

# Curriculum Vitae

**Name** Richard Tonge  
**Date Of Birth** 23/04/78  
**Location** Oxford, United Kingdom  
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**Education**

GCSE  
A\*,A\*,A\*,A\*,A ,A ,A ,A ,B ,B

A Level  
Mathematics A  
Computer Science A  
Physics B

Degree  
Graduated 1999. St Hugh's College, The University of Oxford  
BA Computation 2i

**Projects**

A-Level Project (1995-1996)  
Developed 2D scrolling games engine and tool chain in ARM assembler.  
Third Year Degree Project (1998-1999)  
Implemented Talisman-style PC graphics accelerator.  
3D scene compositor / warp hardware developed.

**Experience**

MathEngine (1999-present)  
Analyzed performance and optimized PS2 rigid body dynamics engine.  
Optimized collision detection engine for PS2 to minimize cache misses.  
Implemented physics solvers in VU0 microcode.  
Researched and developed LCP algorithms for simulation of articulated rigid bodies with friction.  
Developed new physics engine from scratch for Karma 1.3.  
Supported technical marketing, optimized games at client sites.

Motorola European Research Laboratory (long vacations 1997-1998)  
Assisted research of formal methods, developed compiler.

**Published games**

The following games utilize the technology I developed while at MathEngine.

Unreal Tournament 2003 (2002,PC)  
Enter The Matrix (2003,all formats)  
Conflict: Desert Storm (2002,all formats)  
Primal Image (2000, Playstation2)  
Downforce (2002, Playstation2)  
The Simpson's Skateboarding (2002,Playstation2)  
Big Mutha Truckers (2002,Playstation2)

**Conferences Presented**

Sony Computer Entertainment Europe Developer Conference 2000,  
"Optimization of LU decomposition for PS2 vector units."  
Sony Computer Entertainment America Developer Conference 2001,  
"A trip down the physics pipeline."

**Skills**

Assembly Languages - MIPS, VU microcode, ARM  
Imperative Languages - ANSI C (highly proficient) C++ (familiar)  
Tools/Libraries - D3D, OGL, RenderWare, Karma, Matlab  
Functional Languages - Haskell, Standard ML