

2D/3D/Video Software Engineering

Platforms	Win32/Win16/DOS, Unix/Linux, VMS, AOS, MacOS-X/iPhone
Languages	C/C++/Objective-C, Perl, Java, Python/Ruby, VB, FORTRAN, Prolog, APL, Forth
Assembly	i80x86/7 cpu/ndp, i8237 dma, i8251 uart, i8253 clock, various video chipsets
Graphics	2D/3D primitives, OpenGL/DirectX, ARB/Cg/GLSL/CUDA, VRML/X3D, OpenCV, CAD, video
Networking	UDP/TCP/IP, IPX/SPX, HTTP/FTP, SMTP/POP, client/server, peer-to-peer, others
Security	PKI/RSA-PKCS/Diffie-Hellman/DES/MD5, SSL, OpenSSL/Leay, CryptoAPI
Database	MySQL/SQLite/MS-SQL, ODBC/ADO/DBI, ecommerce/authentication transactions
WebServer	IIS, Apache/Tomcat/LightTPD (Win32 & Linux), SaaS/SOA/REST/SOAP
WebDesign	CGI/ISAPI, HTML/XML/CSS, JavaScript, Flex/Flash/ActionScript, ASP/VBScript

CAREER OVERVIEW

I have been designing/implementing 2D/3D imaging systems since 1973; developed 3D CAD/GIS systems for McDonnell Douglas, Data General, and others through the 80's; created imaging/video effects plug-ins, VRML apps, and 2D/3D/video services during the 90's. My current focus is developing OpenGL iPhone apps, online GPGPU services, and optimizing skin/face-detection algorithms.

OPENSOURCE CONTRIBUTIONS

- **Portable OpenGL (POGL)** – a Perl binding written in C for: Windows (NT/XP/Vista), Linux (Fedora/Ubuntu/Gentoo), SunOS, FreeBSD and Mac OS. As primary owner, I've added support for over 60 new OpenGL extensions, including FBO/VBO and ARB-assembly/Cg/GLSL shaders. <http://pogl.org>
- **ImageMagick** – portable image processing library. Added optimized OpenGL APIs.
- **FFmpeg** – portable video processing library. Added a compositing plug-in. <http://graphcomp.com/ffmpeg>

2D/3D/VIDEO ACHIEVEMENTS

1973-1974 – Designed/implemented a **3D modeling/rendering** system w/ hidden-line-removal; supporting 3D fonts.

I created all required 3D algorithms. Written in APL on an IBM 360.

1975-1980 – Developed **3D Solar Radiation** analysis apps for Cal Poly; tutored grad math students on APL and 3D modeling. Written in APL, Basic and C.

1982-Present – Founded **Graphcomp**, providing 2D/3D/video and networking services.

1983-1986 – Developed **3D CAD/GIS** systems for Syscomp/DataGeneral and McDonnell Douglas. Written in C on AOS, Primos and VMS.

1987 – Designed/implemented **3D GPU** primitive libs for TMS34010 GPU. Written in assembler.

1991 – Created a “faster-than” **GDI** blit'g engine for Win16. Written in C.

1994 – Created a “faster-than-IE” dithering engine for blit'g images in a web browser. Written in C++.

1996 – Designed/implemented a **commercial 3D web server**. Written in C++ and VRML.

1996-1997 – Designed a **3D web authoring** app; won Best New Product at Demo '97. Written in C++.

1997 – Designed/implemented a **portable 3D primitives lib** supporting VRML/LODs. Written in Perl.

1997 – Designed/implemented a **remote-controlled 3D Avatar system**. Written in Java.

1998 – Director of Engineering of **ISDCorp, Cirrus Logics Graphics Division**.

1999 – VP of Engineering of **PhotoLoft** – first IPO'd photo-sharing company.

2000-2002 – VP of Engineering of **ClubPhoto** – first profitable online printing service.

2003 – Designed/implemented a **portable TiVo server** w/ image transforms. Written in Perl.

2005 – Designed/implemented a **portable 3D primitives lib** for NVSG/D3D/VRML. Written in Perl.

2006 – VP of Engineering of **Fabrik** – first embedded Web2.0 media-sharing appliance.

2006 – Created **new color space model**; optimizes image/video searching/sorting.

2007 – Released a **portable GPGPU** update for the Perl OpenGL module. Written in C.

2007 – CTO of **Appscio** – Actionable Video Intelligence for certain governmental agencies.

2008 – Designed/implemented a **portable OpenGL/CUDA** online service.

2008-Present – Various **iPhone applications**: OpenGL, multi-touch, accelerometer, camera, networking. Written in Objective-C.

2009 – Created **optimized skin/face detection algorithms for iPhone**: used with OpenCV. Written in C.

2010 – Submitted several **Patent-Pending Inventions** involving improvements to **Machine Vision**.

Management Resume: <http://graphcomp.com/bfree/rmf.pdf>

LinkedIn References: <http://www.linkedin.com/ppl/webprofile?id=2048259#recommendations>