JONATHAN H. BAILEY

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SOFTWARE ENGINEER

Embedded C/C++ Code ▪ Real-Time Applications ▪ Feedback Control Systems

Embedded Firmware Engineer with a proven record developing successful products in the Infrared Instrumentation, Industrial Automation, and Telecommunications industries. Demonstrated ability to develop applications in numerous languages on multiple operating systems and hardware platforms.

- Technical Specification & Design
- Extensive Device Driver Experience
- Interrupt Handlers
- Multiple RTOS Experience

- multi-threaded, multi-tasking environments
- Object Oriented Design
- Effective Communicator
- Revision Control Systems

TECHNICAL PROFICIENCIES

Languages:	C/C++, Python, Pascal, Fortran, PLM, and Assembly for 8051, 80X86, 68HC16, 80166, MPC 850/860/8260/8270 PowerPC and TMS320 DSPs
Operating Systems:	VxWorks, pSOS, MCX-16, Windows 98/NT/2000/XP, Unix
Platforms:	PC, Multi-bus, Proprietary
Communications:	IEEE-488 (GPIB), RS-232-C (Serial), RS-485 (HDLC), ADSL, ATM, Gigabit Ethernet (GPON)
Protocols:	TCP/IP, UDP, Serial DLE, High-Level Data Link Control (HDLC)
Revision Control:	Source Safe, PVCS, and Clearcase, Subversion
Software Tools:	Greenhills, BSO / Tasking, Keil Compilers / Assemblers. Code Warrior, Microsoft Visual C++ & Fortran PowerStation Integrated Development Environments (IDEs), Codewarrior
Hardware Tools:	JTAG and In-Circuit Emulators, Logic Analyzers
Specialized Skills:	Coding and Debugging Feedback Control Systems

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PROFESSIONAL EXPERIENCE

ELSTER SOLUTIONS INC – Raleigh, NC   2010 to Present
Senior Firmware Engineer

Developed code for the Energy Axis line of Remote Metering products
- Designed and implemented absolute encoder interface and enterptretation code.
- Improved data throughput with a new means of interfacing to groups of remote metering devices

ALCATEL INC – Raleigh, NC   2004 to 2009
Engineer IV

Established code for Fiber-to-the-User (FTTU) High speed internet products for customers, such as Verizon, AT&T, and Kuwaiti Ministry of Communications.

- Developed Serial Peripheral Interface (SPI) driver to communicate with serial memory (EEPROM) devices used to hold customer specific board initialization parameters.
- Created I2C drivers and specific interfaces to serial EEPROMs and optics modules to access customer specific operating parameters, and temperature sensors facilitating thermal protection.
- Implemented temperature filters and alarm software to provide products with thermal shutdown protection.
- Augmented the dynamic bandwidth assignment feedback / control algorithm by adding assured bandwidth mode to existing confirmed and best effort modes increasing the types of Quality of Service (QoS) available to customers.
- Maintained and improved the error handling sub-system improving the ability to respond to field issues.

- Composed low level standard (SCC) and fast (FCC) serial communications drivers resulting in more efficient intra-product communications.

TRANSSOFT INCORPORATED – Raleigh, NC   2002 to Present

Principle Engineer

Owned and operated Transsoft, Incorporated providing a range of development services on a contract basis focused on software engineering.

- Fashioned a windows front-end for an old DOS-based program used by Hubble Lighting's customers to estimate lighting requirements for stadiums.
- Added Modbus communications to an HC16-based static trip control unit for Siemens increasing the number of applications for which the product could be sold.
- Took over Square D's development work for windows-based WINMATE® used to program PLC's.

ECI TELECOM / INOVIA TELECOM – Raleigh, NC   2000 to 2002

Senior Software Engineer

Delivered software support for existing line of Digital Subscriber Link Access Multiplexor (DSLAM) products. Led the bring-up and low-level software development for new Asynchronous Transfer Mode (ATM) Inverse Multiplexor (IMA) product.

- Provided maintenance and support for customer field issues on the main MPC 860 based remote DSLAM product using C/C++ and pSOS RTOS.
- Led development of initial product start-up code and low level driver software for an MPC-8260 based Asynchronous Transfer Mode (ATM) Inverse MultiplexorMA product using C/C++ and VxWorks RTOS.
- Produced a 32-bit windows application to seek and terminate processes started by network management software — reduced the load on the customer's PCs for monitoring products resulting in increased efficiency.
- Produced an IP/UDP adapter using a combination of a port of the Berkeley Packet Filter, pipes, normal windows sockets and raw sockets to facilitate debugging of the product.

SQUARE D COMPANY – Raleigh, NC   1991 to 2000

Senior Software Engineer

Provided embedded real-time, feedback control, monitoring, and debugging software for a variety of products, including Programmable Logic Controllers, AC adjustable frequency drives, AC & DC resistance welders.

- Implemented test firmware to facilitate hardware debugging of new DC resistance welder control board.
- Coded the real-time feed-back control algorithms for DC resistance welder and re-wrote other areas of the software for the welder product significantly reducing the code size.
- Developed the high performance flux vector algorithm for next generation AC adjustable frequency drive — coded algorithms, maintained and upgraded simulation software, and wrote hardware / software interface specifications.
- Produced firmware and implemented High-level Data Link Control (HDLC) communications for Programmable Logic Controller (PLC) remote I / O systems on 2 different µProcessor platforms.
- Designed and developed Digital Signal Processor (DSP) firmware using CodeWarrior IDE for a device used in weighing applications.

Early Experience: Gained Systems Engineering experience working for Minarad Systems Incorporated in Fairfield, Connecticut designing and developing software.

EDUCATION & TRAINING

BS, Computer Engineering (1991)
UNIVERSITY OF BRIDGEPORT – Bridgeport, CT

Professional Development
Control Theory ▪ Java 1 & 2 ▪ PERL ▪ Internet Protocols
North Carolina State University, Continuing Education

ADDENDUM

PATENTS

US Patent 6,151,640, November 21, 2000, Control I/O Module Having the Ability to Interchange Bus Protocols for Bus Networks.

US Patent 6,087,613, July 11, 2000, Process Monitor for a Weld Controller

US Patent 6,013,892, January 11, 2000, Resistance Weld Control with Line Impedance Compensation.

US Patent 5,963,022, October 5, 1999, Method and Apparatus for Compensating Phase Distortion.

US Patent 5,869,800, February 9, 1999, Phase Distortion Compensated Time Base for a Welder Control.

US Patent 5,856,920, January 5, 1999, Method and Apparatus for Estimating a Phase Error between Two Independent Time bases.