

Skills		Languages		Platforms	
Client/Server	2 yrs.	Ada	5 yrs.	Linux	8 yrs.
Embedded	13 yrs.	Assembly	9 yrs.	UNIX	9 yrs.
GUI	3 yrs.	C/C++	10 yrs.	Cygwin/Windows	7 yrs.
Real-Time	10 yrs.	FORTTRAN	6 yrs.	Embedded Linux	2 yrs.
Simulation	3 yrs.	Javascript	3 yrs.		
Web Apps	2 yrs.	HTML/CSS	4 yrs.		
		Perl	2 yrs.		
		tcl/tk	3 yrs.		
		Visual Basic	1 yr.		

Other Relevant Skills		Software Engineering Tools	
Linux Sys. Admin.	4 yrs.	ClearCase	3 yrs.
ORACLE 7.x DBA	3 yrs.	Visual Source Safe	5 yrs.
INGRES 6.x DBA	2 yrs.	SVN/CVS	4 yrs.
		Serena VM (PVCS)	3 yrs.

Education:

BS Electrical Engineering, Tennessee Technological University.

Employment History:

from:	to:	title:	company:
May 2012	present	Software Engineer	Rheem, Montgomery, AL

I wrote the WIFI interface portion and maintain the entire c language firmware (32,000 SLOC) for the EcoNet WiFi Module and Enviracom WiFi Module products. Renesas RX631 interfacing with an AzureWave AW-CU282A WiFi Micro controller (includes Marvell's 88MC200 and 88W8782.) Web Sockets, TLS 1.0, EcoNet protocol, EnviraCOM protocol, Renesas C compiler, HEW, PVCS, DOS, emacs, Windows 7, and Cygwin/X.

Accomplishments: I expanded and restructured the EnviraCOM driver and message processing code to add new features, dramatically increase stability, and eliminate all message reception and processing problems. I also created secondary message decode tools for both the EcoNet and EnviraCOM protocols.

I'm also working on unannounced, pre-prototype connectivity products for water heaters.

from:	to:	title:	company:
Feb. 2008	May 2012	Embedded Software Engineer	Synergy Lighting Controls, Conyers, GA

I maintain the *C++ firmware* for the Synergy Network System Controller, the C firmware for the Synergy BACnet Gateway, and the C firmware for the SwitchPAK family of industrial lighting controllers. AMD Elan SC520, Microchip PIC18F6720, RTOS-32, Cimetrics BACnet stack, OSS BACnet-Stack, Ethernet/UDP, ACCESS.Bus, ARCNET, MS/TP, RS232, DMX, Compact Flash, Borland C++, Cygwin/X, Emacs, TortoiseSVN, Subversion and VSS. I also write most of the technical documentation for these products and provide factory support for them.

Accomplishments: Added BACnet support to SwitchPAK. Ported the Synergy controller firmware to a new Vortex86DX-based CPU card plus a major revision change for RTOS-32.

from:	to:	title:	company:
June 2006	Dec 2007	Embedded Software Engineer	ConFocus, Flextronics Corporation, Norcross, GA

Ported a Broadcom CFE-based, NOR flash *bootloader* to a digital broadband set-top, for the U.S. market, with 256Mbit Samsung OneNAND flash and a Broadcom BCM7111, c and MIPS32 assembly language. Created flash programming utilities: JTAG/PC/Cygwin, and target-resident. Windows XP/Cygwin, Linux 2.4 kernel, CVS, and MANTIS.

Accomplishments: My insightful system architecture suggestions were incorporated immediately.

Set-top middleware porting layer (MOM API) adapting Ant's Galio browser to a customer-modified version of FocusWare, and DVR API. Sigma 8634 SOC (MIPS32), embedded Linux 2.4.30, threads, c, CVS, MANTIS.

Integrated Receiver/Decoder. *Client/Server architecture* combines an interpreter with memory-mapped hardware and FocusWare.

Sigma 8634 SOC, Linux 2.4.30, sockets, parsing, interpretation, c, SVN, MANTIS.

Accomplishments: Very enjoyable application for an interpreted language.

Created a user-mode, *second-stage bootloader* for a Broadcom BCM7403-based target, complete with a customized, flash-resident embedded Linux kernel. After boot-up, the user-mode bootloader checks for available upgrades over a VPN, flashes it and boots the application kernel. Perl/CGI, Apache 2.2.x, openssl, openVPN, wget, initrd, busybox, CFE 1.5.x, Linux 2.6.x, and c.

Accomplishments: I did everything from requirements and architecture through implementation and testing.

from:	to:	title:	company:
Oct. 2005	present	Open-Source Software Developer	Self-employed

Interp is the best platform-independent *language for testing embedded computers*. It creates a stable environment for development, diagnostic, and manufacturing test software that can be quickly migrated by porting interp to the updated target hardware. Written in c, interp is capable of running stand-alone, or with Linux. It facilitates script-driven testing with a built-in macro processor, structured programming constructs, function calls, global and local variables, and in-line comments. It is available on Source Forge at: <http://interp.sourceforge.net/>. GCC 3.x and 4.x, make, emacs, TortoiseSVN, Windows, HTML/CSS, Cygwin/X, and Linux.

Accomplishments: My best open source project. Over 4,100 downloads.

from:	to:	title:	company:
April 2000	Sept. 2005	Senior Staff Engineer	Scientific-Atlanta, Inc., Lawrenceville, GA

BSP/BIOS firmware development and maintenance for SPARC-based digital broadband set-tops in c and assembly. Low-level device drivers, hardware initialization, Linux 2.6 character drivers, flash programming, built-in self-test, serial, IDE, Ethernet/UDP, I2C and SPI bus device drivers, DMA, analog and digital tuners, etc. *Tool development* and maintenance: binary image downloading, manipulation of binary files, download manager GUI, file and directory comparison tools and GUIs for them, interpretive languages, and user manuals. Provide Linux and Sun System Admin. assistance on an as-needed basis.

Accomplishments: Drastically reduced the number of software defects through platform-independent, script-based testing. Revolutionized internal distribution of information and software through targeted web sites written in HTML/CSS/Javascript/php/mysql.

from:	to:	title:	company:
May 1999	April 2000	Senior Software Engineer	Coleman Research Corp., Huntsville, AL

THAAD Verification and Validation. *Business process re-engineering* using Perl, c, tcl/tk, expect, HTML 4.0, CGI/forms, Javascript, Cygwin, GNU Tools, SGI Irix 6.5 and ClearCase. Browser-based Intranet application. Simulation and modeling in Ada-83 and FORTRAN.

Accomplishments: Created a Netscape-based application to create, update and archive SPR Test Reports. Hosted CygWin, GNU Tools, and Perl on our Windows 98-based PCs, and ported a number of UNIX-based Perl and tcl/tk scripts to it to create a development platform rivaling the SGI workstations, at a small fraction of the cost. Wrote a total of 16,500 lines of code and 26,400 lines of documentation in 12 months. Acting manager for 2 months.

from:	to:	title:	company:
Oct. 1998	May 1999	Principal Engineer	SRS Technologies, Huntsville, AL

THAAD Verification and Validation. *Business process re-engineering* using Perl, c, tcl/tk, expect, HTML 4.0, CGI/forms, and Javascript. SGI Irix and ClearCase. Browser-based Intranet application. Simulation and modeling in Ada-83 and FORTRAN.

Accomplishments: Created applications for knowledge-capture, metric collection, logging simulator runs.

from:	to:	title:	company:
Sept. 1995	Oct. 1998	Senior Development Engineer	Raytheon, Huntsville, AL

EFOGM Stationary Simulator, October 1997 to October 1998
Developed EFOGM *simulation and training S/W* in C/Ada-95 for SGI ONYX/Indy running Irix 6.x- X/MOTIF, ClearCase, SEI

Level 3, DIS 2.4.

Accomplishments: Participated in the Army War Fighter Experiment (1998.) Re hosted +150,000 lines of tactical Ada-95 code to the Unix/c-based simulation environment in 5 months. Shared memory, semaphores, inter-task messaging.

EFOGM Tactical Missile Software, August 1996 to October 1997

Developed EFOGM S/W in Ada-83/Assembly for Motorola 68360 microprocessor- Fiber Optic Protocol, HDLC, transparent synchronous, serial UART, IMU, autopilot, IR seeker, ESAD, system simulator, interrupt service routines, low-level device drivers, error recovery, built-in self-test, hardware initialization. SEI Level 3.

Accomplishments: Created an unplanned EEPROM programmer and H/W S/W simulator for the ground equipment to support missile software test and V & V without missing schedule. Technical lead.

EFOGM Captive Flight Test, September 1995 to August 1996

Developed *missile software in Ada-83 for the Motorola 68360* using GOTS hardware- P-MIGITS GPS/IMU, prototype IR seeker, interrupt service routines, low-level device drivers, error recovery, discrete I/O.

Accomplishments: Tailored the Ada Runtime and debug monitor to the target hardware in 5 days. Became the MC68360 expert. Designed the fiber optic protocol. Technical lead.

from:	to:	title:	company:
April 1995	Sept. 1995	Senior Engineer	SESI, Huntsville, AL

Developed *Client/Server S/W* for work flow automation. Odesta Live-Link, ORACLE 7.x, HP-UX, Windows 3.x, SQL, SQL*Plus.

from:	to:	title:	company:
April 1994	April 1995	Principal Engineer	ARINC, Inc., Oklahoma City, OK

Developed PC-based *interactive data conversion and rendering S/W* for the Air Force Standard Flight Data Recorder (SFDR). Client/Server, Visual Basic 3.0, Solaris 2.x, ORACLE 7.x, ORACLE Sys. Admin, Solaris Sys. Admin, ORACLE and MS/Access DB design, SQL*Plus, SQL, HP-UX Sys. Admin.

Accomplishments: Re-engineered over 29,000 lines of FORTRAN into 5,000 lines of Visual Basic in less than 90 days, with only 51 days for coding, test, integration and documentation.

from:	to:	title:	company:
Jan. 1986	April 1994	Senior Specialist Engineer	The Boeing Co., Huntsville, AL

Space Station Program, May 1989 to April 1994
ORACLE DBA. Wrote INGRES to ORACLE data migration S/W in VAX FORTRAN. Created custom reports & queries. VMS, VAX INGRES, ORACLE 7 on an IBM 3090, SQL, Interleaf, FORTRAN.

Accomplishments: Supported over 90 engineers with a staff of eleven. Acting manager.

B1-B Simulator Program, January 1989 to May 1989

Completely overhauled the *Satellite communications software (SATCOM)* in FORTRAN-77 on a Gould SEL.

Accomplishments: Immediately productive with no learning curve.

Classified Programs, June 1987 to January 1989

Performed tasks related to *reverse-engineering of foreign hardware* and software using HP-UX and c. Technical lead.

Inertially Guided Terminal Device Project, January 1986 to June 1987

Wrote *Ada/assembler for tail-kits for bombs*. Shared memory, mailboxes, multiple-processors, hardware-initialization, low-level device drivers, multiple in-circuit emulators.

Accomplishments: Boeing's first embedded Ada development environment.

References:

Available upon request.