

# JOE LOUGHRY

*Cross Domain Systems Certification and Accreditation (C&A), Computer Security Research*

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## Keywords for Regexes

Certification and Accreditation (C&A) of cross domain systems, Assessment and Authorization (A&A) in classified environments, Certification Test & Evaluation (CT&E), Security Test and Evaluation (ST&E), penetration testing, DIACAP, Common Criteria, 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 R&D contract for the Air Force Research Laboratory in January, I took advantage of a funding crunch at Lockheed to finish writing my dissertation.*
- Information Assurance Engineer, Lockheed Martin Corporation, Littleton, Colorado, from 2006–2012.  
*Reorganised into the INFOSEC group at Lockheed, I designed a new cryptosystem leading to another patent application and began studying all existing government security evaluation standards. Deciding to solve the C&A problem once and for all, I took my thesis to Oxford, telecommuting from the UK and proposing and winning an AFRL contract while I was gone.*
- Software Engineer, Lockheed Martin IS&GS Western Region, from 1998–2006.  
*The optical TEMPEST research, not yet published in the open literature but of considerable interest to the intelligence community, led to a security clearance and a job writing code for Trusted Solaris. I travelled around the U.S. and Britain writing code and installing systems and got interested along the way in the Certification and Accreditation (C&A) problem.*
- System Administrator, Wells Fargo & Company, Seattle, Washington, from 1996–1997.  
*After being acquired by Wells Fargo, I moved to sysadminning its network of X terminals, Cisco, and ethernet on structured cabling. Using facilities at Seattle U., I ran experiments in optical TEMPEST that would eventually be cited in 14 books on information security.*
- Programmer/Analyst II, First Interstate Bank of Washington, Seattle, from 1990–1996.  
*Five people here wrote software, mostly in machine language, for a few hundred PCs in 150 bank branches scattered across the state. Our network communications were limited to one-way only, piggybacked on IBM 3270 terminal traffic with some local storage in the 4702 controllers. With no way to back out changes from production, we were extremely 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).

## Security Clearance

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

## 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): [TITLE REDACTED] classified S//NF, 1999.
- Sun Microsystems security advisory (hardware): [TITLE REDACTED] classified S//NF, 1998.
- Sun Microsystems security advisory (software): [TITLE REDACTED] classified S//NF, 1998.
- Sun Microsystems security advisory (software): [TITLE 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.

## 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, project 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.
- Science fair judge for the Ricks Centre at the University of Denver (2012).

## Social Networking (lesser used social networks are greyed out)

- 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>

## Code Contributor to these Open Source Projects

- OpenSolaris: <http://www.opensolaris.org> (2006)
- The FreeBSD Project: <http://www.freebsd.org> (1999)
- Fetchmail: <http://fetchmail.berlios.de> (1998)