

# JOE LOUGHRY

## Computer Security, Cross Domain Systems, C&A

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## Keywords for people who like keywords

Certification and Accreditation (C&A) of cross domain systems, Certification Test & Evaluation (CT&E), Security Test and Evaluation (ST&E), Assessment and Authorization (A&A) in classified environments, penetration testing, Common Criteria, DIACAP, DCID 6/3, Compartmented Mode Workstation (CMW) programming, UNIX, Trusted Solaris v2.5–8, software development, R&D, principal investigator, technical writing, U.S. citizen, TS/SCI clearance, DoD 8570.01 certified CISSP-ISSEP, lived overseas, publications, patents, public speaking, funding, and teaching experience.

## Work Experience

- Graduate Research Student, University of Oxford, England, from January 2012–present.  
Having wrapped up a three year research and development contract for the U.S. Air Force, I took advantage of a funding crunch at Lockheed to leave and finish writing my dissertation.
- Information Assurance Engineer, Lockheed Martin Corporation, Littleton, Colorado, from 2006–2012.  
Reorganised into the INFOSEC department, I designed a cryptosystem that led to another patent application and studied all the government security evaluation standards in earnest. Deciding to solve the problem once and for all, I took my thesis to Oxford, telecommuting successfully all my responsibilities at Lockheed.
- Software Engineer, Lockheed Martin IS&GS Western Region, from 1998–2006.  
That research, which had not been published yet in the open literature but was being reviewed by the intelligence community, led to a security clearance and a job writing code on Trusted Solaris. I travelled around the U.S. and Britain and got interested in Certification and Accreditation (C&A).
- System Administrator, Wells Fargo & Company, Seattle, Washington, from 1996–1997.  
When the bank was acquired by Wells Fargo, I moved to sysadminning their network of X terminals, Cisco routers, ethernet and structured cabling. Off hours, I took classes at the University and ran the experiments that would eventually be cited in 14 books on security.
- Programmer/Analyst II, First Interstate Bank of Washington, Seattle, from 1990–1996.  
Five people wrote code, mostly in assembly language, for a few hundred early PCs in 150 bank branches scattered across the whole state. Network communications were one-way only, piggybacked on IBM mainframe traffic. With no way to back out changes from production, we were *very* careful.

## Education

- Oxford University, Department of Computer Science, doctoral student. Dissertation title: *Security Test and Evaluation of Cross Domain Systems* (degree expected at the end of 2012).
- Master of Software Engineering (M.S.E.), Seattle University / Seattle, Washington (1996).
- Bachelor of Arts in Mathematics, University of Colorado / Boulder, Colorado (1986).

## Refereed Journal Publications

- ‘Information Leakage from Optical Emanations’ by J. Loughry and D.A. Umphress. *ACM Trans. Info. Sys. Security* 5(3). pp. 262–289, 2002.

## Conference Publications

- ‘Information Asymmetry in Classified Cross Domain System Accreditation’. *C&ESAR 2012*, Rennes, France, 20–22 November 2012. To appear.
- ‘Unsteady Ground: Certification to Unstable Criteria’. *Second International Conference on Advances in System Testing and Validation Life Cycle*. Nice, France, 2010.
- ‘Evaluation of Existing IT Systems Under the Common Criteria at Levels Above EAL4’. *Oxford University Computing Laboratory Student Conference*, Oxford, U.K., 2008.
- ‘Use of XML in the Specification and Development of a New High Assurance Controlled Interface’. *Network Centric Warfare* conference, Washington, D.C., 2003.
- ‘Optical Remote Interception of Networks (ORION)’ *InfowarCon ’02*, Washington, D.C., 2002.
- ‘RADIANT MERCURY’. *Cross Domain Solutions Organization*. Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland USA, 2001.
- ‘Performance evaluation for line-drawing recognition systems’ by Ihsin T. Phillips, Frank Chang, Kevin Chang, Bhavani Duggirala, Mike Logan, Joe Loughry, and Jisheng Liang. *Proc. SPIE ’97 Document Imaging IV*. Vol. 3027, pp. 136–148, March 1997.

## Other Published Reports

- ‘Probabilistic Redaction’ Final Technical Report. Air Force Research Laboratory (AFRL), Rome, New York, 2012. Available from the Defense Technical Information Centre (DTIC), Washington, D.C.
- ‘Subsets of an 8-element set in order by number of elements in each subset’. *On-line Encyclopedia of Integer Sequences*, AT&T Research, 2003.
- ‘Efficiently Enumerating the Subsets of a Set’ by J. Loughry, J. von Hemert, and L. Schoofs (1998). In preparation.
- Sun Microsystems security advisory (software): [REDACTED] (classified S//NF) 1999.
- Sun Microsystems security advisory (hardware): [REDACTED] (classified S//NF) 1998.
- Sun Microsystems security advisory (software): [REDACTED] (classified S//NF) 1998.
- Sun Microsystems security advisory (software): [REDACTED] (classified SI TK B) 1998.
- RISKS (*ACM Forum on Risks to the Public in Computers and Related Systems*) Vols 17.31, 21.94–5, 22.81, 24.07, 24.22–3, 24.55, 24.87, 25.73, and 26.46.

## DoD 8570.01 Certifications

- CISSP-ISSEP certificate no. 10411, current and satisfies IAT Level III, IAM Level III, and IASAE III.

## Security Clearance

- TS/SCI is current; last investigation date: 5th August 2009 (SSBI PR); last CI poly 26th May 2010.

## Patents

- Application 13/355,210 *Nested Digital Signatures with Constant File Size*, filed 20th January 2012.
- US 6,987,461 *System and Method for Addressing Optical Emanations from an Information Processing Device*, issued 17th January 2006.

## Funding

- Awarded \$968,412.00 for ‘Probabilistic Redaction’, USAF Rome Lab contract no. FA8750-09-C-0006, Principal investigator (PI) for period of performance 2009–2012, completed.

## Teaching Experience

- University Instructor, CSCE 591 *Computer Networks*, Seattle University, Spring Quarter 1998.

## Officerships and Committee Work

- 2009–present: IT Officer, Oxford University Scientific Society.
- 2009–present: President of the Oxford Lyceum.
- April, 2012: Co-organiser of a public debate on the subject of ageing between Dr Aubrey de Grey and Prof. Colin Blakemore, chaired by Professor Sir Richard Peto, attended by 650 people in the Sheldonian Theatre, Oxford.
- Chair of the OXFORD-CS-2011 Conference Programme Committee.
- Member of the COMLAB-CS-2010 Conference Programme Committee.
- Member of the COMLAB-CS-2009 Conference Programme Committee.
- 2007–09: Treasurer of the Oxford Lyceum.

## Community Involvement

- Science fair judge for the Ricks Centre at the University of Denver (2012).
- Contributor of code to the following Open Source Projects:
  - OpenSolaris: <http://www.opensolaris.org> (2006)
  - FreeBSD: <http://www.freebsd.org> (1999)
  - Fetchmail: <http://catb.org/~esr/fetchmail> (1998)

## Social Networks

- Google Scholar: [http://scholar.google.com/citations?hl=en&user=PX\\_U29EAAAAJ](http://scholar.google.com/citations?hl=en&user=PX_U29EAAAAJ)
- LinkedIn: <http://www.linkedin.com/in/jloughry>
- GitHub: <https://github.com/jloughry>
- Twitter: <https://twitter.com/jloughry>
- Google+: <https://plus.google.com/u/0/115779672587479359864/>
- Facebook: <https://www.facebook.com/joe.loughry.oxford>