

Software Engineering Management

Software Engineering / Product Development / Executive Management

Objective: leadership role in an innovative software company – establishing technical vision, developing product roadmaps, and restructuring organizations as necessary to meet business objectives.

Accomplished: successfully built and led diverse organizations comprised of hardware and software engineers, program management, artists, designers, system/network administrators, technical support, technical writers and quality assurance engineers – to produce timely, high-margin, award-winning products and technologies.

Track Record: on-time design/implementation/delivery of award winning 2D/3D/video software: embedded appliances, drivers, SDKs, desktop apps and online services.

Management Highlights

- **GRAPHCOMP – Founder and Principal Consultant** **1982-Present**
Founder of **Graphcomp** and its subsidiary **Grafman Productions**, creating custom 2D/3D/video software and services for Fortune 500 companies and municipalities in the U.S., Canada and New Zealand – including **McDonnell Douglas**, **Data General**, **AT&T**, **DEC**, **Unisys** and **eBay/PayPal**. Led 3 employees + contractors.

2D/3D/video software development for embedded appliances and mobile devices, desktop apps, browser apps (Ajax/Flash), and highly-scalable online services.

Platforms: Win32/Linux/MacOS.

Languages: C/C++/Objective-C, Java, Object-oriented Perl/Python/Ruby, JavaScript/ActionScript.

Scalable Database Architectures: MySQL, MS SQL-Server, SQLite

iPhone Development – OpenGL-ES, multi-touch, accelerometer, camera, networking:

- eBay's PayPal App – OpenGL animation
- Clydomania (available on App Store) – sole designer/developer
- BugEyes - skin/face/feature detection (Beta) – sole designer/developer
- Peer-to-peer photo-sharing and chat (under contract)
- TiVo photo/music-sharing (Beta) – sole designer/developer

Open Source Contributions:

- POGL: Portable OpenGL 3D (written in C) – Primary Contributor
- ImageMagick: 2D Imaging (written in C) – Optimized OpenGL APIs
- Ffmpeg: video libs (written in C) – compositing plug-ins

- **APPSCIO – CTO** **2007-2008**

Service startup for Actionable Video Intelligence. No direct reports.

Developed an open source roadmap for a portable service platform based on an abstracted video pipeline to support plug-in analytics for government agencies, enterprise and online consumer applications.

Led technical advocacy to video analytic vendors, researchers and OSS communities.

Hands-on development in C/C++/Java, GStreamer, Flex/Flash/ActionScript - Linux.

- **FABRIK – VPE / Technologist** **2005-2007**

Founding member of an embedded Web 2.0 media appliance startup.

We completed all software for our embedded media appliance, from start to finish, with 4 engineers within 4 months. OEM'd and launched by Maxtor/Seagate as 'Fusion' in Q3 2006. I designed/implemented all our DB and imaging/video systems, as well as our UDP publish/discovery system.

We ported our embedded media-sharing system to an online service (myfabrik.com). I created a new color space model (IHC), optimized for visual recognition – used in our video indexing/searching feature. I also created a Flash/FLV compositing plug-in for FFmpeg.

Hands-on development in C/C++/ObjectiveC, object-oriented Perl, JavaScript/AJAX, Apache, MySQL, ImageMagick/ImLib2/FFmpeg – Linux, Win32 and MacOS.

- **ADOBE – Sr. Engineering Manager / Sr. Computer Scientist** **2002-2005**

Led 20+ software engineers, in San Jose and Seattle, plus dotted-line reports in India.

Increased Adobe's revenue opportunities by establishing Adobe's Application Management Technologies team – driving a vision, roadmap and architecture to support "*mix&match suites*" – resulting in Adobe's **Creative Suites** and **Video Collections** desktop products. This allowed Adobe, for the first time, to share installed products and components across suites.

As an individual contributor, designed/implemented a scalable/distributed image server architecture for an Adobe seed project.

Hands-on development in object-oriented Perl, Java/Spring/JavaScript, Apache/Tomcat, MySQL – Linux, Win32 and MacOS.

- **CLUB PHOTO – Vice President of Engineering** **2000-2002**

Led **Club Photo**, a privately funded, online print fulfillment company, to profitability during a time of industry consolidation in 2001. Led teams in San Jose and Austin to develop e-commerce services, print lab systems, and desktop/handheld products.

Achieved 500% revenue growth per year and 50% reduction in operating costs by 1) restructuring Engineering, 2) dropping products that were not key to our business, 3) converting our manually-operated printing plant into a high-margin, automated digital plant, 4) working with Marketing to establish a product roadmap and MRD process and 5) establishing efficient engineering and production standards.

Hands-on development in C++, object-oriented Perl, JavaScript, Apache, MySQL – Linux.

- **PHOTOLOFT – Vice President of Production and Engineering** **1999-2000**

Transitioned **PhotoLoft**, a publicly traded company, from a dot-com advertising model – to a B2B photo-e-commerce Application Service Provider model – resulting in securing major retail partners, and eventual acquisition by **Canon USA**. Led 20+ engineers, web designers, QA, support and IS.

Achieved significant revenue growth, and accelerated development of custom-branded photo-e-commerce sites up to 20/month, resulting in over 150 partner sites in a 6-month period. This was achieved by 1) reorganizing the Product Management Ecommerce, Web Development and Engineering teams, 2) establishing R&D, QA Operations and Support teams, 3) and driving the roadmap and development of a low-maintenance, high-margin photo-e-commerce engine.

Hands-on development in C++/ASP-VBScript/Java/JavaScript, IIS, SQL-SERVER – on Win32.

- **ISD CORP – Director of Engineering** **1998-1999**

Executed the personnel and technology merger of our acquired **Cirrus Logic Graphics Division** – resulting in a new Video and Consumer Devices division that successfully created wireless, embedded web and graphics solutions for **Sun Microsystems, Ericsson** and **HP**. Led 20+ HW/SW engineers.

Achieved Microsoft WHQL-compliance for **Cirrus Logic, Intel, IBM** and other video system vendors. Successfully executed on-time delivery of boot/kernel/driver code and porting JavaOS for a **wireless Ericsson PDA**.

Hands-on development in object-oriented Perl, Apache, MySQL – Linux.

- **LIVE PICTURE – Director-level Manager** **1997-1998**
Executed the personnel and technology mergers of multiple M&A and office consolidations at **Live Picture**, a **John Sculley** company - resulting in the timely deployment of several award-winning and innovative shrink-wrapped 3D web authoring products, such as **Reality Studio**, **PhotoVista** and **Mobster**. Personally designed/prototyped Reality Studio and Mosbster products. Led 50+ employees.

Achieved increased productivity through product focus and process by 1) working with Marketing to establish product roadmaps, 2) establishing Program Management, managing various Engineering teams, Art design/development, Technical Publications, QA and Support.

Hands-on development in C++ - Win32.

Other leadership roles:

- **NETMANAGE** – Senior Ecommerce and Crypto Engineer 1995–1996
- **BORLAND INTERACTIVE** – Senior R&D Engineer 1994–1995
- **NOVELL / STI** – Graphics and Networking Architect 1990–1994
- **GRAPHCOMP INTERNATIONAL** – Founder & Principal 1986–1990
- **MCDONNELL DOUGLAS** – Product Marketing Engineer 1984–1986
- **DATA GENERAL / SYSCOMP** – 3D Systems Engineer 1983–1984

Published Works

OPENSOURCE CONTRIBUTIONS

- **CPAN OpenGL**: Portable 3D Module, written in C – Primary Owner
- **ImageMagick**: Portable 2D Imaging library, written in C – OpenGL Contributor
- **FFmpeg**: Portable Video Library, written in C – v-hook Contributor

BOOKS

- **Laura Lemay's Web Workshop: 3D Graphics and VRML 2**
- **VRML & 3D on the Web for Dummies**
- **Elements of Web Design**

WEB SITES SOLELY DESIGNED/IMPLEMENTED BY ME

- **Graphcomp** - <http://graphcomp.com>
- **POGL**: Perl OpenGL Developer's Site – <http://pogl.org>
- **Clydomania**: iPhone App Site – <http://clydomania.com>

Personal Technology Highlights

- 1973 – Designed and developed “**industry-first**” 3D textured/scalable font engine.
- 1976 – Authored algorithms for specular reflectance on curved mirrors.
- 1979 – Created 3D system for solar energy absorption, shading and heat radiation.
- 1982 – Designed and developed a 2D/3D vector graphics library in C.
- 1984 – Created original optimized 3D routing algorithms for cable wiring paths, used by **BellCore**, **PacificBell** and **SouthWesternBell**.
- 1986 – Designed and developed a 2D/3D raster/vector graphics library in assembler.
- 1991 – Created “**industry-first**” method of extending Windows GDI beyond a 32K memory segment, allowing **Faster-Than-Windows** BLT’g in Win3.x.
- 1993 – Created “**industry-first**” portable, transport-independent named-pipe solution.
- 1994 – Designed and published “**industry-first**” WinSock-based MUD client, with multi-threading on Win3.x, scripting language, and triggers – within a **32K footprint**.
- 1995 – Designed and developed **first deployed** client-server SLL DLLs independent of Netscape. Clean-room - all original code, including math libraries.
- 1996 – Designed and published “**industry-first**” 3D/VRML file-system web server.
- 1997 – Designed and developed “**industry-first**” LOD-adjustable 3D/VRML library.
- 1998 – Designed and published “**industry-first**” web-based, photo-realistic 3D/immersive authoring tool.
- 2003 – Designed and developed a portable TiVo-compliant media server.
- 2004 – Designed and developed a web-based playlist generator.
- 2005 – Created a portable image rendering server solution.
- 2005 – Created a scene-graph export library for NVSG, D3D, VRML1/2.
- 2006 – Created a new color space model, optimized for image recognition.
- 2007 – Designed and developed a 3D Captcha authentication system.
- 2007 – Designed and developed a scalable, distributed OpenGL server.
- 2008 – Designed and developed an OpenGL-based panorama stitcher.
- 2009 – Designed and developed peer-to-peer media-sharing for the iPhone.
- 2009 – Created optimized face/skin detection algorithms.

Technical Expertise

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, 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, OpenSSLeay, CryptoAPI
Database MySQL/SQLite/MS-SQL, ODBC/ADO/DBI, ecommerce/authentication transactions
WebServer IIS, Apache/Tomcat/LightTPD (Win32 & Linux), SOAP/REST/SaaS
WebDesign CGI/ISAPI, HTML/XML/CSS, Perl/PHP, JavaScript/ActionScript/Flex, ASP/VBScript, UI design, graphic art, audio, video, 3D animation.