

## Randolph C. Baden

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### Education

Ph.D. Computer Science, University of Maryland, 2012  
M.S. Computer Science, University of Maryland, 2008  
B.S. Computer Science, University of Maryland, 2005, *Cum Laude*  
B.S. Mathematics, University of Maryland, 2005, *Cum Laude*

### Publications

“Sharing Private Data Over Public Networks,”  
Randy Baden (Ph.D. Thesis, 2012)

“Triangle Inequality Variations in the Internet,”  
Cristian Lumezanu, Randy Baden, Neil Spring, Bobby Bhattacharjee (IMC 2009)

“Identifying Close Friends on the Internet,”  
Randy Baden, Neil Spring, Bobby Bhattacharjee (HotNets 2009)

“Persona: An Online Social Network with User-Defined Privacy,”  
Randy Baden, Adam Bender, Neil Spring, Bobby Bhattacharjee, Daniel Starin (SIGCOMM 2009)

“Symbiotic Relationships in Internet Routing Overlays,”  
Cristian Lumezanu, Randy Baden, Dave Levin, Neil Spring, Bobby Bhattacharjee (NSDI 2009)

“Triangle Inequality and Routing Policy Violations in the Internet,”  
Cristian Lumezanu, Randy Baden, Neil Spring, Bobby Bhattacharjee (PAM 2009)

“Motivating Participation in Internet Routing Overlays,”  
Dave Levin, Randy Baden, Cristian Lumezanu, Neil Spring, Bobby Bhattacharjee (NetEcon 2008)

“IP Geolocation in Metropolitan Area Networks”  
Randolph Baden (Master’s Degree Scholarly Paper, 2008)

### Posters

“LoKI: Location-based PKI for Social Networks,”  
Randy Baden (SIGCOMM 2011)

### Merits and Awards

TOP SECRET (TS), Special Intelligence (SI), TALENT KEYHOLE (TK) cleared  
Agency Special Background Investigation (SBI) and polygraph on 3/21/2012  
National Intelligence Meritorious Unit Citation  
SIGCOMM 2009 Best Student Paper  
Second Place in the 2011 University of Maryland Mobility Contest

## Experience

Research Assistant 2003-2012  
University of Maryland College Park, MD

- Developed software for reporting and recording automobile accidents and incidents within the DC Metropolitan area (2003-2006).
- Developed new techniques and analyzed existing techniques for Internet host geolocation in Metropolitan Area Networks (2006-2011).
- Designed and implemented a secure distributed hash table resilient to attacks or failures from a predetermined number of distinct, globally identifiable classes of participants (2006-2007).
- Designed, developed, and evaluated PeerWise, an Internet routing overlay that exploits triangle inequality violations and mutual advantage to achieve lower latencies (2007-2008).
- Designed Persona, a distributed Online Social Network that uses a combination of attribute-based encryption, public key encryption, and symmetric encryption to provide fast, flexible and cryptographically secure user-defined privacy policies (2008-2009).
- Performed a user study of PKI bootstrapping in Online Social Networks using exclusive shared secrets from social interactions (2008-2009).
- Created a pseudonymous rendezvous abstraction and implemented a system that supports a wide range of application-specific privacy and connectivity guarantees (2010-2011).

Engineering and Physical Sciences Researcher 2012-Present  
Laboratory for Telecommunication Sciences College Park, MD

- Simulated clock drift on a stand-alone network (2012).
- Designed and implemented an improved instrumentation tool for large-scale dynamic analysis of Android applications (2012-2013).
- Managed contractors and academics to study properties of IPv6 (2012-2013).
- Studied the traceroute, ping, and nmap data from the Carna botnet data set (2013).
- Researched the viability of Internet host geolocation based on host availability (2013).
- Created a stand-alone bitcoin network to analyze the bitcoin peer-to-peer protocol (2013).

Chief Technology Officer 2010-2011  
Atmosphere Entertainment, LLC College Park, MD

- Designed and developed Atmo, a modern jukebox where users vote on the music that's playing in shared spaces (e.g. a restaurant) directly from their smartphones (2010-2011).

**References and known computer languages available upon request.**