

Mark Final BSc (Hons) AMIMA

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Birth Date 29th April 1976

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EDUCATION

University of Hertfordshire

College Lane, Hatfield, Herts, AL10 9AB

First class honours degree in Mathematics with final year project entitled “Lagrangian and Hamiltonian Systems” (1997).

Kings Langley Secondary School

Love Lane, Kings Langley, Herts, WD4 9HN

A-levels (1994): Mathematics (A), Physics (A), Art & Design (C).

GSCE (1992-3): 10 A-C subjects including Mathematics, English and the Sciences.

PROFESSIONAL SKILLS

- Self motivated, time management, determination, proactive. As an entrepreneur, I have had to hone these skills in order to achieve my goals.
- Experience in the visual effects industry as a software engineer from 2010–15, with various Foundry product code bases and practices.
- Experience in the games industry as a graphics software engineer from 2000–10. Led, or helped developed, four generations of graphics technologies used by Electronic Arts world wide studios, most notably on PlayStation 3.
- Working knowledge of C, C++ (‘98 and ‘11 standards) and C# (up to 6.0), including VisualC++ 2005-2015, GCC, Clang, .NET and mono toolchains.
- Source control experience of git, svn, cvs, Perforce; including creating and administering the Foundry’s Perforce server (including disaster recovery) from scratch.
- Experienced in GLSL, HLSL, Cg, and assembler shader programming languages, OpenGL 1–4 (GLW/GLX/Apple backends), Direct3D (v6–9 on Windows, and Xbox360), and libgcm on PlayStation 3. Experience with GPU profiling tools, such as PIX, NVPerfHUD, and GPAD, to identify bottlenecks. Some recent experience in CodeXL for OpenGL.
- Written (C++) code to procedurally generate RSL and RIB files for RenderMan.
- Developed rendering technology in a test-driven environment.
- Work effectively both in a team and as an individual, and am competent communicating in written and oral mediums.
- Managed, and technically led and mentored junior engineering staff.
- Other skills include an interest and experience of build systems, including having written my own; writing technical documentation; compiler best practices; code reviews; test driven development.

WORK EXPERIENCE

Entrepreneur

Working from home

From: July 2015 **To:** Present

I funded my own development time. My goals were to complete my build system, BuildAMation, and publish as open source; and to develop and publish a cross-platform desktop animation application integrating realtime and offline REYES rendering suitable for students/amateur/enthusiast artists wanting to create CG shorts. Both projects are now available online from:

- <http://buildamation.com>
- <http://director.markfinal.me.uk> with videos at <https://vimeo.com/user58998164/videos>.

Director is a C++11 Qt5 application, integrating open source standards such as OpenGL, Open Shading Language, OpenImageIO, sqlite, libgit2, curl, and openssl. It is compatible with Pixar's PRMan renderer. In writing the whole application by myself, I have had hurdles to overcome including time management, problem solving, working alone, complexity management. However, I was also empowered by having full control of the direction of the product. I am very happy to have completed a first pass, and have made the software publicly available, while I iterate on bug fixing and finalizing features for the first official release.

In addition to writing the desktop software, I also developed a cloud based licensing solution used in Director, written in PHP and MySQL.

The Foundry VisionMongers Ltd

5 Golden Square, London, W1F 9HT

From: April 2012 **To:** July 2015

I was promoted to lead DevOps engineer, responsible for continuous integration, automated testing, build scripts, source control, crash reports.

- Known as the 'go to' guy for problem solving, particularly build scripts.
- Created and administered a new Perforce server, migrating existing source control to it.
- Created the crash reporting system, based on Google's Breakpad.
- First experience of management, with a small team of three other engineers.

The Foundry VisionMongers Ltd

5 Golden Square, London, W1F 9HT

From: June 2010 **To:** April 2012

I was a software engineer for the 3D painting projection application, Mari. I completed the Windows port, implemented Ptex support, and implemented PSD support, as well as general bug fixing and advice to QA and support.

- Strong team member, with good communication skills. Jointly responsible for daily reports to collaborating offsite developers and code merges between sites.
- I have stood in for the lead engineer when required.
- Good relationships with users, including Pixar and Lucas Film.

Electronic Arts *Onslow House, Onslow Street, Guildford, Surrey, GU1 4TL*
From: December 2009 **To:** May 2010

I worked for Criterion Games, at their request, enhancing their rendering engine to become a multi-threaded/-CPU solution for Xbox360 and PlayStation 3, that was used in the "Need For Speed: Hot Pursuit" title.

Electronic Arts *Onslow House, Onslow Street, Guildford, Surrey, GU1 4TL*
From: July 2004 **To:** December 2009

I worked at EATech (formally Criterion Software), a central technology group supporting world wide game teams at Electronic Arts.

- Senior member of the technology team at EATech UK. Lead engineer for graphics technology for development and support, specializing on PlayStation 3.
- Developed PlayStation 3 graphics technology, collaborating with EA teams to create the FightNight demo shown at the PlayStation 3 launch in 2005.
- Involved with, or advised on, many other game titles, including Burnout Paradise, Skate (1–3 & It), Mirror's Edge, Need For Speed Prostreet, Fight Night 3, Tiger Woods.

Criterion Software *Westbury House, Bury Fields, Guildford, Surrey, GU2 4AZ*
From: April 2001 **To:** July 2004

I worked in the graphics team at Criterion, developing RenderWare 3 and 4 middleware, for Direct3D7–9 and OpenGL (Windows/macOS).

AAA Game *5th Floor, Crown House, Linton Road, Barking, IG11 8GH*
From: March 2000 **To:** March 2001

At AAA Game I was a games programmer, developing the Direct3D 6 engine for PC CD-ROM titles.

University of Hertfordshire *Address above*
From: October 1997 **To:** February 2000

After graduating, I taught A-level standard mathematics to engineering undergraduates, and researched numerical optimization techniques. In the 1998–9 academic year I was course leader on a second year module in the Mathematics degree teaching Fortran 90.

MAIN PROGRAMMING LANGUAGES

C++ ('98 and '11 standards), C, C#, Python

ADDITIONAL LANGUAGE EXPERIENCES

x86 assembly languages, \TeX , $\text{\LaTeX 2}_{\epsilon}$, Make, Java, PHP, MySQL, HTML.

KEY SKILLS

Self motivated. Enjoys a challenge. Proactive. Good time keeping. Correctness and consistency. Key team member. Share information. Evaluate new technology and hardware. Documentation. Code reviews. Efficient code and processes. Profiling bottlenecks. Best use of toolchains.

INTERESTS, RESPONSIBILITIES AND NOTABLE ACHIEVEMENTS

- An associate member of the Institute of Mathematics and its Applications.
- I am a member of the Institute of Advanced Motorists, having passed the advanced test in October 2007.
- In February 2007, I was one of the employee representatives for EATech during a redundancy consultancy period.
- Throughout February 2000, I backpacked along the Sunshine Coast of Australia from Brisbane to Cairns.
- While at University, I was a member of a team competing at the British Computer Society Programming Competition, from 1998 to 2000.
- I won a programming competition in 1999 in Acorn User magazine, writing a 3D graphics demo in C++ on RISCOS on a StrongARM.
- My professional interests including dabbling in computer graphics techniques, technical typography with $\text{\LaTeX 2}_{\epsilon}$, developing graphics engines and build systems.
- My leisure interests include playing the piano, driving, cooking, science fiction, astronomy, origami, movies, and spotting CGI effects.

REFERENCES

References will be provided upon request.