# Bruce Taylor MBCS CITP- Curriculum Vitae

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**Skills Summary**

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| --- | --- |
| **Skill / technology** | **Level** |
| C++, C | Expert |
| Python (3.x/2.x) | Expert |
| C# | Intermediate |
| System C / TLM 2.0 modelling | Intermediate |
| Javascript | Intermediate |
| Linux applications | Expert |
| Linux kernel/device drivers | Expert |
| Object-oriented design, UML | Expert |
| Networking technologies inc. TCP/IP, UDP | Expert |
| ZigBee, ZigBee Pro | Expert |
| Buildroot, Yocto | Intermediate |
| SQL, Oracle, MySQL, Sqlite | Intermediate |
| Jenkins, Git, Subversion | Intermediate |
| Agile / Scrum | Intermediate |
| HTML, CSS, Amazon AWS Hosting services (EC2, S3, EBS, CLI) | Intermediate |
| Unit-test, Test-driven development (TDD), Behavior-driven development (BDD) | Expert |

# Experience Summary

**Tadintune Limited, Taddington, Derbyshire**

*June 2018 to present*

Projects:

* Devtank Limited (April 2019 to August 2019)
  + Autoclave controller
  + Python (3.x), Embedded Linux (buildroot), bare-metal, C, ARM, STM32, libopencm3, GTK3,  
    bare-metal device drivers, SPI, RTD temperature probes, Raspberry Pi Compute Module
* Intercept IP Limited (January 2019 to April 2019)
  + Device bring-up and end-of-line production tests for a telematics device (iMX6-based)
  + C, Embedded Linux, Python, iMX6, Yocto, BSP, CAN, I2C, I2S, Bluetooth, GPS, GSM,

Linux device drivers

* Intelligent Gaming Limited (June 2018 to December 2018)
  + Linux development, iMX6 board bring-up, implementation of serial, SAS, network interfaces between casino back-end and slot machines.
  + C++14, Embedded Linux(buildroot), Python, iMX6, Linux device drivers
* Internal:
  + Python (3.7), Django
  + STM32, bare-metal, FreeRTOS, device drivers
  + ARM, Embedded Linux (buildroot)

## Satixfy Space Systems UK, Cheadle

*January 2018 to June 2018*

Design and implementation of satellite modem software, Linux daemons and drivers for Linux, FreeRTOS, boot loader and U-Boot for satellite terminals using a custom ASIC (MIPS Interaptive CPU).

C, C++11, bare-metal “OS”, FreeRTOS, Linux, MIPS, Python

Scrum/Agile development process,

Test Driven Development/unit test of firmware

## Micron Europe Limited, Cheadle

*June 2013 to January 2018*

Firmware architecture, detailed design and implementation of firmware for a 3D Crosspoint storage device using an (Altera) FPGA controller.

C, C++, Python, bare-metal “OS”, FreeRTOS, Linux, ARM, iMX6, Greenhills Integrity, device drivers

Scrum/Agile development process,

Test Driven Development/unit test of firmware

Developed models of hardware components including PCIe and advanced DRAM devices

SystemC / TLM2.0, C++ 11, STL, Boost, QEMU

PCIe (HW level) and DRAM internals

Accellera SystemC, Synopsys Platform Architect

Unit test/integration test of models

Firmware architect designing an FPGA-based embedded controller for an emerging DRAM device.

C, C++ 11, STL, bare-metal “OS”, Eclipse, Tensilica Xtensa CPU

Software architecture, design, implementation and verification for a virtualised flash storage appliance.

Linux, C, C++, STL, Boost, ZMQ, Sqlite, Eclipse, TDD

Python, behave, BDD

PCIe, NVMe, Linux device drivers

OO design, UML and Enterprise Architect

## Dyson, Malmesbury

*March 2013 to June 2013*

Implemented firmware to control brushless DC (BLDC) motors used in a prototype for the Eye360 robot vacuum cleaner.

C, assembler, MSP430X microcontrollers, IAR Workbench

BLDC motors

UML

Unit test, MISRA C 2004, IEC 61508

## NXP Laboratories UK Ltd., Sheffield (formerly Jennic Ltd.)

*November 2010 to February 2013*

Design and implementation of extensions to an automated, distributed test system that is used to test wireless protocol stacks (an application I originally designed and developed in 2008). Improvements were made to enhance performance and to support larger mesh networks.

Development of wireless firmware: Zigbee Pro stack, NXPs proprietary JenNet IP stack and their prototype Smart Lighting/Home Automation software.

C#, C++, WinForms, Python, XML, Windows, embedded C, Eclipse IDE, GNU toolchain (GCC, GDB)

Zigbee Pro, 6LowPAN, IPv6, JenNet IP, IEEE 802.15.4 wireless networking

Subversion, Git

NXP (Jennic) 51xx wireless microcontrollers

Wireshark protocol dissectors

UML

Unit test, integration test

## A.M.Bromley Ltd., Buxton

*July 2012 to September 2012*

Design and implementation of a log data analysis and summary application for A.M.Bromley’s “Tyre Monitor System” that automated processing of multiple vehicle data logs to detect and report alarm/excursion conditions.

Key technologies:

C#, WinForms, Visual Studio, unit test (TDD), integration test

## IBM Manchester Lab

*June 2010 to November 2010*

Development of vSCSI device-drivers related to Trusted Computing for the IBM POWER 7 VIOS (hypervisor) and AIX

Key technologies:

C, IBM VIOS, AIX, POWER7, vSCSI device-drivers

1. Hypervisors, Trusted Computing
   * 1. Eclipse IDE, Git

## DeltaRail Group Ltd

*April 2009 to May 2010*

Design and development of a virtual network replacement (AVN) for a legacy physical network in the Integrated Electronic Control Centre (IECC) railway signalling control system.

Key technologies:

C++, Python 2.6, Qt4 and QtScript (Javascript) on IECCLinux and MS Windows

1. OO design, UML and Enterprise Architect
   1. Subversion, Perforce
      1. GNU toolchain (GCC, GDB)
      2. Unit test/integration test

## Jennic Ltd

*June 2007 to December 2008*

Design and implementation of a distributed and automated regression test system in Python for testing networks of wireless devices.

Development of IEEE 802.15.4, Zigbee and Zigbee Pro protocol dissectors for Wireshark.

Key technologies:

Python scripting, XML, wxPython, Pyro, C and C++

Linux, Windows XP, embedded C, GNU toolchain (GCC, GDB), Eclipse IDE

Zigbee, Zigbee Pro, IEEE 802.15.4 wireless networking

Subversion and CVS

Jennic 5121, 5139 and 5148 wireless microcontrollers

Wireshark protocol dissectors

## Corus Engineering Steels

*February 2004 to May 2007*

Design and implementation of several soft real-time systems for major steel works in Sheffield and Rotherham. Projects included:

* Rolling mill database and material tracking system (designer and team lead)
* Analytical labs database and sample tracking system (designer and team lead)
* Test laboratories database and sample tracking system (designer and team lead)
* Melting shop database and material tracking system
* Data capture and analysis from plant devices (weighers, X-ray gauges, temperature gauges etc..)
* Performance testing of database systems

Key technologies:

Delphi, Report Builder, Windows, OpenVMS, Fortran, Python scripting

Oracle 8i and 9i, SQL, PL/SQL using alerts, triggers, shared tables

## Teleca, Macclesfield

*September 2002 to February 2004*

Developed SDK examples for Nokia for their Series 60 and Series 90 operating systems (based on Symbian OS). Ported application code from Series 60 OS to Series 90. Implemented the security engine for Nokia 9500 PDA phone (Symbian Series 80 OS). Developed automated tests for 9500 phones using the in-house test suite.

Python for Nokia Series 60

Nokia Series 60, 80 and 90 OS, Symbian OS, Symbian C++, Java, ARM

Bluetooth, WAP push, audio streaming, animation, phone security, Perforce

## Symbian Ltd., London

*June2002 to September 2002.* Design and unit/integration test of ETelSim telephony stack component for Symbian OS 7.0s and 8.0.

Symbian OS, Symbian C++, Perforce, ARM, GNU toolchain

## Jennic Ltd, Sheffield

*January 2000 to March 2002*

Main duties: Team leader/mentor, software design, implementation, documentation and test. Main projects:

Design/development of firmware for new 802.11 chipset, new Bluetooth chipset, Linux and RTOS device drivers for ATM chipset supporting AAL2 & AAL5

Design/development of company timesheet and HR database using Python, HTML, Javascript, MySQL

Python, wxPython, HTML, Javascript, C++, MySQL

Linux device drivers, Windows XP development, Red Hat eCos, UML, ARM, x86

### Blue Wave Systems, Loughborough

*September 1999 to December 1999.* Developed a vxWorks Board Support Package (BSP) - ported vxWorks to target board; bootstrap code, device drivers and interrupt service routines.

C, C++, Power/PPC CPU, assembler, vxWorks

### Hewlett Packard, Optical Communications Measurement, Böblingen, Germany

*January 1999 to July 1999.* Designed and implemented software to support legacy modules in new optical test equipment (OmniBer product).

vxWorks, C++, device drivers, ClearCase, Motorola 68K

### Joy Mining, Wigan

*March 1998 to December 1998.* Design and development of an embedded Roof-Support control system (for “Longwall” coal mining).

vxWorks, C++, device drivers, PVCS, x86

### Matra Marconi Space, Stevenage

*December 1997 to March 1998.* Ported satellite base station management software from Unix/C/C++ to OpenVMS.

Unix, Open VMS, C++, RCS

### Kværner Metals, Sheffield

*July 1996 to November 1997.* Design/implementation of communications links between Kværner control system, Kværner control equipment and 3rd-party equipment.

vxWorks, C, C++, device drivers, SourceSafe, 68K

### Southern Electric PLC. Maidenhead

*April 1996 to July 1996.* Refactoring GIS and middleware software to improve system performance. Testing of middleware to ensure performance targets met.

Unix, Motif, C++, SQL

### British Steel Ltd. Teesside

*March 1995 to March 1996.* Implementation of heating models for furnace control.

C++, OpenVMS, device drivers, VAX Alpha assembler

### United Engineering Steels Limited, Rotherham

*October 1994 to March 1995.* Development of analytical laboratory database.

DEC VMS, DEC VAX, FORTRAN, RDB

### Centre for Process Systems Engineering, Imperial College, London

*August 1991 to October 1994,* Developed scheduling software for batch production plants. Teaching and support for post-graduate students.

C, C++, Solaris, Motif, Unix

### Peak Systems Design Ltd., Sheffield

*January 1989 to July 1991,* Developed soft real-time systems for tracking material in steel mills.

DEC PDP-11, RSX-11M-PLUS, CORAL-66, FORTRAN

### Ferranti (Oil and Gas division), Wythenshaw

*March 1988 to December 1988,* Well-head logging and control systems development.

Ferranti OSC-245, CORAL-66, Assembler

### Peak Systems Design Ltd., Sheffield

*January 1987 to March 1988,* Developed soft real-time systems for tracking material in steel mills.

DEC PDP-11, RSX-11M-PLUS, CORAL, FORTRAN

### Bridos Ltd., Bradford

*March 1985 to December 1986,* Developed accounts, database and online booking system for travel agencies.

Multi-user CP/M, BASIC, Z80 assembler, PRESTEL

### Sheffield Local Education Authority

*February 1984 to February 1985,* Development of educational software, technical support, in-service training.

BBC micros, BBC BASIC, 6502 assembler