written in **Java** using **AWT** and now **Swing**), correcting bugs, improving speed, memory usage, and the user interface (both look and usability). Fixed web-site problem, making corrections to **HTML**, **CSS**, and **Javascript** code. Improved their embedded communications protocol. Role: Programmer & QA analyst.

2006-2008: Kofax: Porting and optimization of an application written in **Visual Basic**, **C#**, **.Net**, **C++**, and **T/SQL** (Microsoft **SQL Server**) to run on **DB2** and **Oracle**, aimed at **Unix**, **Linux**, **Windows**, and mainframe targets. This project also used **.NET** and **COM**. Role: Programmer & DBA.

2006: DirecTV: Acted in a QA role, finding the locations of known bugs in code, so that the developers could more quickly fix them. Acted in a design role, determining how and where in the code the developers were to add missing features. Corrected code in existing user and file-system code. Coding was in **C**, **C++**, **Java** (including **JNI** [Java internals]), **XML**, and **shell script**, all under embedded **Linux**. Communications between modules used simple calls, **HTML**, and **SOAP**. **UML** work was done in the design, redesign, and documentation of a number of system components. Roles: QA analyst & programmer.

2004-2005: *Name withheld due to nondisclosure agreement*: Assisting a major clearinghouse in its requirements documentation and overall enterprise design, mainly through wireframing. Requires detailed knowledge of **Microsoft** and **Linux** servers, as well as **DEC Alpha Cobol** batch systems, and **Access**. Role: System analyst.

2004-2005: Diversified Counseling Services, Inc.: Participated in the business analysis for and writing of an application to track clients and report their progress to various California courts which ordered treatment, including requirements gathering, wireframing, design, build, and test. The reporting component is being written in **Java** using **Swing** and **Eclipse**, **PostgreSQL** and **Crystal Reports**. Roles: Business analyst, programmer, DBA, and project manager.

2005, 1999-2001: Digital Music Network: **C/C++** & **XAudio** embedded programming on **NT**, **98**, and **Linux**, implementing a real-time virtual jukebox. Modified **ASP**-based reporting software. Role: Programmer.

2002: D. Bergstrom, Inc.: Assisted in training and conversion to **MatLab**. Role: Instructor.

2001: Experian: Developed operational software in **C** (special **S/390** variant) using **MVS** and **TSO**, also using **JCL** and **TSO** command files. Part of the job involved using **SQL** on a **Teradata** data warehouse. Also handled QA and system testing. Role: QA analyst.

2000: Xerox: Fixing bugs in their embedded Sun controller for their high-speed printer systems, using embedded **C/XView** on **Solaris** (Unix). Tests are done using **S/390/MVS** and **RS/6000** hosts. Role: Programmer.

1999-2000: Irvine Apartment Communities: Modified a data base system using **C/C++**, **Visual Basic**, and various data base engines. Role: Programmer.

1998-1999: XonTech: Embedded **C**, embedded **Fortran 90**, and **Motif** programming on an **SGI Irix Origin 2000**, implementing a very fast multiprocessor real-time messaging system. Role: Programmer.

1998: Northrup Grumann: Operated on the "Impca" team, fixing Y2K problems, timezone problems, and a host of other fixes & improvements. Programming was done in **Oracle SQL**, **shell**, **C**, **Pro\*C**, **Cobol**, **Motif**, and **HTML**, on **HP/UX** systems. Some business analysis was also done pertaining to specifics of **707/C-135** reconstruction control. Roles: System analyst & programmer.

1997: Aqua-4: Developed color-match image processing system using **C** on the **Mac**. Role: Programmer.

1997: ARFco: Developed a project of a confidential nature, involving faster-than-real-time image analysis and editing, using **C/C++**, **Mac**, **SCSI** control, and **Accom** hardware. Role: Programmer.

1997: Teletrac: Worked on an update to their current system using **Windows NT, SQL, Access, TCP/IP, & C**. Role: Programmer & DBA.

1996: Baxter Healthcare: Ported their **dBase** applications from MS/DOS to **Windows**. Added new functionality, and optimized existing functions for programs dealing with medical devices. Role: Programmer.

1995: FTG Data Systems: Designed & implemented a driver for a light-pen for the **Macintosh**, using **C**. Assisted in the design of the firmware for the light pen. Role: Programmer.

1993-1994: Strata: Designed & wrote the majority of StrataVision Paint, in **C**, a **Macintosh** paint program. Supervised testing to Alpha level. Role: Programmer & project manager.

1993: CCH Computax: Implementation of remote laser printing for special tax application, using **C & PL/1** on a **PC** & under **JES2**. Role: Programmer.

1993: DentiCare: Updated their accounting system using **AlphaBasic & ESP** under **AMOS/32**. Role: Programmer.

1992: CSTS, Inc.: Implemented, tested, & installed an automated factory control system which controls a number of steel casting mills, using **C, 68K assembly, & PDOS**. Handled all phases of testing, including in-factory tests. Roles: Programmer & mathematician.

1990-1991: Orthodyne Electronics: Implemented robots to perform microscopic welding using **Unix, PDOS 68K**, and embedded **C & Assembly**. The major factors in this project were real time considerations, man-machine interface, network control, & image processing. Handled all phases of testing, including in-factory tests. Business analysis was also done to eliminate unneeded loader/unloader parts and speed the work-flow. Role: Programmer.

1990: EECO: Developed autopilot/flight planning & control firmware for the LTN-3500 unit, using embedded **C** under **Unix** and **Lattice C**. Unit tested. Role: Programmer.

1988-1989: Microillusions: Designed, to customer specifications, the **Mac** paint program Photon Paint, supervised its production and wrote half of the code using **C & Resource Editor**. Wrote test plan & supervised tests to alpha level. Role: Programmer & project manager.

1987: Aerojet: Implemented various accounting and reporting functions using **Unix, C, & Oracle**. Role: Programmer.

1985-1986: Ceeco/Investment Concepts: Work-flow analysis, design, implementation, training, & documentation of real estate management system using **Basic & Assembly** under **VMS**. System includes A/P, G/L, rent, form letters, financial analysis, etc. Tested on test-only & live data. Role: Programmer.

1984: Arslanian & Associates: Database programming using **dBase III** on a **PC**. Role: Programmer.

1984: VB Machines: Database programming using **dBase II** on a **PC**. Role: Programmer.

1983: Teledyne: Design of thermal & hydraulic test control systems. Role: System analyst.

1983: Ancier Technologies: Consulted on a **Windows** project. Used Borland **C++** for experiments. Role: Programmer.

1983-Present: Linker Systems: Between consulting assignments (shown above), I've done these items on my own and/or with a team under my leadership:

Designed & developed a language, compiler, and executive which maintains a knowledge base, and can answer (real answers, not just pieces of text it's seen) questions regarding the knowledge, and learn from the conversations it has. The system is the subject of a pending patent. Written in originally **Java/J2EE/JSP** and **Prolog** and running on the **Unix** portion of Mac OS, with the new language known as **JCB-English**. Later rewritten in **C/Java/J2EE** for speed.

Designed & wrote all versions of Animation Stand™, a **Mac, SGI Irix, & Windows (Intel & Alpha)** paint & animation program, including camera controls using **GL, C/C++, 68K assembly & Resource Editor**. Supervised the project. This also included direct hardware control of **SCSI, MacVac, Accom, Abacus, Diaquest, Lyon-Lamb, ARTI, BCD, HP, Fujitsu, Sanyo, & Sony** equipment.

Implementation of the VoiceLink voice response design language compiler & executive which runs voice/touch-tone interactions using **ITI & Rhetorex** controllers, **Intel**, & **C**. Tested in single & multi-user environments. Included load testing.

Designed & wrote a demonstration/instructional program for Animation Stand in **HyperCard 2.0**.

Designed & wrote a sales/marketing leads tracking & inquiry database system in **HyperCard**

Developed the OfficeLink business utilities (file box, scheduler, etc.) for the **Alpha Micro** market using **Alpha Basic & 68K assembly**.

Implemented a business accounting package, including A/R, G/L, and A/P, using **Accell**, **RPT**, and **SQL** under **Unix**.

1982-1983: Alpha Micro: Developed & tested new operating system, using assembly under **AMOS/L** on the **68K**. Also used **C & Cobol** for side tasks.

1979-1982: TRW: Projects included:

Sentry: Optimized the scheduler/dispatcher for a **VAX** system using **BLISS** under **VMS**, **Unix**, and **Sentry**.

MIFASS: Designed the file & DBMS portion of an unstoppable operating system. Wrote the DBMS portion using **CMS-2**, and I/O handlers in **Assembly** on the **AN/AYK-14**. Manager of part of the project. Final testing involved unit & integration testing, as well as tracking of Unit Design & Project Design Folders.

BETA: Designed & managed database using **SARP V** under **RSX-11**. Wrote a special compiler which translated requirements documents into **80x86 assembly** language, using **Fortran**. Final testing involved unit & integration testing, as well as tracking of Unit Design & Project Design Folders.

TSS Plot: Enhanced a plot package written in **Basic & Fortran** running under **TSS**.

1976-1978: Loglan Institute: Developed Loglan grammar (linguistic project) using **YACC** under **Unix**.

1974-1977: UCLA: Taught various classes under the UCLA Computer Club auspices, consulted for same and for the university itself, and acted as a teaching assistant for **APL & PL/1** classes on **OS/360**. Did scientific programming for the university.

1974: UC Berkeley: Systems programmer, operator, and user liaison on a system using **APL** as its machine language, running on the **Meta-4**. Also involved modeling & simulation, as well as real-time subject measurement for psychometrics.

1972: JPL: Image Processing Lab using **Fortran** under **PS/360**, **OS/360**, and on the **1130**. Kareotyping, image processing & statistical work.

1971: Outside project at Rand: Mapping the galaxy, 3D and various projections & points of view, **Fortran & PL/1** under **OS/360**, also used SC4060 microfilm plotter.

#### OTHER

Scored the 100th percentile on the Bookman Tech-Check test for **PL/1**. (Normal percentile ranges are 0-99th. One person gets the 100th.) For various projects, I've also been trained as a **707/C-135 flight engineer**, and in various aspects of **F-16** construction.

#### EDUCATION

Ph.D. in Computer Science and Software Engineering from Auburn University. My thesis involved continuing evolution of a conversational theorem prover and knowledge base system using **Java**, **YACC**, and **C** in combination. Life member of  $\Phi K \Phi$  honor society. 4.0 GPA.

M.S. in Computer Science from the University of Illinois at Springfield. My thesis was proven using Java and Prolog in combination, as a logic optimizer and theorem prover which can converse with a user as a knowledge base. Elected into the YPIE honor society. 4.0 GPA. Outstanding Master's Thesis for 2008.

B.S. in Computer Science from Thomas Edison State College, New Jersey.

## **RESEARCH**

I hold US Patent #s 8,177,022 & 9,710,763, relating to my ongoing research in computer linguistics, logic, understanding, and robotics (AI).

## **SUMMARY**

Languages: Accell, Algol, AlphaBasic, APL, ASP/ASPX, Assemblies, Basic, Bliss, C/C++, C#, CGI, CL, CMS-2, Cobol, CSS, dBase, Fortran, HTML, HyperCard, Java, JavaScript, JCL, MatLab, Pascal, Perl, PHP, PL/1, Pro\*C, Prolog, RPG, RPT, shell script, SQL (including C/SQL, DB/2, T/SQL and PL/SQL), VBScript, Visual Basic, Yacc

Systems: Alpha, AN/AYK-14 & 20, AMOS, AS/400 (i/OS), ASP, COM, DB/2, ESP, GL, HP (HPux), J2EE, JES2, JSP, LAMP, Linux, Macintosh, Motif, MVS, MySQL, .NET, Oracle, OS/360, PDOS, RS/6000, RSX-11, SGI (Irix), Solaris, SQL Server, S/390, (z/OS), Teradata, TSO, Unify, Unix, VMS, Windows, XView

Jobs: Analyst, DBA, Investigation, Manager, Professor, Programmer, Project manager, QA/test, Researcher

Tasks: Analysis, Applications programming, Avionics, Business, Data gathering, Database design, Documentation, Dynamic web programming, Forensic work, GUI, Machine control, Multithreading, Schema design, Scientific programming, Shopping carts, Systems programming, Testing, User interface, Web pages

Other: Abacus, Access, Accom, Ajax, Ant, ARTI, AWT, BCD, Crystal Reports, Data warehouse, Diaquest, Eclipse, EJB, Embedded, ETL, JNI, JQuery, Lyon-Lamb, MacVac, Make, Motif, Sanyo, SCSI, Security (software & physical), Sony, Swing, TCP/IP, UML, Visio, WinSock, XAudio, XML, 707/C-135

Learned, but have not used yet on a job: Erwin, Ruby