Joe Loughry

Software Development for Cross Domain Systems (CDS) and Computer Security Research

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Keywords for the Regexp

Certification and Accreditation (C&A) of cross domain systems, Assessment and Authorization (A&A) for classified environments, Certification Test and Evaluation (CT&E), Security Test and Evaluation (ST&E), penetration testing, DIACAP, the Common Criteria, DCID 6/3, programming in C and assembly language with a strong interest in Lisp derived languages, Compartmented Mode Workstation (CMW) programming, UNIX, Trusted Solaris versions 2.5–8, software development, R&D, principal investigator, U.S. citizen with TS/SCI clearance, technical writing, CISSP-ISSEP for DoD 8570.01 compliance, experience living overseas, programming, publications, patents, public speaking, funding, research, and teaching experience.

Work Experience

* Graduate Research Student, University of Oxford, England, from January 2012–present.
  Having wrapped up a three-year-long R&D contract for the Air Force Research Lab in January of 2012, it was necessary to finish writing my dissertation by the deadline.

* Information Assurance Engineer, Lockheed Martin Corporation, from 2006–January 2012.
  Reorganised into the INFOSEC group at Lockheed, I designed a new cryptosystem leading to another patent application and began studying government security evaluation standards. Deciding to solve the C&A problem, I took my thesis to the computer science department, telecommuting from the UK and proposing and winning an AFRL contract while I was gone.

* Software Engineer, Lockheed Martin IS&GS Western Region, from February 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 Certification and Accreditation (C&A) of systems.

* System Administrator, Wells Fargo & Company, Seattle, Washington, from 1996–September 1997.
  After being acquired by Wells Fargo, I moved to sysadmin of its network of X terminals, Cisco routers, and structured cabling. Using the facilities at Seattle U., I ran experiments in optical TEMPEST that would eventually be cited in 14 books on information security.

* Programmer, Safeco Life Insurance Company, Redmond, Washington, for a few months in 1991.
  I maintained a database application for a short time at this company between assignments.

* Programmer/Analyst II, First Interstate Bank of Washington, Seattle, from 1990–91 and 1991–96.
  Five of us worked on retail bank automation software in machine language (see my GitHub at https://github.com/jloughry/BANCStar/blob/master/README.md#code-sample for the reason why). Network traffic coexisted with IBM 3270 terminals and was limited to one direction only; with no way to back out any changes from production, we were very careful.

Patents

* 6,987,461 *System and Method for Addressing Optical Emanations from an Information Processing Device*, issued 17th January 2006.

* Application 13/355,210 *Nested Digital Signatures with Constant File Size*, filed 20th January 2012.

Proposal Wins and 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 on time.

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 Loughry, von Hemert, and Schoofs (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.

Security Clearance

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

DoD 8570.01 Compliance

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

Education

* University of Oxford, Department of Computer Science, doctoral student. Title of dissertation: *Security Test and Evaluation of Cross Domain Systems* (degree expected in 2012).

* Master of Software Engineering (M.S.E.), Seattle University / Seattle, Washington (1996).

* Bachelor of Arts in Mathematics, University of Colorado / Boulder, Colorado (1986), followed by some additional postgraduate work through 1989 in the math department and the business school.

Teaching Experience

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

Officerships and Committee Work

* 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.

* 2009–present: President of the Oxford Lyceum.

* 2009–present: IT Officer, Oxford University Scientific Society.

* Chair of the OXFORD-CS-2011 Conference Programme Committee.

* Member of the COMLAB-CS-2010 and COMLAB-CS-2009 Conference Programme Committees.

* 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

* GitHub: https://github.com/jloughry

* LinkedIn: http://www.linkedin.com/in/jloughry

* Twitter: https://twitter.com/jloughry

* Google+: https://plus.google.com/u/0/115779672587479359864/

* Facebook: https://www.facebook.com/joe.loughry.oxford

Code contributed to the following Open Source projects

* OpenSolaris: http://www.opensolaris.org (2006) *bug in password retry limit of Trusted Solaris 8*

* The FreeBSD Project: http://www.freebsd.org (1999) *contributed new console screen saver*

* Fetchmail: http://fetchmail.berlios.de (1998) *patch to handle multi-homed machines*