

# VITAE

## Jeff Glickman

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Mr. Jeff Glickman is a computer scientist trained at the University of Illinois at Urbana-Champaign and is trained in both software and hardware engineering. While there he participated in, and directed, projects in pattern recognition, image processing, video processing and machine intelligence. Mr. Glickman studied under Dr. Wolfgang Johannes Poppelbaum who performed his post doctorate studies under Dr. John Bardeen, the two-time Nobel Prize winner in Physics. While at the University of Illinois, Mr. Glickman was a Teaching Assistant, Research Assistant, Research Associate, Assistant Director of the Information Engineering Laboratory, and Assistant Director of the Computer Research Laboratory, the first National Science Foundation funded computer center. Since 1982 Mr. Glickman has managed and delivered advanced technology and services, including software, hardware, communication, image processing, video processing, pattern recognition, and computational intelligence technologies, for The Department of Defense, Ford Motor Company, General Motors, NASA, InFocus Corporation, The Academy of Applied Science, The International Group for Historic Aircraft Recovery, The Technical Committee of the US Department of Justice, and others. He holds numerous patents in multiple disciplines including computer architecture, communications, and image processing and pattern recognition. His patents have been licensed to leading companies including Atmel, Seiko-Epson, Polycom, InFocus and Intellectual Ventures. He has been awarded the distinction of Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) for his contributions to Computer Science and Computer Engineering. He currently serves as Chair of the IEEE, Seattle Section.

Mr. Glickman has provided investigatory and expert computer, image and video analysis to corporations, law firms, police departments and local and federal government. He has been awarded the distinction of Fellow of the American College of Forensic Examiners for his contributions to Forensic Photogrammetry. He served as an appointee of Governor Gregoire from 2008 through 2011 to the Washington State Forensic Investigations Council where he had oversight responsibilities for the Washington State Crime and Toxicology Laboratory system. He currently serves as President-Elect of the American Society for Photogrammetry and Remote Sensing, Puget Sound Region.

He has been cited in many articles, has guest lectured at Universities, including the Kellogg School of Business Management and Duke University, has been a panel member and speaker at conferences, and has appeared on television programs including Dateline NBC, local and national news, and Discovery and History Channel programming. Mr. Glickman was selected as the Information Technology Contractor of the Month for November 2001 by *Contract Professional* magazine, and as their Information Technology Contractor of the Year for 2001. Mr. Glickman was also honored by Hall-Kinion as their 2001 Contractor of the Year.

Mr. Glickman is the past Chairman of the City of Hood River, Oregon, Planning Commission and the past Deputy Mayor of Woodinville, Washington, a suburb of Seattle, where he resides with his wife, daughter and son.

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**Summary:** Mr. Glickman has notable experience in a wide range of defense, public and private sector projects over the last two decades. From internal kernel development for secure operating systems for the Defense Department, to Global Area Networks for the International Space Station for NASA, to Robotic Simulators for Ford Motor Company and General Motors, to Communication Systems for the AEGIS Missile Cruiser for the United States Navy, to technical evaluations for the Technical Committee of the U.S. Department of Justice, he is an accomplished manager with hands-on experience with software and hardware requirements, architecture, design, coding and testing to ensure correct, on-time and on-budget deliveries. He is a Senior Member of the IEEE; Chair of the IEEE, Seattle Section; a Member of the ACM; President-Elect of the American Society for Photogrammetry and Remote Sensing, Puget Sound Region; a Board Certified Forensic Examiner; and a Fellow of the American College of Forensic Examiners. Mr. Glickman was selected as the November 2001 Contractor of the Month and the 2001 Contractor of the Year by *Contract Professional* magazine. Mr. Glickman was also named the 2001 Hall-Kinion Contractor of the Year.

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## Selected Projects

### Image Processing & Pattern Recognition

- Delivered 1 million page document imaging system in 3 months. Coordinated 50 vendors to an on-time delivery.
- Converted 500,000 document images from one document imaging system to another in 5 days. Delivered on-time under emergency court conditions.
- Developed Fingerprint Image Processing and Pattern Recognition System.
- Applied Image Processing skills to numerous law enforcement cases, litigations and scientific investigations, including murder cases, bank robberies, mistaken identity, micro-organisms.
- Developed and delivered wireless, solar-powered day/night real-time video surveillance system. Thirty mile transmission including 1 active relay site.
- Developed high-performance, real-time wireless image compression & protocols.

### Product & Business Development

- Executive management of a development stage national consumer electronics company. Responsibilities included corporate structure and documentation, patents, completing product design, supply chain logistics, outsourcing manufacturing including RFQs.
- Advised Board of Directors of national, commercial real-estate data provider. Recovered CD-ROM-based product development failure using rapid prototyping and a SQL relational database. Directed massive, national relational database design and data conversion.
- Advised international commodities data provider. Recovered real-time commodities trading system product development failure. Advised network product debugging effort to successful conclusion. Led architecture to re-engineer real-time commodities trading system. Designed embedded trading language compiler.

## Skill Summary

- Twenty-eight year track record of, on-time, on-budget deliveries.
- Extensive Management Experience.
- Balanced expertise between hardware and software.
- Computer Architect with UPC and GPGPU HPC expertise.
- Profuse developer of intellectual property.
- Unique ability to find innovative solutions to difficult problems.
- Exceptional organizational and communication skills.

## Experience

- Twenty-Eight Years of UNIX & C Experience. Twenty-Eight Years of Embedded Software Development Experience. Twenty-Eight Years of Project Management Experience. Twenty-Two Years of C++ Experience. Twenty-Two Years of SQL Experience. Seventeen Years of Visual Basic Experience. Twelve years of World-Wide Web Experience.

## Tools & Skills

- C++/C, UNIX, HPC, CUDA, GPGPU, UPC, PGI, Realtime, Embedded, Device Drivers, Real-time Motor/Motion Control, Hardware Interfacing, SQL, VBA, VB, ActiveX, COM, MFC, MCPP, Win32/NT/2K/ XP, Microsoft Access, Excel, Word, PowerPoint, Project, Adobe Photoshop, Framemaker. Kernels: Windows, LINUX, UNIX, SVRx, POSIX, BSD, OSF, SunOS, Solaris, HP-UX, AIX, ULTRIX, AOS, A/UX, OSx, Xenix, SCO, MINIX, MACH, QNX. Tools: MAKE, GDB, DBX, RCS, SCCS, SVN, AWK, SED, LEX, YACC, PERL, PYTHON, CGI, SHELL SCRIPTING, RPC, TCP/IP, UDP, SOCKETS & more.

## Current & Recent Projects

- HPC hardware and software architecture for quantitative finance using hybrid architecture of IA32, IA64 and GPGPUs.
- HPC hardware and software architecture for creating high resolution imagery from underdetermined systems of low resolution imagery.
- Microsoft Communications Protocol Program (MCPP).
- HDTV over Internet Protocols (IP) and video over WiFi.
- Developed presentation conferencing system for computer projectors including audio, video and presentation.
- Developed high-performance wireless computer-to-projector link. Deliverables included the development of a custom real-time image compression algorithm and link protocol and architectural analysis.

## Education

- BS Computer Science received from the University of Illinois at Urbana-Champaign.
- MS Digital Forensics – Studies underway at the University of Central Florida.

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### Continued

- Developed a web stress methodology for a national 4,000 radio station network. Multiprocess and Multithreaded. System handles advertisers and promotions.
- Developed real-time multi-port, multi-user automated ordering system using 4GL, SQL and C. Included administrative and customer service user interfaces, fulfillment, accounting, billing and reporting. Developed software interface to VISA/MC credit card network on BT Tymnet.
- Developed hand-held expert system for electronic discharge machining.
- Developed and delivered networked drug dispensing system using multiple PC-compatibles and a networked relational db.

### Embedded Systems

- Developed and delivered new high-speed satellite selection algorithm for Global Area Network for International Space Station.
- Developed inter-computer communications protocol for the International Space Station which connects the main habitat computer in the communications core to the new Global Area Network supervisory computer
- Developed and delivered 80 pages of commercial-ship embedded 4-bit microcontroller code in 30 days. Built compiler to accelerate development.
- Developed Hardware, Operating System and Expert System application software for a handheld expert system.

### Operating Systems & Device Drivers

- Contributed to the kernel design of B1 secure Unix for the Department of Defense.
- Developed device driver for shipboard multi-port asynchronous communication.
- Developed abstraction layer for device drivers for SCSI terminal servers on multiple UNIX platforms.
- Advised device driver development for ram-disk board for Sun workstations.
- Developed custom operating system for handheld computer.
- Developed and delivered device driver to operate robot from PC-compatible.
- Developed network drivers for BSD UNIX.

### Robotics & Motion Control

- Developed integrated robotic simulator operating system, interpreter, editor, and translator for a commercial robot.
- Developed and delivered four robotic environments for instruction, including software libraries for CBT integration.

I have expertise managing software and hardware development processes such as the following:

- **Specifications** — Determine the requirements, write the Standards Specification (if required), Functional Specification, Design Specification (including object model if required), Coding Specification and Test Specification.
- **Project Management** — Set project timeline, determine necessary resources, develop and manage budget, create the project plan, revise the project plan, track project progress.
- **Functionality** — Using a rigorous interview process, design the end-product with the customer. Determine the “ilities” (functionality, reliability, expandability, maintainability, scalability, etc.) Determine the functions and their phasing.
- **Design** — Design an architecture which matches the “ilities” providing the functionality for the lowest cost to construct. I utilize top-down analysis, process diagrams, data-flow diagrams, and object-oriented analysis. I spend more time in up-front design to reduce coding or hardware redesign, rip-ups and rewrites. This shortens the project cycle, often cutting delivery time in half.
- **Coding** — Write the coding specification. I employ efficient top-down coding techniques, which parallel the top-down design. The method I use minimizes errors, increases productivity, and reduces development and debugging costs.
- **Testing** — Test the code to specification including unit tests, integration tests and system tests according to the Test Specification. I do this to minimize the number of software defects which reach the debugging stage.
- **Debugging** — Locate and resolve bugs using drill-down methods to quickly locate the remaining software defects. Multiple techniques including debuggers and console printing to acquire information about the code under test. This information is compared with the model I have of how the system should function. Divergence between the two is investigated.
- **Documentation** — Document the code and the project. Documentation is essential to the success of all projects. Source code is thoroughly commented to provide clear and complete technical documentation so that the knowledge is retained by the organization.

### Profiles

- U.S. Department of Justice, The Technical Committee. United States v. Microsoft (Antitrust case). Under court seal.
- Addamax, Inc.— UNIX Internals. Modifications to AT&T SVR4 to create DoD TCSEC B1 Secure OS. Participated in Functional Specifications, Design Specifications, Coding Specifications, coding and testing. Licensed to Sun in SunOS/Solaris BSM. Solaris, C, Make, Shell Scripts. Installed widely throughout DoD.
- DoD, US Navy TAC III via Hughes/BTG and Central Data Corporation. Multiple Device Drivers for Multiple Platforms for SCSI Terminal Server. Implemented Hundreds of Async Ports per Computer. Driver designed for High-Performance and Low-overhead. Architected a SCSI Abstraction Layer to reduce porting expense. Special Defense Department Functionality. Installed onboard AEGIS Missile Cruiser. HP-UX, Solaris, SCO, AIX, C, Make, Shell Scripts.

## Patents (Partial List)

8,060,745	Security for wireless transmission
7,945,785	Security of data over a network
7,912,290	Energy minimization for classification, pattern recognition, sensor fusion, data compression, network reconstruction and signal processing
7,797,369	System and method for controlling a transmission of image data to a display device
7,764,832	System and method for processing image data for color space conversion
7,702,155	Energy minimization for classification, pattern recognition, sensor fusion, data compression, network reconstruction and signal processing
7,643,182	System and method for processing image data
7,483,583	System and method for processing image data
7,272,262	Energy minimization for classification, pattern recognition, sensor fusion, data compression, network reconstruction and signal processing
7,259,919	Thin-profile projection system
7,237,004	Dataconferencing appliance and system
7,174,048	Energy minimization for classification, pattern recognition, sensor fusion, data compression, network reconstruction and signal processing
7,162,092	System and method for processing image data
6,993,186	Energy minimization for classification, pattern recognition, sensor fusion, data compression, network reconstruction and signal processing
6,968,342	Energy minimization for data merging and fusion
6,826,301	Data transmission system and method
5,675,777	Architecture for minimal instruction set computing
4,896,363	Apparatus and method for matching image characteristics such as fingerprint minutiae
WO/2005/122530	Digital Signature Protection for Software
WO/2005/117552	Image Processing Systems and Methods with Tag-Based Communications Protocol
WO/2005/060273	Security for Wireless Transmission
WO/2005/059827	System and Method for Processing Image Data
WO/2005/059826	System and Method for Processing Image Data
WO/2005/059821	System and Method for Processing Image Data
WO/2005/059715	Method, System, and Apparatus to Identify and Transmit Data to an Image Display
WO/2005/059711	Controlling a Transmission of Image Data to a Display Device
WO/2005/059710	System and Method for Processing Image Data
WO/2005/017714	Apparatus, System and Method of Transmitting Data
WO/2004/034626	Data Compression and Decompression System and Method
WO/2003/034235	Dataconferencing Method, Appliance, and System
WO/2000/039705	Energy Minimization for Data Merging and Fusion
WO/1999/034316	Energy Minimization for Classification, Pattern Recognition, Sensor Fusion, Data Compression, Network Reconstruction and Signal Processing
WO/1991/011765	Architecture for Minimal Instruction Set Computing System
WO/1990/013944	Current-Based Computer Logic Architecture
EP 1754139	Image processing systems and methods with tag-based communications protocol
EP 1714202	Method, system, and apparatus to identify and transmit data to an image display
EP 1695563	Security for wireless transmission
EP 1695519	Digital signature protection for software
EP 1695188	System and method for processing image data
EP 1695285	System and method for processing image data
EP 1695263	System and method for processing image data
EP 1692655	System and method for processing image data
EP 1695253	System and method for controlling a transmission of image data to a display device
EP 1654834	Apparatus, system and method of transmitting data
EP 1550073	Data compression and decompression system and method
EP 1064613	Energy minimization for classification, pattern recognition, sensor fusion, data compression, network reconstruction and signal processing
EP 0300167	Apparatus and method for matching image characteristics such as fingerprint minutiae
KR 1020040068123	Dataconferencing Method, Appliance, and System

**Publications (Partial List)**

Yovits, Marshall C., Advances in Computers, Vol. 26, Academic Press, New York, NY, 1987

Miscellaneous University of Illinois Department of Computer Science Technical Reports