

Profile

Computer Ph.D. with wide ranging experience including teaching, consulting, and software development. Expertise in cryptography, algorithms, secure operating systems, data visualization, and steganography. Creative approach, often solving problems by introducing techniques from one field to another. Works well with cross functional teams. Strong writing skills.

Highlights

- Top Secret clearance
- Wrote inaugural curriculum for Rabb Continuing Education School at Brandeis
- Sped up cryptographic computations by 30% at Digital

Professional Experience

BAE Systems, Burlington, MA

Software Research Engineer May 2011 – April 2016

- worked on SAFE project – a new secure architecture
 - Designed, documented, and wrote allocator and garbage collector
 - Contributed to other operating system design documents
 - Co-wrote assembly language coding standards
 - Demonstrated SAFE's protections by co-writing Stuxapp
 - Wrote tutorial for Tempest (a new low-level language for SAFE)
 - Led the design and implementation of advanced strings for Tempest
- Led Cognitive Science Reading Group; led discussions in Systems and Security Group
- Co-authored several proposals and published papers
- Chairman's Silver award
- Co-inventor on provisional patent application

Elysium Digital, Cambridge, MA

Computer Scientist March 2008 – November 2009

- Consulted to lawyers on software in intellectual property cases
- Analyzed patents and software to determine if the software infringed the patent
- Analyzed source code repositories to determine when a technique first appeared
- Consulted on trade secrets - both validity and infringement issues

Brandeis University, Waltham, MA

Lecturer in Computer Science September 2004 – May 2007

- Taught Theory of Computation
- Led seminars in Computer Security and Distributed Computing
- Did research in Data Visualization, Hybrid Systems, and Steganography

System and Network Manager – Computer Science Department 1999 – 2001

- Ran all aspects of department's network of more than 100 computers running HP-UX, Irix, Linux, and Mac OS

- Specified and maintained all hardware and software for the department
- Supervised 5-10 students

Curriculum Consultant – Rabb School of Continuing Education 1997 – 1998

- Co-wrote first curriculum in Software Engineering

Security Consultant 1999

- Advised registrar on security issues in allowing advisers to access student data

Faculty – Brandeis Summer Odyssey summers 1996 – 2002

- Taught intensive research course to high school students

Education

Brandeis University, Waltham, MA

Ph.D., Computer Science Thesis: *CLP(F) Modeling of Hybrid Systems*

Yale University, New Haven, CT

M.S., M.Phil., Computer Science Thesis: *Proof of an Oblivious Transfer Protocol*

Brandeis University, Waltham, MA

B.A., Computer Science

Abstracts of my publications:

<http://www.cs.brandeis.edu/~dkw/papers/abstracts.html>

Recent Publications

- [1] David K. Wittenberg, Edin Kadric, André DeHon, Jonathan Edwards, Jeffrey Smith, and Silviu Chiricescu. PERFECT case studies demonstrating order of magnitude reduction in power consumption. In *IEEE High Performance Extreme Computing Conference*, September 2016.
- [2] David K. Wittenberg, Jeffrey Smith, Robert Gray, and Gregory Eakman. Automotive vulnerability detection system. In *Embedded Systems in Cars*, 2016.
- [3] Joseph Fahey, Howard Reubenstein, David Wittenberg, and Gregory Sullivan. Benefits of deploying inherently secure nodes within a distributed system. In *IEEE Software Technology Conference*, October 2015.
- [4] Jeffrey Smith, Basil Krikeles, David K Wittenberg, and Mikael Taveniku. Applied vulnerability detection system. In *Technologies for Homeland Security (HST), 2015 IEEE International Symposium on*, pages 1–6. IEEE, 2015.
- [5] Gregory T. Sullivan, Silviu Chiricescu, André DeHon, Delphine Demange, Suraj Iyer, Aleksey Kliger, Greg Morrisett, Benjamin C. Pierce, Howard Reubenstein, Jonathan M. Smith, Arun Thomas, Jesse Tov, Christopher M. White, and David Wittenberg. Safe: A clean-slate architecture for secure systems. In *Proceedings of the IEEE International Conference on Technologies for Homeland Security*, November 2013.