



EXPERIENCE:

Constitutional Analysis Support Team, Reykjavik, Iceland

Co-Founder, (December, 2010 - Present): An NGO analysis group working with constitutional assemblies to improve the quality of the documents they write. CAST uses tools from the computer security world to find potential issues in constitutional documents, with the goal of producing more internally consistent and effective constitution and governmental structure.

- Developed an initial set of methodologies and tools for analyzing the security of constitutions, based on linguistic complexity, boolean structure, variable definition, and predicate precedence metrics.
- Applied the Trike threat modeling methodology to the Icelandic constitution.
- Integrated our analytic procedures into the unique agile development process used by the Icelandic Constitutional Assembly.
- Managed translation crowdsourcing and interaction with the Icelandic assembly.

Stach & Liu, Phoenix, AZ

Senior Security Associate, (August, 2010 - Present): Led consulting engagements for major Fortune 500 and government clients in multiple countries

- Continued development of Trike threat modeling tool, working to extend it to model more complex scenarios balancing between multiple perspectives, to handle degradation instead of failures, and to model non-computer resilience scenarios
- Developed Security Development Lifecycle Consulting practice, including a cohesive vision for how all services integrate across the company
- Co-developed a more effective and faster methodology for designing input validation
- Expanded skills around rapid design review, development methodology consulting

iSEC Partners, Seattle, WA

Security Consultant, (November 2008 - January 2010): Performed a wide variety of consulting work for multiple high-profile enterprise clients. While at iSEC Partners:

- Wrote testing tools for web services systems
- Audited code and tested applications and web sites with and without code access.
- Wrote an MSDN-published whitepaper and article on ROI and security metrics.
- Created training material, guidelines, and standards for both specific customers and general application across multiple languages and development methodologies.

Security Innovation, Inc., Seattle, WA

Computer Security Engineer, (January 2006 - October 2008): Led threat modeling Center of Excellence and performed consulting work in a variety of security-related roles. While at Security Innovation:

- Wrote a variety of fuzzing and testing tools.
- Analyzed architectural and implementation security of multi-tier applications.
- Managed other engineers on a per-project basis.
- Audited code, designed mitigations, reviewed designs, and created threat models.
- Worked with clients to design and revise architectures and mitigate threats within constraints of budget and schedule.
- Continued research and defined offerings and positioning for threat modeling.
- Trained other engineers in threat modeling.
- Advised on the creation of a professional development program.
- Recruited and interviewed technical personnel and advised on staffing.
- Assisted on sales engineering restructuring and advised on offerings and positioning.

Public Nerd Area, Seattle, WA

Co-founder, (April 2005 - September 2009): Created and helped run a collective work shop and research facility specializing in robotics, electronics, and security work. Co-hosted a weekly event. Taught others to use machine tools; managed issues of resource contention, funding, and group dynamics. Provided technical assistance on community projects.



EXPERIENCE:

IOActive, Inc., Seattle, WA

Computer Security Analyst, (September 2003 - January 2006): Performed consulting work auditing the security of large multi-tier applications at architectural and implementation levels through code auditing, threat modeling, and design reviews. At IOActive:

- Designed and developed tools to support knowledge capture and data analysis.
- Managed teams and simultaneous projects with heavy client interaction.
- Performed sales engineering, scheduling and project management work.
- Performed research in threat modeling to further formal understanding of the security of complex systems. Used the research to guide development workflows.

Optimal Engineering Solutions, Inc., Cleveland, OH

Programmer, (September 2001 - January 2002): Wrote and optimized a distributed automation system with interfaces to multiple existing APIs. Built a parallel computation cluster. Automated administrative tasks across the cluster and other machines.

GIE Media, Inc., Cleveland, OH

Consultant, (October 2000 - February 2001): Analyzed and redesigned GIE's network and servers to modernize infrastructure and improve workflow with a limited budget. Documented the network and implemented network security systems.

S/390 Porting Feasibility & Development, IBM Poughkeepsie, Pleasanton, CA

Programmer, (June 2000 - August 2000): Worked on-site at PeopleSoft, Inc., programming, debugging, performance tuning, and providing platform porting assistance on OS/390 and Linux for PeopleSoft's core ERP product, including work with cross-platform Unicode issues, build automation, and Oracle integration.

MyOwnEmpire.com, Inc., San Jose, CA

Network Administrator, (May 1999 - January 2000): Installed, configured, secured, maintained, and tuned all back-end systems for an Internet portal start-up, including fault-tolerance, failover, and scalability for DNS, web, JVM, database, data backup, mail, NTP, CVS, and automated build servers. Automated administrative tasks.

HeartCare/GENIE, Case Western Reserve University, Cleveland, OH

Webmaster/Programmer, (August 1998 - May 1999): Administered web and database server for NIH online post-operative care research project. Acted as liaison between technical and nontechnical teams. Integrated predictive global modeling tool with geographic information system for UNESCO global modeling project. Wrote data processing and filtering tools.

Flashpoint Technologies, Inc., San Jose, CA

Special Project Intern, (May 1998 - August 1998): Worked closely with multiple departments in specifying document control and groupware solution, and developed trial implementation. Critiqued and helped develop interface concepts. QA testing on company products.

Digital Media Services, Case Western Reserve University, Cleveland, OH

Information Systems Technician, (September 1997 - May 1998): Installed, configured, administered, and tuned SGI web and database server, including security work.

Human-Computer Interface Group, IBM Almaden, San Jose, CA

Research Intern, (September 1996 - September 1997): Conducted independent research on hierarchical 3D data visualization with applications in network and system administration, including work towards implementing test interface. Participated in and helped run human-computer interaction studies. Critiqued hardware and software interface designs.

Numerical Aerospace Simulation Div., NASA Ames, Mountain View CA

Ames Associate, (September 1994 - September 1997): Conducted independent computational physics research on the fluid dynamics of tip vortices on airfoils and the behavior of gyroscopically actuated motion platforms.



RESEARCH:

Electronic Countermeasures (2011)

Worked with Liam Young and Superflux to create a set of semi-autonomous drones which explored territory of surveillance, networking, and the new aesthetic as a cultural intervention. First shown at the 2011 Glow Festival in Eindhoven, Netherlands, the project is ongoing.

Anti/Social Lights, Structure Light Design Research Collective (2009)

Worked with Ari Lacenski (lead) to create spherical felted lamps that sensed each other's presence and created their own separate social system that viewers could reveal by interacting with the lamps but not directly affect. Presented at the Dorkbot Seattle annual show, People Doing Strange Things With Electricity (IV).

Autonomous Panoramic High-Altitude Photography, Hackerbot Labs (2007)

AHAB was an autonomous high-altitude balloon equipped with redundant communications and positioning systems and synchronized cameras for near-space panoramic photography.

The Trike Threat Modeling Methodology, Independent (2003-Present)

Trike is a unified conceptual framework for security auditing from a risk management perspective in a reliable, repeatable manner, and an open source application implementing the methodology. It is intended for use by security auditing teams to describe the security characteristics of a system from architecture to implementation and to enable communication among team members and between teams and other stakeholders. It is distinguished from other methodologies by high levels of automation, a defensive perspective, and a high degree of formalism. More information is available at <http://octotrike.org>

GYRE: Reduced Gravity Robotics, The University of Washington (2002-2003)

GYRE was an autonomous free-floating robot capable of orienting itself using visual servoing and cold gas thrust and performing station-keeping and navigating in a microgravity environment. It was based on commercial off-the-shelf hardware, and tested on NASA Johnson Space Center's KC-135 Reduced Gravity Test Platform.

Low Budget Supercomputing: A Proof of Concept Implementation (1999)

Proof of concept implementation of the Beowulf parallel clustering architecture, including application coding, scheduling, documentation, and administrative automation.

A Network Visualization Tool for the Next Generation (1997)

Conceptual design and prototyping of an advanced network management and visualization tool. Presented at the 1997 International Science and Engineering Fair (ISEF).

A Simple Three-Axis Variable Mission Simulator (1996)

Design and multi-body dynamics analysis of a gyroscopically powered platform intended for use in a motion simulator. Earned 1st Place Grand Award at the 1996 ISEF.

The Saitta Joined Wing: A CFD Analysis (1994 - 1995)

Design and computation fluid dynamics analysis of an airfoil aimed at reducing tip vortices. Earned 3rd Place Grand Award at the 1995 ISEF and other awards at the 1994 ISEF.

LECTURES:

Adventures in Participatory Nation-Building: FSCONS 2011; Gothenburg, Sweden; November 2011

Talk covering the history of CAST up to that point, and discussing our ways of working and (some) future plans.

Experiential Technologies for the Performance of Socio-Sexual Identities: Arse Elektronika 2011; San Francisco, CA; October 2011

Framing sexual cultures as technologies for expression and bringing in other, outside tools that let us build new social rule sets. Paper forthcoming.



LECTURES:

- Our Stories, Our Weapons: Uncivilization; Hampshire, UK; August 2011
On suicide, stories, war, and the personal costs of digital resistance.
- Your Infrastructure Will Kill You: 27c3; Berlin, Germany; December 2010
Talk examining the ways in which our collective infrastructure is significantly failing, including a set of tools based on Vinay Gupta's Simple Critical Infrastructure Maps and the Trike threat modeling methodology to examine how these systems are failing; comments on how we may fix the problem.
- Making Space / Making Publics / Making Politics: DIY Citizenship 2010; Toronto, Canada; November 2010
Talk exploring the myths and realities of the politics of hackerspaces, fab labs, hubs, and similar spaces as expressed in their social structures and built forms.
- Designing Spaces for Sex: Expanding the Intimate Possibilities of the Built Environment: Arse Elektronika; San Francisco, USA; October 2010
Talk exploring architectural fictions of spaces for sex, sexuality, intimacy, and gender, with an emphasis on exploring ways in which modern cities underserve these aspects of lived experience. Paper forthcoming.
- What Are We: Essay for #50cyborgs; September 2010
A piece for Tim Maly's online retrospective on the 50th anniversary of the term cyborg, exploring the networked interdependence of the modern augmented human. Available here: <http://dymaxion.org/essays/cyborgs/>.
- Buying Privacy in the Digitized City: SIGINT; Köln, Germany; May 2010 / The Next HOPE; July 2010; New York, USA
Talk describing the ways in which surveillance culture enforces a socioeconomic hierarchy to an increasing degree as cities become more connected. Call for a competition for deployable camera units to counteract police brutality aided by the disappearance of state-run video surveillance data.
- Women and Geek Culture - What's the problem, guys?: SIGINT; Köln, Germany; May 2010
Panel discussion on different areas feminism in hacker culture exploring why it is still significantly divisive.
- Playing with the Built City: 26C3; Berlin, Germany; December 2009 / Notacon 7; Cleveland, USA; April 2010
Talk and paper providing a theoretical basis for, exploring reasons for, describing tactics of, and providing examples of individual architectural interventions in the cities to create more human, livable places without requiring recourse to capital. The paper written for this talk was published in the Monochrom Yearbook, #26-34, and the proceedings of the 2009 Paraflows: Urban Hacking conference.
- Designing the Future of Sex: Arse Elektronika; San Francisco, USA; October 2009 / Notacon 7; Cleveland, USA; April 2010
Talk examining the ways in which sex may change culture and technology may change sex over the next twenty years, with specific focus on technologically fictive bodies, viewed through the lens of design fiction. The paper written for this talk was published in the proceedings of Arse Elektronika 2009.
- Hands on Threat Modeling with Trike v1: ToorCon 7; San Diego, USA; August 2005
The first public talk on Trike, presented with another member of the Trike team.



- PUBLICATIONS:**
- Venture Warlordism: Powision: Wege aus der Demokratie?**, November 2011
On the future of democracy in a contracting economy, for the magazine Powision published out of the University of Leipzig. Available here: <http://bit.ly/utFbyy>.
 - Transnationality and Performance: Border Town**, July 2011
On borders as performative objects and the modern transnational experience, for the Border Town architectural studio on divided cities. Available here: <http://bit.ly/stDpTm>.
 - There is No Future: The Future We Deserve**, October 2010
On the traps we set for ourselves in thinking about the future, for a crowdsourced book. Available here: <http://dymaxion.org/essays/thereIsNoFuture.html>
 - What Are We: 50 Cyborgs**, September 2010
This whitepaper and the accompanying MSDN SDL blog post describe how to track and understand the impact of security investments, and provides guidelines for determining resource allocations. Note: paper was credited to another iSEC Partners employee for PR contact reasons. Available here: <http://bit.ly/k9mf2H>.
 - Microsoft SDL: Return On Investment: MSDN**, September 2009
This whitepaper and the accompanying MSDN SDL blog post describe how to track and understand the impact of security investments, and provides guidelines for determining resource allocations. Note: paper was credited to another iSEC Partners employee for PR contact reasons. Available here: <http://bit.ly/k9mf2H>.
 - Trike v1 Methodology Document**, July 2005
The formal methodology document for the Trike threat modeling methodology; now superseded by further (currently unpublished) research. Cited academically; available here: http://octotrike.org/papers/Trike_v1_Methodology_Document-draft.pdf

- SKILLS:**
- Computational:** Architectural/whole systems analysis, white/black box application security testing, design review, threat modeling, object oriented design, and user interface design.
 - Soft Skills:** Problem solving, fiction creation, large-scale idea synthesis, public speaking, client interaction, team management, technical writing, sales engineering, project management, process and workflow design.
 - Art and Design:** Sketching, 3D modeling (MoI, some Solidworks), acrylic painting, technical diagrams (Illustrator and Visio), architectural drawing, light machining, surface mount soldering. Some experience with laser cutters, CNC tools, composites, and 3D printers.
 - Languages:** Python, PHP, Ruby, C#, C, C++, Unix Shell, SQL, XML, HTML, CSS.

- EDUCATION:**
- Case Western Reserve University, Cleveland, OH (1997-2002)
Coursework towards a Bachelor of Science in Computer Science with a minor in Artificial Intelligence.
Relevant coursework:
 - Design theory seminar (grad.)
 - User interface design (grad.)
 - Software engineering (grad.)
 - Artificial intelligence
 - Numeric methods
 - Heresy in the Middle Ages
 - Architecture and city design (year long)
 - Systems analysis and organization design (grad.)
 - Complex systems modeling and analysis (grad.)
 - Object oriented software development (grad.)
 - Database systems

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INTERESTS:

- Security and risk analysis
- Complex system failure
- Traffic analysis and cryptography
- Autonomous robotics
- Mobile device interactions
- Physical interface design
- Alternate state-like structures
- Ch'an Buddhism
- Computer-mediated communication
- Human-centric architecture and urbanism
- Data visualization
- Jewelry design
- Embodied Experience design
- Ubiquitous computing
- Radical feminism and network culture
- Abstract painting