

# Charles J. Risicato

71 Rattlesnake Hill Road  
Auburn, NH 03032-3802

(603) 669-4161  
chuck@risicato.com

## Skills:

- Extensive experience developing software for single-threaded and multi-threaded embedded systems including symmetric and asymmetric multiprocessing configurations using x86, ARM, and MIPS processors.
- Experienced developing kernel drivers, services, and applications for GNU/Linux, MS Windows, assorted Real Time Operating Systems, and environments without an operating system.
- Experienced in c, c++, Object Oriented Analysis and Design, Python, PHP, Ruby, Qt, BASH, HTML, CSS, XML, SQL, Microsoft Command Shell, Verilog, and assembly language for a variety of processors and microcontrollers.

## Experience:

### Software Consultant

Rattlesnake Hill Technologies, Inc.      71 Rattlesnake Hill Road, Auburn, NH 03032      **2014 to Present**

- Provide services for the design and implementation of custom software, provide unique insight to the integration of software to its supporting hardware.
- Design, implementation, installation and support for test station software supporting NASA's Transiting Exoplanet Survey Satellite (TESS) project at the MIT Kavli Institute for Astrophysics and Space Research. The code consisted mainly of drivers for assorted data acquisition equipment, storing sampled data in a PostgreSQL database. Most of the code was written in Python and c++ using the Qt framework and run on CentOS7 GNU/Linux systems.
- Assisted in the implementation for the TESS Payload Operations Center (POC) software writing code in Python and performing formal code reviews. The code centered around sensor record management in a PostgreSQL database and dynamically allocating unique monotonically increasing identifiers across all of the POC servers. POC code runs on CentOS7 GNU/Linux systems.
- Updated several custom Customer Relationship Management systems (CRM) for companies local to the Salem and Manchester NH area. The updates made the CRM software compatible with the current versions of Microsoft Windows and Microsoft Server. These updates also changed the CRM systems from a Microsoft VisualBASIC.NET implementation to a c++/Qt and provided a future development path for mobile applications.

### Systems Architect / Software & Electrical Engineering Manager

Laser Projection Technologies, Inc.      8 Delta Drive, Londonderry, NH 03053      **2004 to 2014**

- Architect of most electrical, all firmware, and all software designs used in current and next generation Laser Projector, Lasergrammetry, and LIDAR Projector systems.
- The software designs include: Hard real-time embedded control software. Control and communications software for the embedded GNU/Linux system. Communication services and user interface for the MS Windows clients.
- Embedded control software was converted from an MS VisualBASIC for DOS application to c++ using GCC to run on a x86 CPU without an operating system. The c++ design allowed for easy porting to an ARM Cortex-M4 CPU.
- Control and communication software is written in c++ using GCC and targeting Debian GNU/Linux. This design targeted both x86 and ARM Cortex-A5 CPU's.
- Communication services for the MS Windows client were written in c++ using MS Visual Studio.
- The user interface was ported from an MS VisualBASIC 6 code base to c++ using Qt. The system configuration application is web driven using the lighttpd web server and PHP.
- The electrical designs included control systems and signal acquisition modules for an assortment of photodetectors including photodiodes, avalanche photodiodes, photomultipliers,

and hybrid photodetectors. Signal acquisition modules were interconnected using a series of SPI and I<sup>2</sup>C interfaces.

- Created an FPGA based design simplify the design of the electronics, lower the hardware, costs and increase performance of the system. The design was originally implemented using a Xilinx Spartan-2E and was ported to a Lattice Semiconductor LatticeXP2 when the Xilinx part was discontinued. The design was written using the Verilog HDL.
- Integrated a 10GSPS ADC (ApisSys AV-101) with the hard real-time embedded control system previously mentioned. Using the onboard Xilinx Virtex-6 SX FPGA to preprocess the 20GBPS data stream to 5MbPS.
- Managed electrical and software engineers as well as all external engineering subcontractors.
- Established the coding standard, language standards, and documentation standards for the engineering department.
- Wrote diagnostic and test software in c++ using Qt, wxWidgets, and MFC frameworks.
- Provided on site support for many of the larger customers including Boeing (BCA), SpaceX, GKN Aerospace, and Manitowoc Cranes.

### **Consulting Software Engineer**

Hite Development Corporation

27 Fletcher Road, Windham, NH 03087

**2000 to 2003**

- Created proof of concept applications for client corporations utilizing automated speech recognition (ASR), text to speech (TTS), and handwriting recognition. Applications were written in c++ and targeted the PocketPC using Microsoft eMbedded Visual C++, PalmOS using GCC, MS Windows using Microsoft Visual C++, and Debian GNU/Linux using GCC.

### **Principal Software Engineer**

PictureTel Corporation

100 Minuteman Road, Andover, MA 01810

**1991 to 1999**

- Member of the architecture and design team of the eVideo Multimedia Web Portal. Designed and implemented the metering subsystem, integrating the H.323 Gatekeeper with the MetraTech XML based billing system.
- Enhanced the H.323 Gatekeeper, to support the H.245 call control and H.225.0 call signaling protocols. Was also the technical lead for the H.323 Gatekeeper project.
- Adapted the MS Windows version of DC-Share from Data Connection, LTD. to become PictureTel's LiveShare Plus product. Modified the Databeam T.123 drivers for TCP/IP, IPX, NETBIOS, and PSTN for use by LiveShare Plus/T.120. Designed, Implemented, and maintained the T.123 drivers for transparent data of videoconferencing systems. Collaborated with Microsoft on their conversion of LiveShare Plus/T.120 into NetMeeting.
- Designed and implemented Windows Kernel Drivers and support libraries to provide the MS Comm API over video calls.
- Provided on site support for several trade shows, IMTC interoperability events, Product roll out presentations, and several large customers including JC Penney, Microsoft, and the National Bank of Spain.

### **Education:**

#### **Wentworth Institute of Technology**

550 Huntington Ave., Boston, MA 02115

Received Bachelor of Science in Engineering Technology in the Electronics Engineering Technology program of study. Graduated with honors.

#### **Wentworth Institute of Technology**

550 Huntington Ave., Boston, MA 02115

Received Associate of Science in Electronic Engineering. Graduated with honors.