

## PROFILE

A software consultant with over 15 years of experience and broad exposure to different platforms and distinct segments of the software industry. This experience provides a unique perspective on the software development process as well as an intuitive understanding of the development cycle.

In recent years, Shaun has split his time between project management and embedded device development; more specifically in critical system design for software based control systems as well as graphical user interface design and development for embedded displays.

When not writing software, keeping projects on track, or drumming up business for Bytown Technology Group, Shaun manages a few rental properties in the Ottawa area. In his spare time he enjoys sailing on the great lakes and if the weather co-operates, loves to kite-surf.

## SKILL SET

- Experience with software **guidance control systems**, **PID** loops.
- Extensive experience in both **user interface design** and development – both from a theoretical human factors approach, especially with respect to touch screen/embedded displays form factor, and implementation (Photon 1.14, Photon 2.0, Win32/MFC/.NET, Apple QuickDraw, Java AWT/SWT, Storyboard).
- Project management, analysis, team leadership (3-4 developers).
- **Eclipse RCP** & IDE plug-in development.
- **QNX Photon** MicroGUI GURU.
- Extensive software **architecture** and **design** experience, especially in the embedded systems niche.
- Familiar with formal engineering practices and processes specific to **Medical Devices**, **Defence**, and critical software systems & writing corresponding **validation protocols**, **hazard analysis**.
- **Embedded** device development, embedded UI, high availability framework expertise.
- Development experience with the **8051** (and variant) micro-controller, software-based **hardware simulation**.
- Familiar with ANSI/AAMI **SW 68** software life cycle processes, **IEC** standards, **FDA** guidance for software validation and 'agile' software methodologies.
- Development experience on **MacOS 8**, **Windows** (3.1, 95, 98, 2000, XP), **POSIX UNIX** (Linux, Solaris, FreeBSD, **QNX 6**), **QNX 4**.
- Depth of knowledge in the field **Artificial Intelligence**, traditional heuristic and expert systems, genetic algorithms, genetic programming, and other modern learning systems.
- **XML** (expat) parsing, Javascript/ECMAScript/AJAX, server-side scripting/**CGI** development experience.
- Netscape 4.x compatible **web browser plugin** development (both client and server-side)
- Proficient with **GNU toolchain** (gdb, gcc, makefiles, etc.), Eclipse IDE, Visual Studio.
- Excellent debugging and troubleshooting abilities, porting experience.
- Unix administration (sendmail, bind, apache, mysql, shell scripting, **perl**, sed, etc.).
- Solid foundation in 3D graphics, 2D primitives, openGLES, lighting algorithms.
- Experience in algorithm design for **hyper-cube** and **2D mesh** architectures and development with **MPI** library.

C, C++	14 years	QNX 4, QNX 6, Photon toolkit	11 years
Smalltalk	3 years	BSD, Linux	2 years
Java	2 year		
8051, 8086 assembly	1 year		

### Technical Experience Summary

## CONTRACT EXPERIENCE

### **ERL Phase** (Winnipeg, CA)

Mar 2010 – Present

ERLPhase is a world leader in the production of protection relays and recorders for the power industry. I adapted their framework and developed the UI for a front panel display for two of their products. (*power transmission line relay*).

### **National Bank Services Inc.** (Plymouth, USA)

Oct 2009 – Present

National Bankcard Services is a leading provider of electronic payment and loyalty services. I managed a project for which Bytown Technology Group was contracted to provide low-level software components for their next generation server platform. (*financial transaction processing*).

### **Proven Process Medical Devices Inc.** (Boston, USA)

Feb 2007 – June 2009

PPMD are experts in the design, development, validation, and manufacture of Class II and Class III therapeutic and diagnostic devices. I assisted in the architectural design of QNX based software control system & led team of 3 software developers to produce core elements of control system as well as the user interface for a Class III medical device (*artificial heart*).

### **Coherent, Inc.** (Portland, USA)

July 2008 – Sep 2008

Coherent is the world's leading supplier of photonics-based solutions. I was responsible for performing analysis of the code-base for an existing product to determine areas of deficiency. Through several improvements I enabled their team make exceptional performance gains (*laser power meter*).

### **FlightFab Inc.** (Maryland, USA)

Nov 2005 – Dec 2005

FlightFab, Inc. is a quick response aerospace fabrication and design company. I provided training as well as produced documentation so their staff could maintain and deploy an existing QNX 4 based system (*gamma-ray detector*).

### **Teather & Clifton Ltd.** (Ottawa, CA)

Sept 2004 – Apr 2005

TCL provides design and development services in the areas of installation planning, software, electrical/electronics, mechanics, control systems, and safety analysis. I designed and developed the software for an 8051-based control system for a self-contained class II medical device (*x-ray blood irradiator*). Blood-irradiation is used to treat blood to reduce the risks to immuno-suppressed patients when receiving a transfusion.

**MDS Nordion.** (Kanata, CA)

April 2003 – June 2004

MDS Nordion is a global leader in radioisotope technology used to prevent, diagnose and treat disease. I designed and developed the user interface and in-room displays for their next generation of cobalt-based class II medical device (*cancer therapy machine*). I also assisted in the design of the underlying dual-redundant software control system. Cobalt-based radiation is widely used to treat cancer patients and is especially effective for soft tissue applications such as throat and neck therapy.

**Minnetronix Incorporated.** (Minneapolis, USA)

April 2002 – Dec 2002

Minnetronix is a medical device product company specializing in the design and manufacture of custom embedded software and electronics. Assisted in the design of a QNX-based control system for monitoring and management of a class III medical device (*left ventricle heart pump*). Also developed the graphical user interface used to monitor the pump.

## EMPLOYMENT EXPERIENCE

**Bytown Technology Group Inc.** (Ottawa, Ontario)

June 2008 – Present

[www.bytowntech.com](http://www.bytowntech.com)

Partner, Software Consultant

Bytown Technology Group is an integrated hardware/software solutions provider. We are a collection of very senior consultants with a long history of technical achievement in the embedded device industry. We offer a wide range of services including embedded device development, analysis & design.

**QP Software Systems Inc.** (Ottawa, Ontario)

April 2002 – April 2008

Principal, Software Consultant

Founded QP Software Systems Inc. in early 2002 to offer consulting services targeting user interface design and development for embedded platforms.

**MMIST.** (Kanata, Ontario)

Sept 2006 – July 2007

Software Developer

Mist Mobility Integrated Systems Technology Inc. (MMIST) is a world leader in the development, production and support of precision aerial delivery systems. I was the software lead for the CQ-10 SnowGoose aerial cargo delivery UAV (unmanned aerial vehicle). Responsible for all software elements of the control system including guidance and hardware integration. Responsibilities also included direct involvement in live flight testing and post-flight analysis. Obtained level II national security clearance.

**QNX Software Systems Ltd.** (Kanata, Ontario)

Jan.1998 – Jan. 2002

Software Developer

QNX Software Systems is a leading provider of real-time operating system (RTOS) software, development tools, and services for embedded design. As a senior developer in the Photon MicroGUI group, was involved in many R&D initiatives, notably;

- Team-lead for the 'skin' project that enabled the customization of the look and feel of the graphical widget toolkit. This involved both the creation of a full-featured editor and the development and integration of corresponding runtime libraries.
- Contracted to customers for on-site custom engineering services.
- Met with customers and third parties to assess technologies and forge relationships.

Development was mostly in C although a strong proficiency in C++, as well as with the gamut of UNIX tools, was required. Development tasks often involved assuming responsibility for a project from start to finish, including design and unit testing. Porting third-party software was common, along with the maintenance of the existing code-base. I was involved in many software projects, for which was a key developer in the following:

- Voyager and Mozilla web browsers (client front-end, SSL integration, plug-in support).
- Photon File manager (integration with desktop environment, file manipulation).
- Email client (IMAP 4, POP 3, SMTP support, fully threaded).
- Network configuration tool (DHCP, routing table, dialup setup).
- Build tools (front-end for library linker, floppy image creator).

- Dialer (PPP, PPPOE support, integration with CHAT & native scripts).

**Webhost Canada** (Ottawa, Ontario)  
Founder-Partner, Technical Lead

Nov.1999 – August 2004

Managed and co-administrated an internet based website, virtual domain and email hosting service. Required proficiency with advanced Solaris and Linux administrative tasks.

**Axia Multimedia Corp.** (Calgary, Alberta)  
Software Developer

Jan.1996 – Aug.1996

Built proprietary authoring tools (for windows) used to create Axia's training software. Developed multimedia engine for Microsoft Windows based learning products. Much of the work involved a re-implementation from a previous Smalltalk code-base to C++. This software was developed prior to the widespread adoption of the MFC libraries and thus third party C++ framework was used. Designed and implemented a framework to separate appearance from functionality, allowing content creators to work independently from the development team; a feature which is common-place in most applications now - but quite a novel idea at the time.

**EIC. LAN Operations** (Hull, Quebec)  
Network Administration and Support

May 1994 – Aug.1994  
Jul. 1993 – Aug.1993

Employed for two terms with EIC (Employment and Immigration Canada) as part of small team that provided IT support to several hundred users. Acquired level II government of Canada security clearance. Designed and developed database-driven software (for windows) for client and inventory administration.

## EDUCATION

**Carleton University** (Ottawa, Ontario)

Sep. 1995 – Apr. 1998  
Sep. 1992 – Dec. 1994

**Bachelor of Computer Science** degree with honours. The computer science faculty was well ahead of its time, known for its publications on **Object Oriented Programming** and its research in **Parallel Computing**, both areas with which I became very familiar. In my fourth year I concentrated my studies on applications for **Artificial intelligence** and chose **Classifier systems** and **Genetic Algorithms** as the focus for my honours thesis.

**University Of East Anglia** (Norwich, England)

Jan. 1995 – Jun.1995

I enrolled in the **Information Systems** program at UEA for the spring term of 1995 on an exchange through my faculty at Carleton. During that period I focused on subjects for which the faculty was well known, namely advanced graphics and human factors in user interface design.

## OTHER

**Board of Directors, Kanata Sailing Club** (Kanata, Ontario)

Nov. 2002 – Nov.2003

The Kanata Sailing Club is a cooperative club that has been operating on the Ottawa river, just west of Lac Duchesnes, for more then 20 years. More information on the club and its services can be found at [www.kanatasailingclub.com](http://www.kanatasailingclub.com).

## LANGUAGES

- Native English speaker
- Basic French (10 years of immersion, very little use in recent years) but can quickly re-acquire proficiency.
- Minimal Japanese