

**Silicon Valley Expert Witness Group, Inc.
Consultant Curriculum Vitae**

Michael S. Kogan, Sc.D.

Expertise

- Operating Systems
 - Embedded Systems
 - Computer System Architecture
 - Microprocessor Architecture
 - I/O Technology and Device Drivers
 - Hardware, BIOS, and Buses
 - Non-Volatile (Flash) Memory
 - Power Management
 - Wireless Networking
 - Internet and Web Technologies
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Professional Summary

Twenty-eight years with primary focus on PC and embedded systems product development. Specialized skills in operating systems and system software, cross-platform system software, computer platform and microprocessor architecture, consumer electronics, network technologies, device drivers and hardware support, and project management/planning. Significant experience leading product development teams, as a consultant, and as an expert witness in support of technical litigation.

Coauthor of the book *The Design of OS/2*, which describes the motivation, design, and internals of the 16-bit and 32-bit OS/2 systems. Freelance writer published in the *IBM Systems Journal*, the *Personal Systems Developer*, *OS/2 Professional*, *Electronic Entertainment*, and *Byte Magazine*. Senior Editor and feature writer for *OS/2 Professional* magazine. Member of the ACM and the IEEE.

Employment History

From: 07/1992 **Kogan Technology**
To: Present Jacksonville, FL
Position: *President*

President. Management and technical responsibility of business providing expert consulting services in the embedded, internet, and desktop sectors. Consulting services include expert support of technical litigation, technical analyses, operational and feasibility assessments, and software/hardware design and development. Recent activity includes technical and expert support of intellectual property cases, including claims analysis and construction, deposition preparation, expert opinion, code analysis, prior art search, and analysis. Recent development activity includes web programming utilizing object-oriented web 2.0 technologies such as Ruby on Rails and CakePHP in CRUD applications.

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From: 06/1997 **Cygnus Solutions/Redhat.com**
To: 12/1998 Atlanta, GA
Position: *Director of Engineering*
Created, staffed, and directed the Atlanta-based software development center for Sunnyvale, CA-based company specializing in support of Open Sourceware and the GNU tools for embedded and desktop environments. Responsibilities included engineering direction and management for Cygnus's cross-platform Integrated Development Environment (IDE) product, and Cygnus's board support tools for enabling rapid software development on multiple embedded hardware platforms. Successfully shipped the Foundry 1.0 and 1.1 products for the GNU tools on MIPS, PowerPC, and other microarchitectures on time and defined next-generation embedded tool directions. Cygnus Solutions was purchased by Redhat.Com in January 2000.

From: 06/1996 **Ratio DesignLab, Inc.**
To: 03/1997 Atlanta, GA
Position: *Senior Programmer/Manager*
Led team to develop and test an advanced software pager for Motorola based on an embedded ARM7T (Thumb) processor, FLEX radio, 240x160 LCD w/touchscreen, and infrared communications. Ported Ratio's MDSOS embedded operating system to the ARM7, ARM7T (Thumb), and Motorola 68k architectures. Innovated modifications to ARM tools to support position-independent reentrant link units. Developed software drivers and debugged wireless reference platform hardware that supports multiple CPU architectures (x86, m68K, ARM). Implemented unique embedded flash boot management and file systems technology.

From: 05/1995 **Motorola Corporation**
To: 06/1996 Boynton Beach, FL and Atlanta, GA
Position: *Chief Architect*
Led the design and implementation of MEMOS, a portable embedded operating system for one- and two-way wireless platforms (Motorola PageWriter 2000). Responsible for the kernel, device drivers, storage mechanisms, power management, and system API. Exploited flash memory technology to create a unique minimal memory footprint that used flash as both a ROM and a non-volatile storage mechanism for messages, programs, and graphics, reducing system cost and improving system reliability. Managed and educated team of young talent into professional software developers.

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- From: 02/1993 **Digital Design, Inc.**
To: 05/1993 Jacksonville, FL
Position: *Vice President of Research & Development*
Complete responsibility for direction and management of DDI's MICR-based laser check printing products and multifunction technology that integrates a PC, FAX, laser printer, and scanner in a single unit. Defined multiplatform strategy to enable DDI's MICR-based laser check printing products for Windows 3.X, OS/2 and Windows NT, and managed development team. Put in place software architecture for enabling multifunction systems combining PC, FAX, laser printer, and scanner capabilities to run off-the-shelf software in the Windows 3.X, OS/2, and Windows NT environments.
- From: 06/1984 **IBM Corporation**
To: 07/1992 Boca Raton, FL
Position: *1991-1992: Technical Staff for OS/2 programming area*
Resolved key design and implementation issues for OS/2 2.0 delivery. Provided technical and strategic briefings for customers. Technical interface to trade press and independent software vendors. Provided technical direction for implementation of OS/2 multimedia extensions. Performed advanced technical research and prototyping for future systems. Also represented IBM in a consulting capacity with IBM customers throughout the world who are moving to the OS/2 platform, and as a speaker at OS/2 technical seminars and public forums.
1987-1991: Lead Architect for 32-bit version of OS/2
Includes overall design responsibility for kernel, subsystems, 32-bit API, compatibility architecture, and performance. Implemented prototype 32-bit systems and provided new designs in multitasking, memory management, interprocess communications, and compatibility areas. Provided high-level and low-level design documentation, complete product specifications, invention disclosures, and patent filings.
1985-1987: Lead Developer for 16-bit OS/2
For the design, development, and testing of 16-bit OS/2. Main areas of responsibility include device drivers, memory management, debugging, queues, DOS compatibility, system initialization, and BIOS support.
1984-1985:
Responsible for the development and testing of several products in the IBM Engineering/Scientific software series. Included testing of a DOS-based FORTRAN compiler, and development and testing of DOS device drivers for IEEE-488 (GPIB) card and Data Acquisition card. Also led the effort to redesign the device driver architecture and interrupt manager of IBM PC/XENIX 2.0 for the Intel 80286 processor, and developed and tested several XENIX device drivers.

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From: 1983 **IBM Corporation**
To: 1984 Atlanta, GA
Position:
Demonstrated and wrote scientific application programs for the S/9000 microcomputer under the CSOS operating system. Ported mainframe applications from major research centers to the S/9000 for benchmarking and testing in a microcomputer environment. Interfaced the S/9000 to several analog measuring instruments utilizing the IEEE-488 bus.

Litigation Support Experience

Date: 2009 **Alston & Bird LLP**
Case Lenovo v. Shuttle
Project: Technical expert consulting in areas of POST, BIOS, and system initialization. Providing claims analysis, construction, and opinion.
Status: Ongoing

Date: 2009 **Vanek, Vickers, Masini PC**
Case Graphon v. Juniper
Project: Technical expert consulting on remote application and firewall products. Providing claims analysis, construction, deposition preparation, opinion, and testimony.
Status: Ongoing

Date: 2006-09 **Morrison & Foerster LLP, Jenner & Block LLP, Quinn Emanuel
Urquhart Oliver & Hedges, Howrey LLP, et al.**
Case Adams v. Fujitsu, Sony, Dell, MPC, Winbond, Asustek, Quanta, MSI, National Semiconductor
Project: Expert technical consultant in floppy diskette controller litigation alleging patent infringement. Providing expert consulting on technology, claims analysis, reverse engineering of legacy products, deposition preparation.
Status: Ongoing

Date: 2008-09 **Jones Day**
Case Superspeed LLC v. IBM
Project: Technical expert consulting on cache technology in parallel and distributed processing environments. Worked on claims analysis, technical background, and deposition preparation.
Status: Complete

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- Date: 2008 **Ropes & Gray LLP**
Case e.Digital v. LG Electronics et al.
Project: Technical expert consulting on cache technology in parallel and distributed processing environments. Worked on claims analysis, technical background, and deposition preparation.
Status: Complete
- Date: 2007 **Williams, Morgan & Amerson, P.C**
Case FriendFinder v. Epic Realm Licensing, LLC
Project: Technical expert consulting in case regarding dynamic web page generation technology. Worked on patent claims interpretation and analysis, deposition preparation, and deposition.
Status: Complete
- Date: 2006-07 **Fish & Richardson**
Case Gobeli v. Microsoft
Project: Technical expert consulting in case regarding interrupt threading technology in Windows operating systems. Worked with Microsoft's legal representation on patent claims interpretation and analysis, deposition preparation, and deposition.
Status: Complete
- Date: 2006 **Williams Morgan & Amerson**
Case Deep Nines, Inc. v. McAfee, Inc.
Project: Expert consultant in patent dispute regarding internet security and firewall technology.
Status: Complete
- Date: 2006 **Wong, Cabello, Lutsch, Rutherford & Brucculeri**
Case 3DMD v. Canfield Scientific
Project: Served as expert consultant in copyright infringement dispute regarding stereo photogrammetry and 3D machine vision. Performed source code and technology analysis.
Status: Complete
- Date: 2006 **Jones Day**
Case Adams v. IBM/Lenovo
Project: Served as expert technical consultant in floppy diskette controller litigation alleging patent infringement against IBM/Lenovo. Provided patent claims analysis and technical expertise.
Status: Complete

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- Date: 2004-05 **Wong, Cabello, Lutsch, Rutherford & Brucculeri**
Case Gobeli v. Apple
Project: Provided technical expert consulting in case regarding interrupt threading technology in Mac OS-9 and OS-X. Worked with Apple's legal representation on patent claims interpretation and analysis, deposition preparation, and deposition.
Status: Complete
- Date: 1998-99 **The Reaud Law Firm (Wayne Reaud) and Layfield Associates of (Beaumont, TX)**
Case Shaw, Moon et al. v. Toshiba
Project: Served as technical expert for the class action against Toshiba regarding defective floppy diskette controllers assisting legal council. Toshiba settled the dispute for \$2.1B for the class. Provided technical expertise on detection apparatus, rendered expert opinion on defect, assisted on detailed construction of deposition line of questioning, and in depositions.
Status: Complete
- Date: 1994-95 **Arnold, White, and Durkee**
Case Intel v. Cyrix, Texas Instruments, AMD, et al.
Project: Served as software expert for Intel in action involving the Crawford 338 patent regarding intellectual property of the 80386 processor. Worked with Intel's council as software expert including expert opinion and court testimony.
Status: Complete

Patents

<u>Patent Number</u>	<u>Date Issued</u>	<u>Title</u>
5,539,899	07/23/1996	System And Method For Handling A Segmented Program in a Memory for a Multitasking Data Processing System Utilizing Paged Virtual Storage
5,305,455	04/19/1994	Per Thread Exception Management for Multithreaded Multitasking Operating Systems

Inventions

“Semaphore Architecture for Multithreaded Multitasking Operating Systems,” **IBM Technical Disclosure Bulletin**, September 1991.

“Dynamic Stack Management in Multitasking Multithreaded Operating Systems,” **IBM Technical Disclosure Bulletin**, September 1991.

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“Application Migration from a 16-bit Segmented System to a 32-bit Nonsegmented System,” **IBM Technical Disclosure Bulletin**, September 1991.

“Executable Format for 32-bit Personal Computer Systems,” **IBM Technical Disclosure Bulletin**, August 1991.

“OS/2 Memory Suballocation Compatibility in a Paged Environment,” **IBM Technical Disclosure Bulletin**, March 1992.

“16-bit OS/2 Fast Safe Semaphore Compatibility in a Paged Environment,” **IBM Technical Disclosure Bulletin**, October 1991.

“OS/2 Thread Termination Architecture and Mechanisms,” **IBM Technical Disclosure Bulletin**, August 1991.

“Reducing Interrupt Latency in a Multitasking Multithreaded Operating System,” **IBM Technical Disclosure Bulletin**, July 1991.

“Memory Protection in the Flat Memory Model,” **IBM Technical Disclosure Bulletin**, October 1991.

“Portable Semaphore Architecture for Multithreaded Multitasking Operating Systems,” **IBM Technical Disclosure Bulletin**, October 1991.

“OS/2 1.X Compatibility in the OS/2 2.0 Environment,” **IBM Technical Disclosure Bulletin**, October 1991.

“High Performance Thread Block/Wakeup Mechanism,” **IBM Technical Disclosure Bulletin**, July 1991.

Education

<u>Year</u>	<u>College/University</u>	<u>Degree</u>
1991	Nova University, Ft. Lauderdale, FL	Sc.D., Computer Science
1986	Nova University, Ft. Lauderdale, FL	MS, Computer Science
1984	Emory University, Atlanta, GA	BS, Mathematics/Computer Science

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Publications

Books:

Deitel, H. M., and Kogan, M. S., *“The Design of OS/2,”* Reading, MA: Addison-Wesley, 1992.

Deitel, H. M., *Operating Systems*, Second Edition, Reading, MA: Addison-Wesley, 1990, pp. 781-832.

Conklin, Dick, *“OS/2 Notebook,”* Microsoft Press, 1990, pp. 620-645.

Journals:

Kogan, M. S., and F. L. Rawson III *“The Design of Operating System/2,” IBM Systems Journal*, Vol.27, No. 2, 1988, pp. 90-104

Magazine Features:

Kogan, M. S., *“OS/2 2.0 Overview,” IBM Personal Systems Developer*, Spring 1990, pp. 16-22.

Kogan, M. S., *“OS/2 2.0 32-Bit API,” IBM Personal Systems Developer*, Spring 1990, pp. 23-30.

Kogan, M. S., and R. Tycast, *“OS/2 2.0 Tools and Program Development,” IBM Personal Systems Developer*, Spring 1990, pp. 31-35.

Kogan, Michael S. and Minasi, Mark, *“OS/2 2.1 vs. Windows NT,” OS/2 Professional*, August 1993, Vol. 1, No. 5, pp. 18-36.

Kogan, Michael S., *“Battle of the Chips,” OS/2 Professional*, November 1993, Vol. 1, No. 8, pp. 30-39.

Kogan, Michael S., *“The Battle for Market Share,” OS/2 Professional*, January 1994, Vol. 2, No. 1, pp. 34-35.

Kogan, Michael S., *“OS/2’s Been Working on the Railroad,” OS/2 Professional*, May 1994, Vol. 2, No. 5, pp. 32-37.

Kogan, Michael S., *“Retrofitting OS/2 for SMP,” BYTE*, June 1994, Vol. 19, No. 6, pp. 267-268.

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Magazine Editorials:

“SMP in the Air for OS/2,” *OS/2 Professional*, February 1994, Vol. 2, No.2, pp. 47-49.

“Compounding the Document Dilemma,” *OS/2 Professional*, March 1994, Vol. 2, No. 3, pp. 41-43.

“Workplace NT: April Fool or Food for Thought?” *OS/2 Professional*, April 1994, Vol. 2, No. 4, pp. 41-43.

“GUI to the Max,” *OS/2 Professional*, May 1994, Vol. 2, No. 5, pp. 39-41.

“The Chip Wars Revisited,” *OS/2 Professional*, June 1994, Vol. 2, No. 6, pp. 40-45.

“Playing Games with OS/2,” *OS/2 Professional*, July 1994, Vol. 2, No. 7, pp. 39-40.

“SMART: How Sweet It Is,” *OS/2 Professional*, August 1994, Vol. 2, No.8, pp. 29-32.

“Putting on the Right Face,” *OS/2 Professional*, September 1994, Vol. 2, No.9, pp. 25-26.

“PrePing for Prime Time,” *OS/2 Professional*, October 1994, Vol. 2, No. 10, pp. 47-49.

“Warped for the Holidays,” *OS/2 Professional*, November 1994, Vol. 2, No. 11, pp. 29-31.

“OS/2: Guns *and* Butter,” *OS/2 Professional*, December 1994, Vol. 2, No. 12, pp. 47-48.

“Windows 95 Compatibility: Bane or Blessing?” *OS/2 Professional*, January 1995, Vol. 3, No. 1, pp. 29-30.

“We Don’t Need No Stinking Microkernel,” *OS/2 Professional*, February 1995, Vol. 3, No. 2, pp. 29-31.

“Tainted Windows,” *OS/2 Professional*, March 1995, Vol. 3, No. 3, pp. 25-27.

“Fessing Up,” *OS/2 Professional*, April 1995, Vol. 3, No. 4, pp. 29-30.

“OS/2’s Driver Dilemma,” *OS/2 Professional*, May 1995, Vol. 3, No. 5, pp. 45-46.

“IBM Tools Up OS/2 Application Strategy,” *OS/2 Professional*, June 1995, Vol. 3, No. 6, pp. 21-22.

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Processors:

All Intel x86 processors, i8051, DEC PDP-11, VAX-11, and Alpha, Motorola 6800, 68000, 683xx, and PowerPC, ARM7 and ARM7T (Thumb), Zilog Z80, MIPs, numerous other RISC and embedded.

Languages and Technologies:

Assembler (most of the above processors), C, C++, Fortran, PL/1, Pascal, Prolog, BASIC, UML, HTML/XHTML, CSS, PHP, Java, Perl, MySQL, Ruby, Ruby On Rails, CakePHP.

Professional Associations and Achievements

- Member, ACM
- Member, IEEE

Silicon Valley Expert Witness Group, Inc.

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