

Curriculum Vitae - Gordon Williams

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Contact Information

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Personal

Date of Birth : 3rd January 1983
Nationality : English
Other : Full UK Driving Licence

Qualifications

University Qualifications

Obtained at Cambridge University, England

2:1 Computer Science Tripos Hons Degree (DDH)

IB group project re-implementing 'Logo' in Java

Final year dissertation on recreating a textured 3D model from a series of 2D images (see

<http://www.rabidhamster.org/scan.php>)

Work-related Qualifications

Cadence Project Management, Learning Tree Beginners C++,

Doulos VHDL, Adaptis Interview for Success

A-Level Qualifications

Obtained at Hitchin Boys' School, Herts.

A Maths

A Further Maths

A Physics

A Computing (progressively-loading 3D web browser in Delphi for project)

Attended advanced maths course at Eton, maths course at Royal Holloway, Crest technology competition (with a group technology project), and the British Science fair in London (with a 3D web browser).

GCSE Qualifications

Obtained at Hitchin Boys' School, Herts.

A* Physics, **A*** Maths, **A*** Technology (LPT port relay & input box produced for project), **A** Biology, **A** Chemistry, **A** German, **A** Geography, **B** English, **C** Latin

Skills

Software

- Windows, Linux and Mac OS X software development experience
- Current: C++, C, JavaScript, Objective C, Java, C#, Delphi, Pascal, Visual BASIC, BASIC, PHP, Python, ML, Assembler (x86, ARM, PIC) and Bash
- Experience of optimizing compiler/assembler design, hardware simulation, graphics, SQL, XML, XSLT, JSON, XPath, HTML, CSS, jQuery, AJAX, X, GObject, GTK, MFC, C++ STL, COM,

- AWT, Swing, networked applications, AI, and other areas.
- Large amount of graphics experience, mostly with OpenGL, but also OpenGL ES 1/2, WebGL, DirectX, and creating renderers from scratch (both raytracing and scanline). Experience of porting GL to GLES & WebGL
- iOS and Android development, specialising in OpenGL ES2 graphics

Hardware

- ARM, PIC and AVR (via Arduino) Microcontrollers
- Altera & Lattice FPGAs (Verilog and VHDL)
- Circuit design, PCB Layout, etching and manufacture, prototyping with strip/pad board
- 3D Printing, Fabrication, MIG, TIG and Arc welding

Employment

Since 2000 I have created and sold the following software:

Espruino JavaScript Interpreter (<http://www.espruino.com>)

A JavaScript interpreter for low-memory ARM microcontrollers (8kb RAM and above). Entirely self-contained, requiring only a serial terminal in order to write software.

Morphyre Music Visualiser (<http://www.morphyre.com>)

Personal and Professional versions. Over 7800 copies purchased to date, with versions for Linux, Mac OS X, Windows and Android.

R4 (<http://r4.rabidhamster.org>) and **R2** (<http://r2.rabidhamster.org>) **Music Visualisers**

Installed in many venues worldwide, with the engine licensed to another company for inclusion in their products.

Full-time work, most recent first:

November 2009 onwards : Pur3 Ltd : Director, Full-time,

- Development, Documentation, Support and Sales of Espruino JavaScript Interpreter (for ARM uCs)
- Produced, ran, and shipped two successful Kickstarter campaigns (with £100,710 and £67,531 of funding) for the Espruino JavaScript interpreter boards
- Development, Documentation, Support and Sales of Morphyre 3D Graphics Software on Linux, Mac OS X, Windows and Android (C++, with Java & JavaScript)
- Development of www.morphyre.com Scene Designer website (AJAX, JavaScript, WebGL, PHP, MySQL)
- Development of complete Digital Signage Solution for Shahmoon TV and StreetAd (www.streetad.tv), including automated OS installation, Screen Software, and Website with invoicing, status monitoring, and web-based advert designer (Linux, C++, Java, Python, PHP).
- Consultancy for BioNext: Software for analysis of molecules (tessellation and calculation of Alpha Shapes, volumes and surface areas, photorealistic real-time 3D graphics)
- iOS Consultancy for NEXINT: GLES-based page turning animations for eBook reader
- iOS Consultancy for NEXINT: realistic animated 3D globe and map of France, with statistics, 3D models and animations
- Analysis and modifications of existing OpenGL Radar Visualisation code for Curtiss Wright, as well as OpenGL training.
- Motion Capture R&D for The Imaginarium. Comparison of multiple sets of Motion Capture Data, and a tool for Data Format conversion.

November 2009 – February 2010 : Pur3 Ltd : Consultancy for BioNext. Producing Java-based OpenGL 3D Molecule Visualisation Engine with real-time shadows, ambient occlusion, depth of field, Billboards and stereoscopic output.

September 2008 – June 2010 : Contracting as Pur3 Ltd : Working for Collabora Ltd on the window manager for the Nokia N900 Linux-based (Maemo) smartphone. This involved Embedded Linux work with X, OpenGL ES and Clutter. Originally 9 months, extended twice.

April 2006 – September 2008 : Contracting as Pur3 Ltd : Working for CAD Schroer Ltd. Originally a 7 month contract, extended 4 times.

- 2D/3D sports analysis package (Java, OpenGL, SQL, XML)

- Football player tracking tool – mapping camera pixels to a 2D pitch (C#)
- Web-based data graphing tool (HTML, PHP, GDlib)
- Hierarchical 3D Structure analyser and editor (C++, OpenGL, XML (MSXML), COM, MFC, STL)

August 2005 to March 2006 : Working for Tenison EDA (www.tenison.com) developing a Verilog/VHDL to C compiler for fast hardware simulation (C++ and ML)

May 2005 : Visuals design for Microsoft and Warner Bros to advertise 'Batman Begins' film (C++ and DirectX)

December 2004 : Modification of R4 visuals for embedding in another company's product line.

August 2004 – August 2005 : Working at Altera UK (www.altera.com) on a High Level Synthesis compiler, converting SystemC to VHDL.

- Compiler now shipped with Altera's Quartus development software
- Produced demos and tutorials for compiler including:
 - hardware textured triangle renderer,
 - image/video filters,
 - hardware raytracer.
- Trained FAEs on tool usage and advantages
- Used the tool to generate published IP for Altera FPGAs:
 - 270Mhz, 32-bit, 32, 16 & 8 point pipelined FFT (one complex pair per cycle)
 - 300Mhz, 32&16-bit, 256, 512 & 1024 point sequential FFT (one butterfly per cycle)
 - Sections of WiMAX uplink and downlink

Summer 2003 : Working at Cambridge University Computer Lab to produce hardware practical classes based on Altera Excalibur EPXA1 demo boards (FPGA with integrated ARM processor) for second year students (Part IB). Available at <http://www.cl.cam.ac.uk> - Sponsored by Altera.

April 2003 : Creation of a program to listen for specific sequences of tones on a CB radio and record the voices afterwards. Commissioned by an American volunteer fire service. (C++)

March 2003 : Creation of realtime visuals system for a 40ft video wall at 'The Beach' nightclub in Miami. Programming in Delphi

November 2002 : Creation of a 45-minute, scripted set of realtime 3D Visuals for a health spa in Thailand. Programming in Delphi

March 2002 : Creation of realtime 3D Visuals for the launch of a new BBC TV series - "Ace Lightning". Also used in the BBC's promotional Video. Programming in Delphi

February 2001 : Realtime 3D visuals for the launch of Gainward graphics' new video card (ti4600) at the CeBit technology show in Hannover. At the time the fastest consumer 3D Video card ever produced. Programming in Delphi

Summer 2001 : Creation of tools to load and save settings in games for Xcession CyberCafe

Summer 2000 : Reimplementation (in Windows) of in-house tools (previously DOS) for hardware/software development company Rotork Instruments. Included schematic (and other) file format conversion, execution of tools, project directory management, etc. programming in Delphi.

GCSE Work experience & Summer 1999 : Pre-compiler for Lattice GDX crosspoint switches in WSP's year 2000 compliance tester at Rotork Instruments. The tester was a portable device that clipped over the processor/RAM/ROM/RTC ICs in a system, and monitored program execution at up to 60mhz clock speeds. The pre-compiler co-ordinated re-routing of IC pins to a large FPGA, including multiplexing address high/low and data, and produced VHDL as an output. Programming in Delphi and Visual Basic.

1998 : Production of ROM-emulator PCBs for Lawtant Ltd.