larry-eng
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Education

University of Texas at Arlington, Arlington, TX
BS, Mathematics with emphasis in Computer Science

Technical Skills

Languages: C/C++, Assembly (PPC, x86, ARM), Ada, Shell scripting, Java, JSF SWAT

Embedded OSs:, VxWorks, VxWorks AE 653, uCos, Embedded Linux, Integrity, Nucleus Plus, PSOS, Bare Metal

Processors: ARM, Intel x86, PPC, i960, Coldfire, NIOS2 (Altera FPGA softcore)

Host OSs: Linux, Windows, Solaris, UNIX

Technologies: Real-time embedded, BSPs, Soft Core FPGA Processors, Device Drivers, Board Bring up, Boot Loaders, Secure Boot, Crypto, embedded Cybersecurity, SAN, Wireless, WAN, LAN, Telecom, Military LRU OFPs, F-16 EDNA/Viper MLV Loader, ARINC 653, DO-178C, and FACE.

*Network Protocols***:** 802.1D, 802.3, 802.5, TCP/IP, ICMP, UDP, ARP, SNMP, MIB, IPX, HDLC, ISDN, X.25, Ethernet Bridges, IP Routers, IP protocol stack, SSL, InfiniBand, Fibre Channel, CAN Bus, DDS, and MIL-STD-1553/1760.

Tools: Make Files, Eclipse, GNU, MinGW, MSVC, CVS, GIT, SVN, Perforce, MS Visio, MS Project, MS Office, SCADE Suite, SCADE Display, VAPS, Qt, DOORS, Collaborator, JIRA, Klocwork, LDRA, Intel (Altera) Quartus, Windriver Workbench, NXP CodeWarrior, STM32CubeIDE, VersionOne, Dimensions, JSF Simulation Environments (JADE, LIDS, VSim), GitHub

Experience

Jan 2025
To Current

OpenAKM
Aledo, TX (remote office)
Open-Source Contributor
- AKM Point-to-point C Library portable to Windows, Linux and STM32
  - Application API
  - Crypto AES, SHA-256, HMAC and PRNG
  - IO Abstraction Layer (TCP Server, TCP Client, Sockets, Serial)
  - OS Abstraction Layer (Threads, Mutexes, Semaphores and Timers)
  - AKM P2P FSM Implementation
- AKM Unit Test Framework
- STM32 H753ZI ARM Cortex 7
  - Ethernet, FreeRTOS, LWIP, TCP/UDP Sockets
- GitHub Admin (novice level)

July 2024
to Dec 2024

Self Employed, Elray's Software LLC
Aledo, TX (home office)
STM32 Experiments in C Language using STM32 Nucleo F446RE.

Feb 2024
July 2024

Davis Companies
Contracted to Aydin Displays Birdsboro, PA
Software Engineer, Contractor
- Embedded software development for a Digital Entry Keyboard on Boeing NGAD. Bare metal and HAL project running on a STM32F446ZE MCU (ARM Cortex M4). Interfaced to display via Altera FPGA register map.

- Designed and coded the boot loader that supports redundant OFP application images in Flash and RS-422 file download.
- Designed and coded the Built-in Tests (BIT). Interface with I2C, ADC, and UART devices.
- STM32 MCU development for Textron ARV Display. I2C TCA9555 button reads converted to Data Modul Video Controller RS-232 protocol.

May 2023 to Feb 2024	**Self Employed, Elray's Software LLC** Aledo, TX (home office) IT Business Projects • Setting up Ubuntu Server • Apache Web Server • Git Server • Dokuwiki Server

Feb 2023
April 2023

Davis Companies
Contracted to Elbit Systems of America, Fort Worth, TX
Software Engineer, Contractor
- Brought in to troubleshoot issues on the F-16 Center Pedestal Display, 2nd Generation hardware's OFP that is certifiable to DO-178C, DAL B running VxWorks ARINC 653 RTOS. C and SCADE code. Used Wind River Workbench to debug and verify timing/memory measurements.
- Performed requirements tracing in DOORS
- Ran Blackduck analysis to determine if there was open-source present
- Ran Klockwork static code analyzer

Oct 2022
to Feb 2023

Self Employed, Elray's Software LLC
Aledo, TX (home office)
- Evaluated open-source tools for Software Business
    - cppunit for unit testing
    - cppcheck for static code analysis

Sep 2020
to Oct 2022

Lockheed Martin Aeronautics
Fort Worth, TX
Software Engineer Stf
- Added SPICE, Paveway IV Seeker, Meteor, UAI Rev 5 and JSM Weapon models to JADE, LIDS and VSim (F35 Simulation Environments). Integrate and test in various SimSIL labs.
- Mentor Level 1 and 2 Engineers on Simulation Weapon Models development
- Maintain and modify existing F35 JADE Simulation Models written in C, C++, Java and GNU Make as a member of an Agile team
- Wrote NextGen DAS (TR3) JADE Simulation Aware Wrapper

Dec 2019
Sept 2020

Global Technical Resources
Contracted to Lockheed Martin Aeronautics, Fort Worth, TX
Lab Software, F35 SIMS Models
Software Engineer, Contractor
- Maintain and modify existing F35 JADE Simulation Models written in C, C++, Java and GNU make as a member of an Agile team
- Provide user support for the JADE models, analyzing issues, correcting SPARs and placing corrections into Configuration Management

- Worked with SSS and Mission Systems Engineers to add AIM9-2X capabilities to the RIU Weapon Simulation model using weapon ICD, DOORS and TASER system requirements.

June 2019 to Dec 2019	**Self Employed, Elray's Software LLC**
	Aledo, TX (home office)
	- Embedded Linux Project – Beaglebone Black board
	  o Learned how to build Linux image from source and Flash it
	- C++ Education Reading
	  o API Design for C++, Martin Reddy, 2011
	  o Hands-On Design Patterns with C++, Fedor G. Pikus, 2019

December 2018 to June 2019	**Elbit Systems of America, Fort Worth Operations** Fort Worth, TX **Staff Software Engineer** - Create requirements and architectural software design for a missile warning system simulation using AFSIM with VxWorks hardware-in-the-loop testing. - Create requirements and architectural software design for rotary wing degraded visual environment system. Driven by customer's requirements for Future Airborne Capabilities Environment (FACE $_{TM}$) and cybersecurity/anti-tamper.
July 2018 to December 2018	**Self Employed, Elray's Software LLC** Aledo, TX (home office) **Software Engineering Consultant** - Peer review cyber security technical papers and contribute to embedded cyber security requirements definition. - Provide engineering process definition and document templates
March 2018 to July 2018	**Lockheed Martin Missiles and Fire Control** Grand Prairie, TX **Staff Software Engineer** - Static code analysis of Patriot PAC-3 missile guidance and control system using AdaCore's GPS and CodePeer tools for the Ada (2005) language.
November 2005 to March 2018	**Elbit Systems of America, Fort Worth Operations** Fort Worth, TX **Staff Software Engineer** - Participate in pre-award contract risk mitigation high-level design task requiring DDS publish/subscribe message passing for an IR based missile warning system using Rhapsody and DOORS tools in C++. - Individual contributor to Apache Digital Display Unit with Freescale 68HC12 microcontroller upgrading to OLED eyepiece (I2C logic). - IR&D project with NXP T2080 PowerPC Security Processor VxWorks 6.9 and VxWorks 653 3.1 BSPs/Boot Loaders with Secure & Trusted Boot features - Individual contributor to Apache Firefly radio amplifier adding Built In Test to Altera FPGA with three NIOS cores running uCos. - Architectural level contributor to F-16 Center Pedestal Display OFP DO-178C, DAL B, flight safety critical using VxWorks 653 and Freescale 8247. SCADE Display, SCADE Logic and C code utilized.

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- Architectural level contributor to C-17 Replaceable Heads Up Display OFP DO-178B, DAL A, flight safety critical. VAPS Display, SCADE Logic and C code utilized.
- Individual contributor to Bradley Common Intelligent Display OGP.
- Individual contributor to Bradley Turret Processor Refresh OGP.
- Architectural level contributor to Bradley Commander/Gunner Hand Station OFP. MicroCOS, Altera NIOS, and C code based.
- Qt test application for Windows written in C++ emulating DRS Bradley Sport Loader using Condor 1553 card running in Bus Controller mode.
- Architectural level contributor to F-16 EIBU OFP.
- IR&D Network Centric Warfare project where four different OS & hardware platforms ran common source using DDS publish/subscribe middleware.
- Lead software engineer for F-16 Enhanced 1553 Demval Program OFP.

| December 2004
to November 2005 | **TelStrat**
Plano, TX
Lead Software Engineer |

- Designed and developed hot redundancy software for a dual CPU chassis. Written in C/C++ for a Motorola Coldfire 5307 processor. The RTOS was PSOS, toolset was Diab and. SDS debugger.

| June 2001
to December 2004 | **AMCC, SAN Division (formerly JNI Corporation)**
San Diego, CA
Software Manager (6/2001 – 12/2004) |

- Lead firmware development for a Fibre Channel ASIC written in C for ARM7 core.
- Lead Linux and Windows device driver development for an InfiniBand Host Channel Adapter (HCA).

| December 1997
to June 2001 | **Solectek Corporation**
San Diego, CA
VP Engineering (3/1998-6/2001)
Sr. Software Engineer (12/1997-3/1998) |

- Provided technical and managerial leadership for embedded terrestrial fixed wireless bridge and router products in a start-up environment.

| May 1997
to December 1997 | **Interphase Corporation**
Dallas, TX
Software Design Engineer |

- Designed and simulated distributed 802.1D Transparent MAC Layer Bridge.

| June 1995
to May 1997 | **Ascom Timeplex**
Dallas, TX
Lead Software Design Engineer |

- Coded WAN protocols such as Frame Relay, X.25, and HDLC.

| March 1992
to May 1995 | **Diehl ISDN GmbH**
Germany
Principal Software Engineer |

- Design and development of an ISDN Token-Ring Bridge product for Microsoft DOS and IBM OS/2.

May 1990
to March 1992

Planring Informatik GmbH
Germany
Software Engineer

- Individual contributor to the Software Utilities Group.

February 1989
to May 1990

R-Tec Systems
Bedford, Texas
Software Engineer

- Designed and coded the user interface for a TR-303 compliant "Digital Loop Subscriber System".

June 1985
to February 1989

General Dynamics Corp.
Ft. Worth, TX
Software Design Engineer

- Individual contributor for various Radar Receiver projects.

June 1981
to June 1985

United States Army
Pershing Missile Crewmember and Instructor

Patents

US 10,731,981 B2 Device & Method for Combined Altitude Display
US 10,794,726 B2 Computing & Displaying Climb Dive Marker Elevation