

Software Engineering Management Software Engineering / Product Development / Executive Management

Objective: leadership role in an innovative software company – establishing technical vision, developing product roadmaps, building/managing distributed/agile organizations as necessary to meet business objectives.

Accomplished: created new algorithms and technologies for machine vision (face detection) and media analytics, successfully built and led distributed h/w and s/w teams of 4-50 engineers, to produce timely, high-margin, award-winning products and services.

Track Record: on-time design/implementation/delivery of award winning 2D/3D/video software: mobile devices, drivers, SDKs, desktop apps, and scalable 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.

iPod-Touch, iPhone and iPad development – including face detection, multi-touch gestures, 3D accelerometer and GPU processing.

Platforms: Windows, Linux, MacOS/iOS.

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

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

Mobile/iOS Development – OpenGL/ES, multi-touch, accelerometer, camera, networking; universal apps for iPhone, iPad and iPod Touch.

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

- **APPLE – Senior Face Recognition Researcher** **2009-2010**
Responsible for driving machine vision and face recognition technologies for various groups at Apple.

Consolidated face recognition technologies across multiple iLife products.

Worked with several hardware and software groups at Apple to develop and improve new face recognition technologies. Designed/implemented/established a standard infrastructure for evaluating face recognition technologies.

Conceived/developed 9 machine vision patent applications submitted by Apple.

Hands-on Mac OS X Objective-C and universal framework development.

- **APPSCIO – CTO** **2007-2008**
Service startup for Actionable Video Intelligence.

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.

Correlated face recognition with speaker/voice recognition to significantly improve people recognition for certain government agencies.

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

- **FABRIK – VPE / Technologist** **2005-2007**
Founding member of an embedded media appliance startup.

Created new media analytics for sorting images/video by visual similarity.

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.

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

Robert M. Free

<http://www.graphcomp.com/bfree>
bfree@graphcomp.com

15732 Los Gatos Blvd, #536
Los Gatos, CA 95032
408-812-1952

- **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.

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- **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

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 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.
- 2010 – Submitted several **machine-vision** patent applications.
- 2011 – Created a proprietary GPU-enhanced face detection library.

Technical Expertise

Platforms	Win32/Win16/DOS, Unix/Linux, MacOS/iOS iPod-Touch/iPhone/iPad
Languages	C/C++/Objective-C, Objected-oriented Perl/Python/Ruby, Java, 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
Vision	Skin-tone filtering, face detection/matching/clustering, 3D synthesis, lighting attenuation
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, CryptoAPI
Database	MySQL/SQLite/MS-SQL, ODBC/ADO/DBI, ecommerce/authentication transactions
WebServer	IIS, Apache/Tomcat/LightTPD (Win32 & Linux), SOAP/REST/SaaS