

George R. Louthan IV

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Objective

I want to do computer stuff.

Available June 2011.

Education

University of Tulsa	Tulsa, OK
Master of Science in Computer Science	May 2011
<i>Thesis: A Formal Approach to Cyber-Physical Event Reconstruction With Hybrid Automata</i>	(expected)
Bachelor of Science in Computer Science	May 2009
Bachelor of Science in Mathematics	May 2009

Certifications

Committee on National Security Systems 4011–4016	Tulsa, OK
National Information Assurance Training Standards	
4011 Information Systems Security Professional	May 2006
4012 Senior Systems Manager	Dec 2007
4013 System Administrator	May 2010
4014 Information Systems Security Officer	May 2011
4015 System Certifier	Dec 2009
4016 Risk Analyst	May 2010

Academics

Instructor Information Security: Assurance and Risk Assessment (short course—taught applied portions), Fundamentals of Algorithms and Computer Applications Lab

Teaching Assistant Fundamentals of Algorithms and Computer Applications Lecture

Referee Journal of Supercomputing (Jan 2010)

Information Assurance Coursework Network Security, Secure System Administration, Risk Management for Information Systems, Information Systems Assurance, Enterprise Security Management, Computer Security, Computer Forensics, Applied Cyber Defense (independent study)

Computer Science Coursework Mobile Device Application Development, Computational Neuroscience, Machine Learning, Senior Software Projects, Compiler Construction, Operating Systems, Artificial Intelligence, Computer Animation, Computer Networks, Computer Network Analysis (independent study)

Mathematics Coursework Numerical Methods, Numerical Methods for IVP/BVP PDEs, Modern Algebra, Real Analysis, Linear Algebra, Mathematics Seminar (a survey of unusual problems)

Skill Set

Languages Python; Java; Lisp (Clojure and Common Lisp); \LaTeX ; Mathematica; some Ruby, Perl, PHP, and Objective C

Platforms Linux (especially Debian/Ubuntu, also OpenWRT/FreeWRT); Windows (modern workstation and server versions); VMWare ESXi (3 and 4); Mac OS X

Technologies Computer networking (TCP/IP); Virtualization; Firewalls (iptables and Shorewall, some pf and Cisco); Django; Version control (Subversion and Mercurial); Network monitoring and IDS; Android OS; iOS; Application security; Forensics; PKI

Processes Risk management for information systems (NIST SP 800-30), including some familiarity with IT aspects of Sarbanes-Oxley risk assessment (PCAOB Auditing Standard 5); Information Security Management (ISO/IEC 17799:2005); Information Assurance Controls and Accreditation (NIST SP 800-53 and DoDI 8510.01); Incident response and computer forensics; General policy development; General familiarity with NIST 800 series

Mathematics Numerical analysis; Finite difference methods; Finite element analysis; Real analysis; Discrete mathematics; Modern algebra; Finite state automata; Hybrid automata; Process calculi; Analysis of algorithms

Soft skills Flexible and even-tempered; Very strong written and verbal communication skills; Skilled at explaining technical concepts to laypeople; Comfortable in social settings; Experienced and extremely comfortable giving lectures and presentations

Employment History

University of Tulsa

Tulsa, OK

Research university with a prestigious information security program and extensive research operations under its Institute for Information Security, an NSA/CSS Center of Excellence in information assurance.

Graduate Research Assistant

May 2009 –
Present

Information security engineering student lead for formal methods research. Collaborating with researchers in cyber security training, information visualization, and critical infrastructure protection initiatives. Peer-reviewed publications in cyber security education, network intelligence, and secure collaboration.

Led the development and deployment of the Institute's IT infrastructure and supervising its upkeep (approximately 40 workstations and 5 servers).

Graduate Teaching Assistant

Jan 2010 –
May 2010

Taught a sophomore-level programming lab in the Java language. Developed supplementary course materials on code style, algorithms, documentation, and best practices.

Undergraduate Research Scientist

May 2006 –
May 2009

Undergraduate researcher in the Enterprise Security Group. Worked in enterprise security management, threat modeling, network intelligence, and information visualization. Peer-reviewed publications in network intelligence.

IV Consulting, Inc.

Tulsa, OK

Custom software contractor, working in database and web services.

Co-owner/Developer

Jul 2010 –
Present

Co-founder of the company as well as web and database developer in Python's Django framework. Developing two production systems for patient management and subject tracking for a psychiatric hospital and brain research institution. Responsible for back-end web development, project management, client relations, and documentation.

Vidoop

Tulsa, OK

Technology start-up company that produced a web-based multi-factor authentication product and advertising platform.

Security Research Intern

May 2008 –
Sep 2008

Performed a vulnerability assessment on the user-facing portions of the company's authentication product. Developed proof-of-concept code for several attacks, including bypassing the product's CAPTCHA properties using computer vision. Delivered a comprehensive report and developed proof-of-concept mitigation strategies.

Technical Writing Intern

May 2007 –
Mar 2009

Served as a copy writer and editor for technical documentation, specifications, white papers, user documentation, and marketing materials. Developed and narrated a series of educational videos for Vidoop's products and OpenID. Primary author on the corporate blog. Worked closely with developers and business personnel. Staffed exhibit at IT Security World.

Projects

GSM Scale

Tulsa, OK

Project for the wireless collection and remote analysis of patients' weights as automatically recorded by a cellular-enabled scale. Collaboration with Alexander Barclay (Laureate Institute for Brain Research) and Kevin Hall (National Institute of Diabetes and Digestive and Kidney Diseases).

Bench-to-Bedside Grant (Collaborator: NIH)

Jul 2010 –
Present

Designing and developing the scale client hardware and software, as well as participating in the specification of reporting protocols and web service API.

Neuroimaging Research Database System

Tulsa, OK

End-to-end management solution for neuroimaging research project including subject tracking and medical charting, lab and assessment result management, billing, and auditing.

IV Consulting (Client: Laureate Institute for Brain Research)

Sep 2010 –
Present

Managing and supervising development. Specific personal responsibilities include documentation, project management, client interaction, and development of the auditing, report generation, and cost tracking/billing subsystems.

Laureate Psychiatric Clinic and Hospital Electronic Intake System Web-based version of LPCH's legacy pen-and-paper intake system. Manages the creation of new patients and basic data collection. Generates patient reports for medical charts.	Tulsa, OK
IV Consulting (Client: LPCH) Supervised development of the entire system; responsible for development of report generation and clinical staff views for patient tracking. Managed documentation and client interactions.	Sep 2010 – Nov 2010
SAND/DVNE Network monitoring and visualization tool for the passive identification of network protocols using signatures.	Tulsa, OK
Enterprise Security Group, University of Tulsa Led a network monitoring research group; designed and implemented a protocol identification library (SAND). Oversaw successful test deployment at FAA Computer Security Incident Response Center. Co-developed a multi-touch network traffic visualization tool (DVNE). Actively maintaining the library.	May 2007 – Present
Disastro Citizen-facing relief management system for disaster response; includes web service and IVR (phone) data collection and reporting capabilities. Senior semester capstone project from Senior Software course.	Tulsa, OK
Senior Software, University of Tulsa Served as project lead and IVR developer. Responsibilities focused upon design, architecture, specification, documentation, developer coordination, and project management.	Jan 2009 – May 2009
Sample Class Projects Selected example class projects from University of Tulsa coursework.	Tulsa, OK
University of Tulsa Pascal compiler front-end, Intrusion Detection System (Snort subset rule compatible), Web server, Comprehensive IT system deployment plan, Top-down corporate risk assessment (team), Formal model for IT contingency planning, Reinforcement learner agent for Infinite Mario	Aug 2005 – May 2011

Conferences

- USENIX Security Symposium** Participant (2009 - 2010)
 - Workshop: Cyber Security Experimentation and Test** Speaker (2010)
 - Event: Poster Session** Presenter (2009)
- Blackhat USA** Participant (2010)
- DEFCON Human** (2008, 2010), **Speaker** (2009)
- University of Tulsa Student Research Colloquium** General Co-Chair (2010), **Speaker** and **Session Chair** (2009)
 - Cyber Security and Critical Infrastructure Symposium** **Speaker** and **Symposium Chair** (2010)

International Conference on Internet Computing (ICOMP) at WORLDCOMP
Speaker (2009)

Computer Security and Information Intelligence Research Workshop (CSIIRW)
Speaker (2009)

International Conference for High Performance Computing, Networking, Storage and Analysis (SC) Participant (2008)

IT Security World Exhibitor (2008)

Publications and Presentations

“The Blunderdome: An Offensive Exercise for Building Network, Systems, and Web Security Awareness”¹ Paper at CSET 2010 at 19th USENIX Security Symposium, 2010. G Louthan, W Roberts, M Butler, and J Hale.

“Toward Sensitive Information Redaction in a Collaborative, Multilevel Security Environment”¹ Paper at WikiSym 2010, 2010. P Gehres, N Singleton, G Louthan, and J Hale.

“Towards Formal Analysis of Cyber-Physical Systems” Presentation at the Cyber Security and Critical Infrastructure Symposium at the 2010 TU Student Research Colloquium, 2010. G Louthan, N Singleton, M Papa, and J Hale.

“Large-scale Multitouch Interactive Network Visualization” Poster at the 18th USENIX Security Symposium, 2009. C Pollet, G Louthan and J Hale.

“SAND: An Architecture for Signature-based Automatic Network Protocol Detection” Poster at 18th USENIX Security Symposium, 2009. G Louthan and J Hale.

“Hack Like the Movie Stars: A Big-Screen Multitouch Network Monitor”
Presentation at DEFCON 17, 2009. G Louthan, C Pollet, and J Hale.

“Toward Robust and Extensible Network Protocol Identification”¹ Paper at ICOMP '09, 2009. G Louthan, C McMillan, C Johnson, and J Hale.

“Content-based Alternatives to Conventional Network Monitoring”¹ Paper at CSIIRW '09, 2009. G Louthan, B Deetz, M Walker, and J Hale.

“Communication without Boundaries: Breaching the Great Firewall of China”
Presentation at 2009 TU Student Research Symposium and Regional Meeting of AAAS-SWARM, 2009. G Louthan and J Hale.

Awards and Honors

General Co-Chair, TU Student Research Colloquium	2010
Chair, TU Student Research Colloquium Computer Security Special Topic Symposium	2010
Honorable Mention, Best Presentation at AAAS-SWARM	2009
Runner-Up, Donald W. Reynolds Governor’s Cup Business Plan Competition	2007
University of Tulsa Presidential Scholar	2005–09

¹Denotes a peer-reviewed publication