**Christopher Brandwood-Dixon**

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**Experience Summary:**

Systems developer and technical manager.

A proven self-starter, fully conversant in the full lifecycle of software and electronic products and able to ensure timely completion of both greenfield and legacy system projects by employing a broad range of knowledge of Microsoft and embedded technologies and their interaction.

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| * .NET * SQL * Full product life cycle (waterfall & Agile) | * Embedded C development. * N-tier enterprise systems. * API (REST & SOAP) |

**Experience:**

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| --- | --- |
| * Team management * Solution Analysis and Design * System Integration & Validation | * System Architecture and Development * Customer & Supplier Liaison |

**Skills summary:**

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| --- | --- |
| * .NET. * SQL 2012 * Full product life cycle (waterfall & Agile) | * Embedded C development. * N-tier enterprise systems. * API (REST & SOAP) |

**Education:** BEng (Hons) Electronic Engineering. University of Reading (1987-1990)

**Recent Career History:**

**March 2016 – present.**

**Brandenburg UK Ltd – contract.**

Working as part of a 3-man team on a greenfield project. Researching and fast track development of new technologies, with a view to production, of new pest control systems – remote units communicating in a wireless mesh network via a master node (USB dongle) to Windows OS based User interface.

Introducing new working methods and technologies required for running a software and hardware project, from business case through design and functional specifications to implementation. Implementation and demonstration of version control software. Liaison with third party suppliers. Implementation of system code in both C and C# depending on platform with unit testing of C#.

**Technologies:**

Bluetooth Low Energy, 2.4GHz mesh networks, C on Texas Instruments CC2511/10, CC2530/31, CC2541, and MSP430 processors using I.A.R. Workbench, VisualSVN (subversion), PC based system driver code and User Interface in C# using WinForms and WPF.

**October 2015 - January 2016.**

Assisting in restructuring and refinancing of FastTrack Company.

**EC Solutions Group B.V. (t.a. FastTrack Company) - Chief engineer/Head of Development - contract**.

February 2012 – October 2015.

Reporting directly at Director level.

Responsible for all technical aspects of the company’s multi-award winning product line (Eviate): An electronic bag tag for air travel; an airline approved tracker with patented auto-flight mode; back office support servers with tie ins for airport baggage handling, GSM telecommunications and airline check-in systems; and finally smartphone consumer apps to interface with the tags and trackers and a supporting consumer user’s website. See [www.eviate.com](http://www.eviate.com) for more details.

Responsibilities:

* Team management whilst retaining a hands on development role.
* Subcontractor and supplier liaison and control.
* Technological roadmap and delivery.

Built up and managed a team of permanent and contract staff whilst retaining a hands on development role. Prepare documentation and plan for full product certification and roll-out.

Responsible for defining and implementing Agile working practices with TDD where appropriate. Holding regular SCRUM style meetings.

Heavily involved in proposing and evaluating new business applications and determining the technological roadmap.

Created and maintained the tag code (embedded C, electronic paper displays, Bluetooth, UHF RFID, NFC).

Created the system architecture and first drop back office - multi-tier, service oriented architecture, using RESTful API for web and smartphone links, services for TCP/IP communication to trackers and email, C#, ASP.NET, JSON, SQL 2012 database with stored procedures. SOLID principles.

Created an Android mobile phone app to demonstrate the tag and related back office functionality.

Created and maintained the main tracker code (embedded C, PIC24 and PIC 18) and PCB design.

Conceived the (later patented) automatic flight mode functionality for the tracker.

Created various software tools to support hardware testing and development. (C#, WPF, MVVM)

**Technologies:**

C# (SOA server side code), WPF, MVVM, SQL 2012, stored procedures, .NET 4.0, MVC, ASP.NET with JavaScript, RESTful Web APIs, SOAP services, JSON, OAUTH2, Windows services, embedded C, GSM (2G and 3G), Bluetooth Low Energy and Bluetooth Classic, GNSS (GPS & GLONAS), Microchip PIC24 & PIC18, EPD (eInk), UHF RFID, NFC, Atmel XMega, Eagle CAD PCB design, Android, Subversion, Test Driven Development, Agile.

**Atos Origin – Contract C# Developer** – September 2011 – February 2012

Change implementation, update and rewrite of commercial web pages and supporting SQL access routines for a nationwide carpark company. Creating a new version to demonstrate SOLID principles. C#, ASP.NET, Web forms, SQL 2008, JavaScript.

**Shere Ltd – Contract C# & VB.NET Developer –** November 2010 – May 2011

Adaption of existing hotel, reception kiosk software (VB.NET, WinForms) to meet new requirements whilst adding new functionality (C# .NET 4.0). This included .NET wrappers for C++ coded device drivers (unmanaged code supplied by a third party).

Also provision of a kiosk configuration tool, used to demonstrate WPF, MVVM pattern and Test Driven Development. C#, MVVM pattern WPF

All code was stored under version control using Subversion and TortoiseSVN, whilst work packages, functionality and bug tracking was performed using Jira

**Areva T &D – Consultant Tools and Methods -** January 2010 – November 2010

Working on tools (both in house and bought in) used by project teams for product development and deployment. Defining and implementing how they should be used and supporting the project teams that use them. Writing of standards for UML design approaches and use of Sparx Enterprise Architect. In depth support of Enterprise Architect with MySQL and ClearCase.

Production of a software, license tracking package. C#, WPF, MySQL.

Providing in depth recommendations, based on financial and product suitability for future handling, tracking and documentation of requirements, bugs, and work allocation.

**Amey Datel – Contract C# Developer** April 2009– November 2009 (8 months)

Responsible for the production of three applications: A railway platform, announcement manager, a CCTV alarm monitoring service and a CCTV camera, monitor switching application. C# .NET 3.5, LINQ, XML, Unit testing with Microsoft Test projects, Enterprise Architect for system design, XMLSpy for schema and partial code class generation.

**Extra information:** The announcement manager written as Windows service calling a class library for the main functionality. It is an integral part of a larger customer information system using live train and timetable data for announcement triggering as supplied by XML messaging from a live Rail monitoring system. With functionality incorporating, automated announcements, announcement inhibit.

CCTV alarm monitoring. Windows service application interfacing with Verint Nextiva CCTV system via a bespoke SDK to monitor alarm trigger conditions for automatic, audible warnings to the user. CCTV camera, monitoring application interfacing to a Verint CCTV system.

**Trojan Data Ltd (own company)** – February 2009 – April 2009

Updated access control system. Client/Server architecture. C#, WCF (TCP/IP, HTTP, MSMQ protocols allowing for multiple network connection types), WPF GUI development - XAML. Multithreaded. SQL 2005 database server side. Localised data list (client) for white list comparison. Currently it will use ANPR capture and image storage. Windows OS.

**Extra Information:** As a means of learning the new technologies of WCF and WPF I set myself the task of taking a Visual C++ MFC project and converting it to C# with the express intent of using those technologies. For this particular project no real-time response is required from the server and WCF gives the advantage of easily switching between direct LAN(TCP/IP), internet via firewall (HTTP) and buffering of data when no network connection is available (MSMQ). WPF appears to allow for easier changing of GUI style.

**Shere Ltd –consultancy contract C# Developer & Architect**– February 2008 – October 2008

Provision of software for roadside cycle hire system (customer scheme membership validation, bicycle locking and release via an automated post). Requirements capture, technology selection, system design, software implementation and test. Multithreaded application C#, WinForms GUI, .NET 3.5 and LINQ (SQL Server 2005 and SQL Server 2000, stored procedures and functions), COM+ for bespoke serial protocol interface API. High level system design and modelling using Microsoft Visio UML tool. Visual Source Safe, Visual Studio 2008 and 2005. Rapid prototyping by use of Agile coding practices.

**Extra Information:** Initially I was working directly with the Business Manager in order to determine the product use cases and technical specifications and then later to produce the code necessary for the station controller.

Shere produce ticketing kiosks and their relevant back office systems and so were comfortable with that side of the project, but were reliant on my experience of real-time software/hardware projects for providing a solution for the roadside, station controller and the connected bicycle posts. This I did by giving each post, local intelligence and linking all roadside units by a serial network, giving easy expandability and installation. Working with their hardware contractor I helped to select suitable post hardware and agree the serial protocol to be used between posts and the station controller. I specified that the serial interface code to be encapsulated in COM giving easy integration into .NET code, whether C# or VB.Net.

Use cases for the system, the software behaviour and the post to station controller relationship were all modelled in UML using Microsoft Visio.

Once production of the software was underway (kiosk included), due to near constant changes required by customer input, it quickly became apparent that a more flexible approach was required. At my behest we instigated informal Agile practices. Eventually the customer dropped out and so the project was cutback to provide a demonstration system instead.

**Lesley Brandwood Associates – Company Secretary & Consultant** September 2002 – January 2008

Digital Video Recorder, with encryption and remote backup. Responsible for requirements capture, design, coding, and test. Visual C++, MFC, COM. Multithreaded software for Windows OS. IDS Eagle Quattro, video capture card. Four full frame PAL inputs captured simultaneously or 16 in multiplexed sequence. Video capture MPEG4, Video for Windows and proprietary format (wavelet compression, data embedding, MD5 fingerprinting and 128-bit encryption). Data storage on local media (Hard disk and CDROM). Remote backup to Server via TCP/IP. Multithreading allowing simultaneous recording, playback, storage, and retrieval. (March 2003 – August 2004). Ongoing work to convert to Visual Studio 2005 and restructure for the client to run as a Windows Service, with GUI interface (July 2007 – present).

Access control system with automatic number plate recognition (ANPR). Written for Windows OS in Visual C++ with MFC GUI. Client – Server architecture. Windows socket communications over TCP/IP. PAL Video capture with ANPR processing from up to 4 cameras. White list comparison. Wavelet compression, situational data embedding, MD5 fingerprinting and encryption of image. Relay trigger for barrier activation. Image and event storage locally on client and on server. Server SQL 2000 database storage. (August 2002 – February 2003)

Consultancy work involving, supply and technical support for Minisoft range of software (PC network to HP3000 interfacing software). MS92 terminal emulation, Netprint92 printer controller, JDBC. Installation with Oracle database, interface with DotnetNuke systems.

Proving concept for HP3000 MPE/iX based COBOL coded stock control and ordering system migration to Windows 2000 Visual C++ with SQL database. Partial conversion using an automated system produced by Neartek. Conversion completion performed manually using Visual C++ with SQL. (September 2000 – January 2001)

**Extra Information:** Previously liaised on a contract basis for provision of Windows OS programming skills. Customer demand for Windows application support with Minisoft interaction led to me working full time. Some instances were easy to solve, others were not so and required the learning of new technologies e.g. DotnetNuke or interaction with Oracle 9, in order to help solve customer issues. Occasionally site visits were required in order to solve reported issues. As well as providing this support and latterly the day to day running of the company, I also worked on the Access Control and DVR systems as a potential extra income stream. I was responsible for all aspects relating to those two projects.

**Shere Ltd – Visual C++ Developer -onsite contract position**. November 2001 – August 2002

Further work on SNA protocol and MSMQ interface objects. Visual C++, ATL, COM, with a VB test harness.

**Extra Information**: Continued development of the SNA COM object layer for Shere. Improved fault tolerance and performance along with messaging and data formatting changes. I had to produce a VB 6 test harness to simulate the calling application in order to fully test the implementation.

**Tutis Technologies Ltd – Visual C++ Developer & Architect -offsite, sub-contract software provision**. August 2001 – November 2001

Further enhancements of ANPR, bus lane monitoring system.

**Hanson Aggregates – Visual C++ Developer & Architect - offsite, sub-contract software provision**. July 2001

Provision of cement batching machinery interface to to a HP3000 via a TCP/IP network. Visual C++, with MFC, Windows NT4 & 2000. DDE connection to Minisoft92 Terminal emulation software and locally stored data files. Cconnection and control of the batching machinery via the PC serial port. Responsible for technology selection, software design, implementation and validation.

**Tutis Technologies Ltd – Visual C++ Developer & Architect - offsite, sub-contract software provision**. January 2001 – July 2001

Provision of automatic number plate recognition (ANPR), bus lane monitoring system. Full software life cycle: requirements capture, technology selection, software coding and test. Visual C++ MFC GUI for client - server architecture Windows NT4. PAL video capture, ANPR image processing. Image filtering (programmable rules); Jpeg 2000 compression; situational data embedding; data file fingerprinting; encryption and WORM local storage.

Automated image backup via TCP/IP sockets to Server. Server side data extraction; image processing for offence detection and data storage using SQL 2000 database. Image printing and file handling

**Me & U Ltd – Visual C++ Developer & Architect - offsite, sub-contract software supply.** September – December 2000

Provision of Smartcard reading, copying and programming tool for to GemPlus smartcard

**Tutis Technologies Ltd – Visual C++ Developer & Architect - onsite contract position.** March 2000 – September 2000

PC based digital video recorder. Solely responsible for requirements capture, design, coding and test. Visual C++, MFC. GUI, multithreaded. Simultaneous record, playback and backup to WORM media. Switchable, four input multiplexed, full colour, PAL video with wavelet compression.

**Shere Ltd – Visual C++ Developer- onsite contract position.** October 99 – March 2000

Rail ticket kiosk software. Business object development and test (ATL COM DLL using Visual C++) for interface between Visual Basic Kiosk software and IBM mainframe with SNA session handling: encoding, decoding of data(ASCII and EBCDIC); error handling and session control.

Also data conversion interface between MSMQ queues and the Kiosk software.

VB test harnesses were coded for the testing of both of these projects.

**Baxall Ltd – Visual C++ & Delphi Developer - onsite contract** **position.** Sept. 98 – Aug 99

# CCTV system where all devices linked by an ATM network e.g. cameras, monitors and storage devices. System control (Visual C++), video storage using wavelet compression onto computer hard disk. System configuration using Access database and Delphi GUI.

# Sales demonstration system of the above: Delphi, GUI, camera switching

## **Cosworth Racing Ltd – Delphi Developer & Architect - offsite software supply and maintenance contract.** Aug 98 – October 99

Tasked with replacing a DOS based, serial networked, storage carousel control application with one running on Windows NT with a TCP/IP interface. No documentation available so black box investigation required at start.

New control software written in Delphi 4 with DDE interface via Minisoft92 to a Manman database (on an HP3000) and carousel control using proprietary protocol over serial link. Optional manual drive mode or automatic bin selection using information retrieved from Manman database or via a stored picking list. Label generation and printing.

**Lucas Automotive Electronics – C, TMS320 & C167 Developer -onsite contract** **position.** Feb 98 – Sept. 98

Automotive, adaptive cruise control. Low level design and porting of development software from TMS320 and Siemens C167 development platform to Analog Devices ADSP21060 DSP (SHARC processor) pre-production unit. Thereafter formal design and development using Teamwork, coding in C and SHARC assembly language.

**Rover Group – C & 80C196 Developer - onsite contract** **position**. April 97 – Feb 98

Sole responsibility for software production and testing of an automotive “black box recorder” system. Measurement and storage of power train data, during road test for retrieval using Rover Testbook diagnostic equipment.

**Baxall Security Ltd – Delphi Developer - onsite contract** **position**. August 96 – April 97

“Large Matrix” CCTV control system. Windows NT 4, Delphi. Design, coding and test of alarm, trigger processing system.

“ZTX6” CCTV controller, coding, design and test of embedded C.

**G.P.T.** (Beeston site) **– C Developer -onsite contract** **position**. March 96 to July 96

Telecommunications digital exchange firmware.

**Sagem Ltd - C, TMS370, PLM96 & 80C196 onsite contract** **position**. Nov. 94 – March 96.

Automotive engine management. Requirements capture, design and test.

**Lucas Electronics Ltd. Jet Engine Controls Software Team Leader -**Jan 93 - Nov. 94

Full Authority Digital Engine Controls (Turbofan engines). Embedded, thrust reverser control software. Software requirements and team work allocation. ISO 9000, 9001, RTCA - DO178A , ARINC 629, Teamwork, LUCOL.

**Lucas Aerospace Ltd. Systems Engineer LUCOL Developer** Sep 90 - Jan 93

Primary software programme. Research & Development. Fly-by-light control systems.

Requirements capture and design. Real-time, safety critical, embedded software in LUCOL; ARINC 429 protocol over fibre optic network. All coding and documentation to RTCA - DO178A, AQAP13 and systems design AQAP1.