



Digital Forensic Analyst | Expert Witness | Software Engineer | Cybersecurity Specialist

LOS ANGELES CALIFORNIA

ELEVATOR PITCH

Matthew Walsh knows systems down to the RFC's. He doesn't just program – he creates his own programming languages. He doesn't just know compilers, he writes them from scratch. If you point at a closed system, he can pull it apart; explain in detail how it works and put it back together. If you need something built, no matter how large the scale or complex the project – it gets done. His experience spans dozens of industries from scrap metal, recycling, to entertainment, video games, movies, financial trading systems, ATM machines and even commercial wearable devices. He thrives in investigations, cybercrime, cybersecurity and CFAA-adjacent cases.

BACKGROUND

Matthew R. Walsh is a digital forensic analyst, expert witness, and software engineer with about 26 years of programming experience and nearly two decades of experience in expert witness and litigation-related work. Beginning his programming career at age nine and entering professional software development at approximately age fifteen, Mr. Walsh has developed extensive practical experience in software engineering, cybersecurity, digital investigations, electronic discovery, database architecture, and computer systems. His work extends beyond the private sector and includes government work such as with the Department of Homeland Security, Los Angeles County and many state and local governments and law enforcement.

His professional background includes developing and maintaining commercial software platforms, building custom forensic and investigative tools, examining electronic evidence, and providing technical assistance to attorneys in complex litigation. His experience spans both the development of computer systems and the forensic examination of their operation, data, and underlying architecture.

Mr. Walsh is an expert in many fields of study and especially finds success in developing and maintaining large-scale and highly complex software systems. His highly technical and in-depth experience affords him the opportunity to also reverse-engineer, decompile, deconstruct, study and examine the parts of software and network systems others rarely see. This is an invaluable asset for litigation in highly technical cases.

This list is not exhaustive.

AREAS OF EXPERTISE

Digital Forensics and Electronic Evidence

- Digital forensic examination and analysis
- Electronic discovery and litigation support
- Electronic document and metadata examination
- Evidence preservation, collection, and analysis
- Data extraction, reconstruction, and interpretation
- Technical evaluation of electronically stored information
- Examination of software-generated records and system activity

Software Engineering and Analysis

- Custom software design and development
- Source code analysis and application debugging
- Windows desktop application development
- Database design, administration, and analysis
- Software architecture and application behavior
- Custom compilers, interpreters, and runtime systems
- Application integration and communications protocols

Cybersecurity and Infrastructure

- Computer security research
- Network and host security assessment
- Vulnerability analysis
- Server and network administration
- Database security and infrastructure
- Web application development and hosting
- Systems troubleshooting and technical investigations

Litigation and Expert Services

- Technical litigation consulting
- Expert witness services
- Forensic evidence review
- Discovery analysis and electronic discovery support
- Technical report preparation

- Assistance with technical discovery and deposition preparation
- Explanation of complex computer systems and electronic evidence

PROFESSIONAL EXPERIENCE

Digital Forensic Analyst and Expert Witness | 2008–Present

Provides forensic analysis, technical investigation, and litigation support services to attorneys and their clients in matters involving electronic evidence, computer systems, software, and electronically stored information. Professional responsibilities include examining electronic records, analyzing technical evidence, investigating the behavior of computer systems and applications, preparing technical findings, and assisting legal teams in understanding and presenting complex technological issues.

Founder / Software Architect – Nexus Recycling Software (Logic Nine)

Developer of Nexus Recycling Software, a 350,000+ line of code enterprise commercial software platform designed for the scrap metal and recycling industries with over 870 systems sold. Nexus handles all business operations involving purchasing, transactions, inventory, reporting, database management, and other industry-specific functions. Responsible for the design, development, maintenance, and technical architecture of the platform, including its Windows applications, database infrastructure, and supporting web services.

Independent Software Architect | 2000–Present

Mr. Walsh began his professional programming career at age 15. Extensive experience developing commercial applications, custom software, backend systems, and technical solutions for business and specialized computing environments. Experience includes end-to-end software development, systems architecture, debugging, optimization, deployment, and ongoing maintenance of production systems.

Microcontroller / Firmware Engineering | 2000–Present

Mr. Walsh began microcontroller/firmware engineering in the early 2000's on a Parallax Basic STAMP kit which he was awarded in a programming competition. He continued development on Raspberry Pi's and Arduino microcontrollers. He has commercial development experience with the ESP32. He has developed RFP protocol specifications and the underlying code systems for advanced portable animation platforms which interface using BLE (Bluetooth Low Energy) and binary compression

of the protocol. He has also reverse engineered many microcontroller and firmware systems.

Financial Trading Algorithms and Hardware (2020+)

Mr. Walsh has built custom rackmount servers which contained four Tesla V100 GPU's for CUDA processing of massive amounts of live trading data. The servers are racked in the NY5 datacenter with a NASDAQ backbone. The algorithm was developed "on paper" by an engineer and then converted to pure code. Mr. Walsh further developed a custom front-end trading platform similar to what a high frequency trader would use.

ATM Machine Development (2017+)

Mr. Walsh since 2017 has developed operating system software for custom ATM machines which he sells to companies across the United States and in Canada.

SELECTED SOFTWARE DEVELOPMENT AND RESEARCH

WinROOT – Remote Access Application (2000)

Mr. Walsh was published at age fourteen with his tool having worldwide success and usage through 2015. It was featured by Symantec, Microsoft, Sophos, MegaSecurity and more.

crax0r – Security Research Framework (2003)

Developed an extensible computer security assessment application incorporating a modular scripting and plugin architecture. The software enabled the execution of collections of security tests against specified network hosts and supported rapid integration of new scripts as vulnerabilities were identified. Authored an accompanying technical paper circulated within computer security and underground research communities.

Nexus Recycling Software (2009 – present)

Designed and developed a commercial recycling industry management platform with more than 870 installations. The system incorporates desktop software, relational databases, transaction processing, and supporting web infrastructure. It provides extensive industrial software knowledge and that of device integration, enterprise payment systems, scrap metal/recycling expertise. It has been featured in countless publications such as National Geographic, Recycling Today, Scrap, SDB Magazine, WasteAdvantage magazine and others.

Nexus Matrix | Custom Artificial Intelligence Automation System (2020)

Mr. Walsh developed a scratch-built artificial intelligence platform that entirely automates Los Angeles County waste facilities eliminating human scale-house operators. It uses a single camera to detect if a waste vehicle has trash or green-waste (plant debris) in it, weights the vehicle, creates tickets in Nexus by identifying the vehicle and driver and sends the vehicle on it's way to dump the refuse. It utilizes a custom training model, optical systems, pattern recognition, error tolerance and instant dynamic color correction.

<https://nexusrecycle.com/nexus-matrix-landfill-scale-software.php>

Ready.Set.CTRL (2026)

Mr. Walsh developed a movie set / live even automation platform. It is centered around a custom programming language Mr. Walsh developed, a from-scratch written programming ahead-of-time compiler, lexer and linker. The system compiles simple human code down into addressable AOT optimized code instructions and supports asynchronous code paths, multi-threading and more.

www.readysetctrl.com

The Next World (2020)

Developed a massive third-person, open-world cyberpunk RPG video game with 25+ endings, 127 missions, flying cars, dynamic storyline and more using Unreal Engine, incorporating extensive custom animation, character systems, scripted interactions, and branching narrative architecture. It received licensing agreements by Sony, Valve and Nintendo. The project is presently halted as a result of litigation against a vendor Rokoko Electronics for intellectual property infringement.

www.pxlcorporation.com

New Terra (2023)

Developed and released an Unreal Engine-based space shooter game incorporating custom programming, gameplay systems, and interactive content. It was released on Nintendo Switch in 2023.

www.newterragame.com

TECHNICAL COMPETENCIES

Programming: C/C++, C#, VB.NET, PHP, HTML, CSS, JAVASCRIPT, Unreal Engine Blueprint, custom languages, Dynamics NAV, Navision and more.

Databases: MySQL, MariaDB, MS-SQL, relational database architecture

Web technologies PHP, IIS, web applications and services

Infrastructure Dedicated servers, colocation, networking, storage systems

Game development Unreal Engine, Unity

Specialized development Compiler design, application optimization, custom scripting systems

EDUCATION

Undergraduate Studies — Computer Science

Began college-level computer science coursework at age sixteen; early graduation with a 4.0 grade point average focused on C++ and business application development.

Undergraduate degree not completed to pursue an immediate career in software engineering started at 15.

SELECTED PUBLICATIONS AND TECHNICAL WORK

WinROOT was world-wide published software developed at age fourteen.

crax0r — authored a technical paper concerning the design and operation of an extensible security assessment framework after it was proof of concept. Distributed within computer security research communities where it was reviewed and commented on.

EXPERT WITNESS AND LITIGATION EXPERIENCE

Experience in expert witness and litigation-related services dating to approximately 2008.

Areas of engagement include digital forensic analysis, electronic evidence examination, software and computer systems, cybercrimes, cybersecurity, computer hacking, CFAA-adjacent cases, extortion, harassment, defamation, cyberstalking, revenge porn, embezzlement, technical discovery and more.

Mr. Walsh is well versed in Federal litigation and has litigated cases to trial in the Central District of California and Los Angeles Superior state cases. He is highly capable in the review and drafting of motions, discovery, conducting depositions and so forth.

A detailed list of qualifying expert testimony and litigation engagements may be provided separately, subject to applicable disclosure requirements and confidentiality obligations.

Please note: this CV is not exhaustive.

A handwritten signature in blue ink, appearing to read "Matthew R. Walsh". The signature is fluid and cursive, with the first name "Matthew" and last name "Walsh" being the most legible parts.

Matthew R. Walsh

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