Joseph A. Nicholls

CV Summary

Senior Level Computer expert with broad hardware and software skills. Specialized training and experience in cellphone and computer forensics. Extensive experience in large systems design and computer security. Computer experience ranges from designing and implementing small systems and low-level disk subsystems to large multi-million-dollar global distributed web sites with clustered database systems. Principal and founder of Nicholls Data Recovery, LLC.

Professional Accomplishments

Digital Forensics Certifications and Specialized Training

- RF Fundamentals Seminar, Rohde & Schwarz (2022)
- Cellular Technology, Mapping & Analysis Training, Hawk Analytics (2020)
- Certified Cellebrite Advanced Smartphone Analysis (CASA 2018)
- Axiom, Magnet Forensics (2017)
- Cellebrite JTAG Extraction and Decoding (2016)
- Internet Evidence Finder, Magnet Forensics (2015)
- EnCase EnScript Programming, Guidance Software (2014)
- Certified Cellebrite UFED Examiner (2011)
- Certified Computer Forensic Examiner (CCFE, 2010)
- Certified Data Recovery Professional (CDRP, 2010)
- Certified Computer Hacking Forensic Investigator (CHFI, 2009)
- Computer Forensics Training, InfoSec Institute, 2009
- Cell Phone/Handheld Forensics Training, Levels 1, 2, 3, Paraben Corporation, 2010
- Data Recovery Training, InfoSec Institute, 2010

Computer Security & Digital Forensics

- Performed Massachusetts digital examinations for cases in Middlesex, Norfolk, Brockton, Berkshire, Essex, Franklin, Berkshire and Suffolk Superior Courts as well as Lowell, Woburn, Charlestown, Ayer, Cambridge, Worcester, Framingham, Westborough, Quincy and Somerville District Courts as well as Roxbury, West Roxbury and Boston Municipal. Have also done digital examinations for cases in Vermont Federal District, Rockville Connecticut Superior, Seabrook New Hampshire District, and Hillsborough New Hampshire Superior.
- Digital examinations have involved murder, rape, A&B, child pornography, fraud, assault, restraining orders, drugs, theft, DUI, computer spying, Cellphone data extraction, Call detail reports, Cell tower location and mapping.
- Have testified in Boston Federal Court; Brockton, Woburn, Lowell, Lawrence, Hampshire, Franklin, Essex, Plymouth and Suffolk Superior Courts; as well as Woburn, Charlestown, Ayer, Salem, Worcester, Brockton and Somerville District Courts.
- Panelist and Presenter at the Boston Bar Association in Boston, MA Criminal Law Section CLE on the topic of "Digital Forensics for Criminal Practitioners", January 2022
- Presented at the Pilgrim Advocates Conference in Brockton, MA on the topic of "Digital Evidence and Authentication", October 2016
- Presented at the MCLE Seminar at the Massachusetts School of Law in Andover, MA on the topic of "Digital Forensics, Available Cellphone Data and Authentication", June 2015
- Presentation to Greater Lowell Bar Association on the topic of "Social Media Evidence", January 2014
- Presentation to Greater Lowell Bar Association on the topic of Cellphone and Cell Tower tracking titled "Discussing Cellphone Tracking Misconceptions", September 2013.
- Presentation to Greater Lowell Bar Association on the topics of Facebook Data, IP Address Spoofing and Caller ID Spoofing, October 2010.

- Developed tools and procedures for mining web site access logs to isolate usage patterns and behaviors indicating unauthorized id's and passwords as well as data piracy.
- Worked with a Texas police department to obtain specific web transactions of an alleged stolen credit card.
- Contributed significantly to first formal Department of Defense multilevel security guidelines, which later became known as the U.S. Government Orange Book (the U.S. government's standards for computer security.)
- As a Computer Security Specialist at the Pentagon, provided technical evaluations and recommendations to Air Force and DOD agencies, as required while on assignment as a US Air Force Officer.

Computer Systems Development

- Provided vision, architecture, customer presentations and follow-on technical leadership for UpToDate's Electronic Medical Records integration.
- Architected, managed development and deployment of UpToDate's Global Load Balanced web sites placed in three countries around the globe.
- Won the 2003 Thomson Media's Fund Operations Award for Innovation; web site software designs for PFPC utilized large scale Oracle databases and XML.
- Achieved the textile industry's first fully digital "design to production"
- Led technical due diligence necessitated by the Atex entrance into equity discussions with IBM.
- Authored original architecture and concepts for the industry leading Wang document imaging systems.
- Designed, implemented, evaluated microprocessor development tools, including two cross-assemblers in PL/1.
- Designed, implemented low-level operating system software for a disk sub-system in an Intel 8085 based server.
- Directed firmware implementation of microprocessor-based terminals using Motorola 6800 and Zilog Z80 CPUs.
- Designed, implemented block-oriented communications software for the Multics computer system for file transfer and remote printing across the then called ARPA Net (now known as the Internet.)
- Designed, implemented operating system communications software in PL/1 and assembly language for the Multics mainframe computer system. Multics is known as the Grandfather of Unix.

Key Computer System Skills

- Systems/File Systems: Linux, MS Windows, Mac OSX
- SW Environments: Microsoft MSSQL Server, Oracle Clustering, Web (Tomcat, Apache, PHP, MySQL)
- SW Languages: Transact SQL, Java, C++, C, PL/I, Cobol, Fortran, ASM
- Chip Level HW: Intel, Zilog, Motorola

US Patents

- 4,918,588, 'Office Automation System with Integrated Image Management'
- 4,059,821, 'Traffic Signal Controller Flasher for Pedestrian Clearance'

Employment History

11/2009 – Present	Principal & Founder	Nicholls Data Recovery, LLC
		Gloucester, MA

Nicholls Data Recovery provides computer and cell phone digital forensic examination services to lawyers and law agencies in the Massachusetts area. In addition, services are provided to the general public as well as various agencies for retrieving data from failed computer hard disk drives. A range of IT services are also provided to small law practices and individual lawyers.

| 8/2004 – 9/2009 | Chief Technology Officer | UpToDate, Inc., Waltham, MA |

Developed the overall software and systems architecture for UpToDate, including infrastructure systems as well as product systems. Systems span sizes from individual desktops to globally load balanced (five nines) enterprise web site solutions. Implementations were started from scratch and successfully taken to production. Ushered company from application centric system architectures to data centric architectures, which included distributed Oracle Real Application Clusters (RAC) systems on Red Hat Linux.

Provided the vision, architecture, customer presentations and follow-on technical leadership for UpToDate's Electronic Medical Records (EMR) integration.

Directly responsible for additional $5M annual new revenue in first half of 2009 (5% growth).

Architected, managed development and deployment of Global Load Balanced web sites placed in three countries consisting of five site installations (www.uptodate.com). Effort included dynamic web content and distributed Oracle databases in a three-tiered Linux environment. Employed a "never off-line" philosophy.

| 7/1996 – 8/2004 | Vice President, Advanced Technologies | PFPC Inc., Westborough, MA |

Architected, led and championed the development of 24x7 large scale Web Portal and eCommerce solutions for new mutual fund business. Solutions utilized large scale Oracle databases and XML for real time direct access of detailed account information on multiple mutual fund company systems. The Advisor Central portal (www.advisorcentral.com) won the 2003 Thomson Media's Fund Operations Award for Innovation.

Worked extensively with multiple mutual fund companies' management and development teams for integrating the PFPC systems with their large-scale systems.

Led effort to take original proof of concept BrokerConnect Mutual Fund Sales and Marketing system to a professional quality product for Wall Street's largest financial firms.

| 11/1994 – 6/1996 | Software Development Director | NEBS/Peachtree Software Software and Services Division, Nashua, NH |

Turned around the fledgling commercial software development organization and brought to market One-Write Plus for Windows, a class leading Microsoft Windows small business accounting package. This turnaround allowed NEBS to sell the software division to ADP's Peachtree software division.

| 1/1994 – 11/1994 | Director, Engineering | Athena Design Systems, Inc., Cambridge, MA |

Brought an engineering discipline of software product development at this startup company. Athena built a high-end Unix CAD graphics software package for the professional textile and wall covering market. In addition to software engineering, a large amount of time was spent interfacing with prospective designer clients and textile manufacturers.

| 9/1993 – 12/1993 | Consultant, Enterprise System Architect | NCR, Needham, MA |

Lead an effort to develop an imaging and document management integration and migration plan for Hartford Insurance as they made an infrastructure change from a mainframe/mini-computer oriented claims processing system to a 4,000 user Client/Server Wide Area Network oriented system.

| 8/1992 – 3/1993 | Vice President,
Product Development | Fluent, Inc.,
Natick, MA |

Provided management and leadership for software engineering, QA, documentation and support resources for the standard and customized product development at this digital video startup company.

| 6/1991 – 7/1992 | Vice President,
Product Operations | Computer Corporation of America,
(CCA),
Cambridge, MA |

Provided management and leadership for CCA's Product Operations group, which included software engineering, QA, documentation and Data Center operations. This included all standard and custom product development for CCA's high performance Model 204 IBM mainframe database product. Annual budget responsibilities were approximately $8 million with an organization of 65 people.

| 11/1989 – 6/1991 | Vice President,
Systems Integration and Development Group | Atex Publishing System,
Bedford, MA |

Provided management and leadership for the new product development software engineers, QA and documentation groups. This included a new newspaper pagination system and a new editorial and advertising system at this leading supplier of large newspaper pre-press computer systems. Annual budget responsibilities were approximately $10 million with an organization of 95 people.

| 10/1980 – 11/1989 | Director II,
Wang Integrated Image Systems Development | Wang Laboratories, Inc.,
Lowell, MA |

Provided strategy and development leadership for Wang's Integrated Image Systems from conception to market delivery. These systems reached annual revenues of $113 million after only 2½ years. Managing this group included growing the organization to 85 system software engineers and matrix managing 40 other application, hardware and QA engineers. Provided the original architecture and concepts for the Wang document imaging systems.
Development manager as well as architect for Wang's Low-Cost Desk Top Office Automation system. System was an early 1980's implementation of a multi-window, multi-tasking pc system based on Intel's – then new – 80186 microprocessor. This system sold 25,000 units ($125 million) in its first 18 months.

| 11/1978 – 10/1980 | Terminal Engineering
Senior Analyst | Honeywell Information Systems,
S/MISD,
Billerica, MA |

Firmware design and implementation of microprocessor-based terminals using Motorola 6800 and Zilog Z80 CPUs. Designed and implemented the low-level operating system software for a disk sub-system in an Intel 8085 based server. Designed, implemented and evaluated microprocessor development tools, including developing two cross-assemblers in PL/1.

11/1979 – 11/1982	Electrical Engineer, Speech Processing Research Lab	US Air Force (Reserves), RADC/ETC, Bedford, MA

Provided technical evaluation and recommendations on aspects of the Air Force's narrow band speech signal processing experiments with Motorola M68000 and Digital PDP-11 computers. These experiments were based on versions of the LPC-10 voice compression algorithms.

4/1978 – 11/1978	Multics Operating System Designer/Developer	Honeywell Information Systems, LISD/CISL, Cambridge, MA

Designed and implemented operating system communications software in PL/1 and assembly language for the Multics mainframe computer system. Multics is known as the grandfather of Unix.

Designed and implemented block-oriented communications software for the Multics computer system for file transfer and remote printing across the then called ARPA Net (now known as the Internet.)

4/1974 – 4/1978	Computer Systems Design Engineer/Computer Security Specialist	US Air Force (Active Duty), Officer, AFDSC, Pentagon, Washington DC

Provided technical evaluations and testing of software security feature implementations made by Honeywell on the Multics computer system.

Was a major contributor to first formal DOD multilevel security guidelines, which later became known as the U.S. Government Orange Book (the U.S. government's standards for computer security.)

Provided technical evaluations and input to the contracted vendor for the development of a microprocessor controlled secure communication device.

Provided technical evaluations and recommendations to other Air Force and DOD agencies as required.

Education

1984	MIT Sloan School of Management Summer Program Management of Research, Development and Technology-Based Innovation	Sloan School Cambridge, MA
1968 – 1973	BS of Electrical Engineering	The Ohio State University, Columbus, Ohio