CRAIG B. WATSON

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SUMMARY:

Electrical Engineer with a strong background in embedded applications, communications, real-time programming, and firmware development.

EDUCATION and CERTIFICATIONS:

M.S.T.M. Embry-Riddle Aeronautical University
B.S.E. Electrical Engineering, University of Central Florida

TECHNICAL SYNOPSIS:

Programming Languages:

High level:	Assembly (microprocessors):
Basic	Arm Cortex M3, A8
C/C++	Intel 8085, 8051, and 80x86
FORTRAN	Microchip PIC32, PIC24
HTML/XHTML	MIPs 74kc
Java	Motorola 6805, 68HC11, 68040, and 88100 RISC
Server Side CGI	NEC 7500 and 7556
Perl / PHP / Lua / Java Script	Power PC 440, 6xx, 74xx
PL/M	Reneasas H8
UML	Zilog Z8
Verilog	
VHDL	

Operating Systems:

Linux	LynxOS	Mercury OS	MS-DOS
Open VMS	pSOS	Solaris	UNIX
Virtuoso	VxWorks	Windows	

Hardware:

Digital Design	Telephone Interface	Intrinsic Safety
Storage Applications	Networking	Low Power Applications
FPGA HDL Development	USB, SATA, SCSI Interfaces	

EXPERIENCE:

Vanguard Ruggedized Storage
Part-time Consulting, March 2013 – July 2017

Hardware and Software design and engineering services for rugged storage products.

- Provided demo and support for a proposal effort for a serial data recorder targeted at supporting F-15 airborne radar development.
- Designed a VPX hardware interface for a storage device.
- Developed prototype COM Express based Fibre Channel data storage subsystem for a high altitude reconnaissance aircraft. Achieved data rates of >340 MiB/s writing and >640 MiB/s reading. Some throughput tools developed in C++.
- Worked with Linux LIO kernel developers to troubleshoot and fix Fibre Channel issues with customer equipment.
- Developed ruggedized Fiber Channel data storage system based upon above prototype.
- Implemented new Data Destruction feature into product.

Data Flow Systems
Contract Programming, June 2016 – August 2016

Linux kernel programming for an ARM-based SCADA radio communications and controls device.
- Developed Linux touchscreen device driver and device tree overlay for ARM A8 platform.
- Revamp Linux cross-compile build system.
- Set up Git repository for product code.
- Assist with new hardware startup.

Reliable Systems Services
Senior Software Engineer, August 2013 – February 2016

Programming embedded processors in smart encrypted radio WAN applications.
- Developed Java application demonstrating querying products using SNMP to display and log system performance parameters.
- Set up development process for new Qualcomm/OpenWRT MIPs based modem product.
- Wrote Linux platform startup and back-ported Ethernet PHY device driver and integrated into new product. Fixed MAC layer problems in Qualcomm/Atheros code.
- Ported high speed serial UART driver to new platform and integrated into new product.
- Wrote Perl scripts used to benchmark networking performance with Candela application.
- Ported openssl, lighttpd, and developed new cgi-based web interface for new product.
- Ported several proprietary protocol drivers from PPC kernel 2.6.20 to MIPS kernel 3.3.8.
- Implemented state machine for protocol adding mode to support sector antenna controller.

Reliable Systems Services
Senior Software Engineer, January 2013 – February 2013

- Programmed Embedded Power PC processor in a smart encrypted radio WAN router.
- Set up a new cross-compilation development workstation (ELDK SDK for PPC).
- Set up configuration management and backup server.
- Re-engineered SVN-based PPC build process allowing for tracking configuration changes.

Position terminated due to sequestration schedule changes.

DRS Technologies
Senior Software Engineer, February 2012 – August 2012

Programmed PIC and H8 embedded System Management Controllers supporting Intel i7s. Real-time work performed using UML code generation of C++ with object oriented architecture.
- Reviewed and edited several System Requirements Specifications and Unit Test Plans.
- Fixed USB HID/CDC composite interface.
- Investigated adding PECI support and DPTF to the systems.
- Benchmarked systems to determine best performance options for BIOS parameters. Benchmarks in C and C++ using Intel and Microsoft Visual C++ compilers.

Metsys LLC
Contract Programming DRS BAA, August 2011 – November 2011

Contract programming for DRS Technologies for a prototype handheld Android Accessory communication device. Real-time embedded programming performed in C for a Microchip PIC 32-bit microcontroller.
- Developed user hardware interface.
- Developed Android Accessory USB interface.
- Developed File System, and TCP/IP communications.
- Assisted initial startup and debugging of new hardware.

Vanguard Ruggedized Storage
Vice President of Research and Development, March 2008 – June 2011
Part-time Consulting, November 2011 – February 2012

Duties included:
- Marketing and product strategy.
- Project planning and scheduling.
- Project engineering and development.

Activities included:
- Meeting with customers and vendors.
- Leading architecture design and development teams.
- Software development.
- Hardware design and debugging.
- Leading development of USB to SATA bridge device based on Xilinx Virtex 5 FPGAs.
- Leading development of 3 Network Attached Storage (NAS) devices.
- Provided support for other storage devices including PMC/PCI and SCSI RAID devices.

Tasks and accomplishments include:
- Led local sales and engineering office in Melbourne.
- Implemented a software configuration management system.
- Developed company software procedures and standards.
- Developed user interface for new line of Network Attached Storage (NAS) product line.
- Implemented SNMP agent for above NAS devices.
- Wrote software specifications for outside contractors.
- Wrote Manufacturing Procedures and Operations Manuals for new products.

Northrop Gruman Corporation
Senior Software Development Engineer, November 1997 – March 2008

Worked on several defense/aerospace programs. During this time rose to position of Software IPT Lead (supervising 8-12 engineers) on a program that was nominated to Aviation Week and Space Technology Magazine's Program of the Year. It was also nominated to EE Times 2006 Ace Awards Design Team of the Year competition.

Activities included:
- Developed high speed recording/playback systems on RADAR and LIDAR systems using C and C++ with Qt libraries on multiple platforms (Windows and Linux).
- Led team while achieving CMMI Level 5 certification of the software development process.
- LIDAR image processing in FPGA/PPC platform.
- LIDAR image processing in 49 processor parallel processing.
- Led the Northrop Gruman High Performance Computing (HPC) IR&D program.
- Airborne radar Synthetic Aperture RADAR (SAR) digital signal processing (DSP).
- Airborne satellite communications protocol development and implementation.
- Systems programming in 120+ processor parallel processing.