

**Interests** Computer systems, security and privacy, anonymity, networking, distributed computing.

## Education

Ph.D. in [Electrical-Computer Engineering](#), August 2011, [University of Florida](#), Advisor: Renato J Figueiredo  
Thesis: “[Design and Implementation of User-friendly, Self-configuring, and Scalable Virtual Private Networks](#)”  
M.S. in [Electrical-Computer Engineering](#), May 2007, [University of Florida](#), Advisor: Renato J Figueiredo  
Thesis: “[Design Space Exploration of Virtual Machine Appliances for Wide-Area Distributed Computing](#),”  
B.S. in [Electrical-Computer Engineering](#), May 2005, [University of Florida](#)

## Work Experience

Yale University New Haven, CT  
Research Scientist / Lecturer June 2011 – present

- Taught [Operating Systems](#) and advanced systems seminar
- Designed and developed the first strong anonymous group communication systems that scaled to thousands of users, [Dissent](#)
- Designed the first system to systematically address intersection attacks in anonymous communication systems, [Buddies](#)
- Designed and developed an operating system to protect users from accidentally leaking private information in order to protect their anonymity, [Nymix](#)
- Investigated means for avoiding correlated failures in cloud computing, [INDaaS](#)
- Developed privacy preserving biometric authentication software, [Private Eyes](#)
- Developed deniable, forward secure group authentication software, [DAGA](#)
- Mentored 6 PhD students, 2 masters students, 4 interns, and many undergraduate projects

[University of Florida](#) Gainesville, Florida  
System Administrator / Research Assistant May 2006 – June 2011

- Teacher’s assistant for digital computer architecture, virtual computing, computer system design
- Designed and developed a distributed, decentralized volunteer grid, [Grid Appliance](#)
- Designed and developed a decentralized virtual private network, [Brunet / IPOP](#)
- Maintained a multi-university distributed, decentralized computing grid for computer architecture research, [Archer](#)
- Developed academic modules for teaching cloud computing including Hadoop and MPI using [Grid Appliance](#) on [FutureGrid](#)
- Mentored 4 PhD students, 3 masters students, and 3 high school students

[Dell](#) Round Rock, Texas  
Server Performance and Analysis Lab May 2005 – August 2005

- Led an investigation into the Xen virtual machine monitor
- Experimented with early prototype Intel VT (hardware virtualization) processors
- Compared performance between Xen using paravirtualization and hardware virtualization
- Developed a secure web browser using virtual machines for Summer 2005 Technology Fair

[Dell Integrated Products and Process Design \(IPPD\)](#) Gainesville, Florida  
Team Lead August 2004 to May 2005

- Built a simulator for WMI (Windows Management Instrumentation) in C++
- Transitioned resulting software to Dell who used it for internal projects
- Led a team of 5 students

## Selected Projects

- [Dissent](#) - 06/11 to current - A C++ framework and run-time for large-scale, accountable group anonymity. Supports groups over 5,000 using a variety of different communication methods (Dissent CCS'10, Dissent OSDI'12, Verdict USENIX Security '13, Buddies CCS'13).
- [Nymix](#) - 11/12 to 10/14 - An operating system designed to protect users from accidentally leaking private information. Isolates user applications, data, and communication through virtualization. Local system supports Amnesiac system with persistent data stored anonymously to the cloud.
- [Anonymity Simulator](#) - 10/12 to current - A python library for acquiring data sets from IRC (Internet Relay Chat) and Twitter. As well as a data parser and simulator for evaluating intersection resistance in group anonymous communication systems.
- [Grid Appliance](#) - 05/06 to 09/11 - Ad hoc Distributed, decentralized grid system using virtual, physical, and cloud resources. Utilizes Condor for batch job scheduling and IPOP / Brunet for virtual networking. Configuration and security handled through a web interface.
- [IPOP – IP over P2P](#) - 05/06 to 09/12 - Lead developer – Structured P2P, completely decentralized virtual networking stack written in C#, 7,000 lines of code. Supports DHCP, multicast, ARP, transparent subnet gateway, network address translation, and firewalls. Built on top of Brunet. Used to build “GroupVPN” and “SocialVPN”. Note: source code has been integrated into Brunet.
- [Brunet](#) - 05/07 to 09/12 - Structured P2P framework written in C#, 41,000 lines of code. Supports completely decentralized NAT traversal via hole punching and relays, DHT, edge and overlay security, xmlrpc bridge, private overlay bootstrapping, and a built-in Simulator. My contributions were support for relays, DHT, security, bootstrapping from existing overlays, and a built-in simulator.

## Software Development Skills

- Fluent in C, C++, C#, and Python. Significant experience with Bash, Go, HTML DOM, Java, JavaScript, Latex, MySQL, and PHP.
- Web and database management skills - Developer and administrator for the now deprecated [www.grid-appliance.org](#), the Grid Appliance, Archer, and IPOP portal
- Experience deploying large-scale distributed systems (Brunet, Grid Appliance, Hadoop, IPOP, Dissent) on [DeterLab](#), [EC2](#), and [PlanetLab](#).
- Extensive use of profilers and debuggers

## Selected Research Papers

1. Ewa Syta, Iulia Tamas, Dylan Visher, **David Isaac Wolinsky**, Bryan Ford, “[Certificate Cothority: Towards Trustworthy Collective CAs](#)”, Hot Topics in Privacy Enhancing Technologies (HotPETs), 07/2015
2. Ennan Zhai, Ruichuan Chen, **David I Wolinsky**, and Bryan Ford, “[Heading Off Correlated Failures through Independence-as-a-Service](#)”, USENIX Symposium on Operating Systems Design and Implementation (OSDI), 10/2014
3. **David I Wolinsky**, Ewa Syta, and Bryan Ford, “[Hang With Your Buddies to Resist the Intersection Attack](#)”, ACM Conference on Computer and Communications Security (CCS), 11/2013
4. **David I Wolinsky**, Panoat Chuchaisri, Kyungyong Lee, and Renato Figueiredo, “[Experiences with Self-Organizing Decentralized Grids Using the Grid Appliance](#)”, International Journal of Cluster Computing, 06/2013
5. **David I Wolinsky**, Henry Corrigan-Gibbs, Bryan Ford, and Aaron Johnson, “[Dissent in Numbers: Making Strong Anonymity Scale](#)”, USENIX Symposium on Operating Systems Design and Implementation (OSDI), 10/2012
6. Kyungyong Lee, **David I Wolinsky**, and Renato J Figueiredo, “[PonD : Dynamic Creation of HTC Pool on Demand Using a Decentralized Resource Discovery System](#)”, ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC), 06/2012
7. **David I Wolinsky** and Renato J Figueiredo, “[Experiences with Self-Organizing Decentralized Grids Using the Grid Appliance](#)”, ACM International Symposium on High Performance Distributed Computing (HPDC), 06/2011

8. **David I Wolinsky**, Pierre St. Juste, P Oscar Boykin, and Renato Figueiredo, “[Addressing the P2P Bootstrap Problem for Small Overlay Networks](#)”, IEEE International Conference on Peer-to-Peer Computing (P2P), 08/2010
9. Pierre St Juste, **David I Wolinsky**, P Oscar Boykin, Michael Covington, and Renato J Figueiredo, “[SocialVPN: Enabling Wide-Area Collaboration with Integrated Social and Overlay Networks](#)”, Journal of Computer Networks, 08/2010
10. **David I Wolinsky**, Yonggang Liu, Pierre St. Juste, Girish Venkatasubramanian, Renato J Figueiredo, “[On the Design of Scalable, Self-Configuring Virtual Networks](#)”, SuperComputing, 11/2009

## Selected Talks

1. “[Tracking Resistance in PriFi](#)”, EuroSys Program Committee Workshop, 01/2015
2. “[Enforcing Anonymity and Improving Pseudonymity in Tails](#)”, Tails Hackfest 2014, 07/05/14
3. “[Hang With Your Buddies to Resist the Intersection Attack](#)”, ACM Conference on Computer and Communications Security (CCS), 11/2013
4. “[Strong, Scalable Anonymity with Dissent](#)”, USENIX Symposium on Operating Systems Design and Implementation (OSDI), 10/2012
5. “[Experiences with Self-Organizing, Decentralized Grids Using the Grid Appliance](#)”, IEEE High Performance Distributed Computing (HPDC), 06/2011
6. “[Addressing the P2P Bootstrap Problem for Small Overlay Networks](#)”, IEEE International Conference on Peer-to-Peer Computing (P2P), 08/2010
7. “[Archer - A Community Distributed Computing Infrastructure for Computer Architecture Research and Education](#)”, Universities of Northeastern, Minnesota, and Texas at Austin, 09/[14,16,18]/09
8. “[Autonomic Condor Clouds](#)”, Condor Week, 04/2009
9. “[IPOP - IP over P2P Virtual Networking for Grid Computing](#)”, Open Science Grid All Hands, 03/2009

## Community Service

- Conference program committee member:
  - [International Conference on Security and Privacy in Communication Networks \(SecureComm\) 2015](#)
  - [IEEE Conference on Peer-to-Peer Computing \(P2P\) 2015](#)
  - [EuroSys \(Shadow PC\) 2015](#)
  - [International Conference on Digital Forensics and Cyber Crime \(ICDF2C\) 2014](#)
- Journal reviewing:
  - [International Journal of Cluster Computing 2012–2015](#)
  - [IEEE Transactions on Dependable and Secure Computing 2014–2015](#)
  - [Electronics and Telecommunications Research Institute \(ETRI\) 2010–2011](#)
- Workshop program committee member:
  - [ACM Symposium on Operating Systems Principles \(SOSP\) Poster Session 2015](#)
  - [Workshop on Privacy in the Electronic Society \(WPES\) 2015](#)
  - [Workshop on Bio-inspired Cyber Security & Networking \(BCSN\) 2015](#)
  - [Third International Workshop on Cyber Crime \(IWCC\) 2014–2015](#)
  - [International Workshop on Hot Topics in Planet-scale mOBile computing and online Social neT-working \(HotPOST\) 2015](#)
- Grant reviewing: Department of Energy 2013, 2014
- Open-source contributions: [Mono](#), [ST](#), [Tails](#), and [Xen](#).