

# Curriculum Vita

Michael R. Elliott  
PO Box 804  
Huntington Beach, California 92648-0804

(714) 374-6453  
[mre@unixforensic.com](mailto:mre@unixforensic.com)  
<http://www.unixforensic.com>

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## Employment

### The Boeing Company

- Principal architect and implementer of a software test analysis methodology in which avionics software formal testing is in itself analyzed for completeness of code coverage of the avionics software under test.
- Principal architect of the web-based tools used by developers of the avionics for the USAF C-17.
- Developer of several web-based applications to support software processes.
- Provided training to senior software developers on exception handling as used in Ada, Java, Modula-3 and C++.
- Researched and created the first functional packages for new avionics software to adhere to the strict requirements of the Ravenscar profile for real-time safety critical software.
- Provided tools necessary to support CMMI level 3 and level 4 software process maturity certification.

### California Applied Trading Science

- Produced all data and reports for clearing and regulatory compliance including real-time short rule checking and NASDAQ trades.
- Researched and implemented necessary steps to comply with formal and legal requirements for record keeping and transaction reporting for NASDAQ and the SEC.
- Created and maintained the company SQL database for trade transaction activity including Java network programming used to bring transaction data from New York and Chicago in near real-time.
- Created portions of the trade engine involved in the use of the FIX and ITCH financial network protocols.

### Axiom Navigation

- Reorganized and refactored existing product line embedded software (C and C++) in order to support modular development and additional related products.
- Introduced SW development methods and processes to establish quality, robustness and responsiveness to changing product definition and customer requirements, marketing priorities and business planning.
- Researched, designed and implemented a new product line consisting of a multi-tiered web application server running on Linux to support fleet management operations for customers. This new business opportunity provided existing customers, the majority of whom were not comfortable with software development, a ready-made application enabling them to keep track of their vehicle fleet in real time. This application involved the creation of Java applets, servlets and Java server pages, their communications with remote web services using XML-RPC and a

local database using JDBC, and the installation and maintenance of a JBoss web server.

#### Sun Microsystems

- As the lead engineer for Sun Microsystems in a joint project with Wind River Systems, provided management liaison between the two companies and supervised the architectural integration with and porting of the Java Media Framework to a Java-enabled prototype of a tablet-based computer running VxWorks developed for Intel.
- Provided the overall software architecture and detailed software design for a Java-based video conferencing system being built by Cisco Systems. This included simulation of the hardware, multi-threaded hardware control through JNI, embedded browser integration, graphical user interface component design, database access and maintenance and integration with the VxWorks executive.
- Ported major portions of the Personal Java virtual machine and its environment to several processors, including the PowerPC, Intel Pentium and StrongArm. This involved gaining detailed knowledge of the operating system kernel and the design and implementation of the SMI Personal Java virtual machine.
- Provided leadership for a joint Sun Microsystems / Nokia project developing a set-top box incorporating a modified version of the Mozilla browser with Sun's Personal Java as its JVM. Created and supervised acceptance testing of the JVM including browser security issues, RMI and applet interaction.

#### Interstate Electronics Corporation

- Managed the software systems for field trials of aircraft training range systems, including supervising and participating in their deployment in South Korea and Taiwan.
- Designed and implemented portions of the firmware of Global Positioning Satellite (GPS) receivers while providing the primary guidance as to how such designs could be efficiently implemented with the selected compiler and runtime system.
- Created a distributed trajectory simulator used to analyze and validate avionics software and GPS receiver tracking and position reporting.
- Designed and implemented critical portions, including RAIM compliance and message exchange and validation of a Differential GPS ground station used for precision landing guidance of commercial aircraft.

#### TLD Systems, LTD

- Manager of Software Quality Assurance. Responsible for full validation of the company's principal product, the TLD Ada Compiler for the 1750A central processor which was heavily utilized in avionics, satellite and radiation hostile environments.
- Major contributor to the syntax and semantic analysis portions of the TLD Ada compiler.

#### Boulton & Watt Engineering

- Designed and implemented a tool set for geologists to perform aquifer analysis and well placement for site dewatering.
- Designed and implemented a compiler for a company specific computer programming language to enable the transition to a more commercially viable software development environment.

### Christian Rovsing Corporation

- Using the C programming language, implemented multiple communications protocols including NATO Link-1 and X.25 for embedded military systems.
- Provided consultation and analysis of communications protocols and their potential security problems.

### Johnson Controls, Incorporated

- Major contributor to the software implementation of the automatic controls for the wastewater treatment plant in Hobbs, New Mexico.

### Hughes Aircraft Company

- Programmer contributing to "Combat Grande", the combat air control center for the Spanish Air Force, on site at Torrejón de Ardoz, Spain.
- Implementer of several software packages for mobile USAF air control centers.

### United States Navy

- Programmer, USS Piedmont (AD 17).
  - Member of the Naval Advisory Group and Mobile Riverine Force, Republic of Vietnam.
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## Forensic Experience

Holland & Knight - Los Angeles, California (2005)

- Prepared a 15,000 item mailing list of acupuncturists from web-available sources over three days.
- Testified as to the techniques and degree of difficulty in garnering that much information in a short amount of time.

Lee & Oh - Los Angeles, California (2005 - 2007)

- Provided analysis for plaintiff of a demonstration by defendant of constrained device communication purportedly using Elliptical Curve Cryptography, Bluetooth and Linux.
- Researched and provided proof that the aforementioned demonstration could not have occurred four years earlier (as defendant claimed) due to several temporal anomalies involving the Bluetooth protocol, Bluetooth communication devices and Linux operating system and kernel.
- Provided an equivalent demonstration where no cryptography whatsoever was used.

Spiro Moss Barnes Harrison & Barge - Los Angeles, California (2006-2007)

- Researched the techniques used to program a Norand hand-held data entry device in order to determine whether it could be programmed to record meal break information.

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## Instruction

Orange Coast College, Costa Mesa, California

- Taught courses in programming in Fortran, BASIC, Pascal and C.
- Created and implemented the computer typography for the student newspaper, *Coast Report*.

Rancho Santiago College, Santa Ana, California

- Taught courses in programming in C.
- Created and taught the course *Object-oriented Programming in C++*.

University of California, Irvine, California

- Created and taught the University Extension course *Unix Systems Administration*.

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## Education

University of California, Irvine, California

- BS, Information and Computer Science

Edinburgh University, Edinburgh, Scotland

- M.Sc., Computer Systems Engineering

## Publications and Presentations

### *Divide and Conquer – OS Partitioning for Embedded Systems*

- Presented at the Boeing Technical Excellence Conference (BTEC13), Long Beach, California, July 25, 2007.

### *Computer-aided Disaster. What Went Wrong? Going Beyond Requirements-based Testing*

- Presented at the Boeing Technical Excellence Conference (BTEC13), Long Beach, California, July 25, 2007.

### *The Real Time Specification for Java*

- Tutorial presented at *The Boeing Software Conference (BSC2)*, Long Beach, California, March 6, 2007.

### *Perl, the Cockroach of Computer Languages*

- Invited speaker at *The Coast Open Source Software Technology Symposium*, Newport Beach, California, October, 2003.

### *Writing "Real Java", Not Just "C In Java"*

- Presented at *The Embedded Systems Conference*, San Francisco, California, April 2001.
- Published in *The Proceedings of the Embedded Systems Conference*, San Francisco, California, 2001.

### *Using JNI - It's Not That Hard!*

- Presented at *The Embedded Systems Conference*, San Francisco, California, April 2001 and 2002.
- Presented at *The JDJ Edge Conference*, New York, New York, September 2001.
- Published in *The Proceedings of the Embedded Systems Conference*, San Francisco, California, 2001 and 2002.
- Adapted for and republished in [Comms Design](#) 2002.

### *Implementing OO Design Concepts With Literate Programming*

- Presented at TOOLS Europe '96, Paris, France, February 1996.
  - Published in *TOOLS 19*, Prentice-Hall, Inc., USA. 1996.
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## Affiliations

### Unix Users Association of Southern California

- Program Chair, 1990 – 1997.

### EUROCAE / RTCA – Working Group 71 / Special Committee 205

- Member of the Committee convened to produce the DO 178C revision of the international technical standard *Software Considerations in Airborne Systems and Equipment Certification*.

### Southern California Software Process Improvement Network (SPIN)

- Member of the Steering Committee, 2005 – present.
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## Other

### Security Clearance

- USA Secret (active)
- NATO Secret (inactive)

### Licenses

- FAA Airman's Certificate
    - Private Pilot – Airplane Single Engine Land
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