

Randolph C. Baden

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Education

Ph.D. Computer Science, University of Maryland, 2012

M.A. 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

“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, Randolph 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).

Awards

Best Student Paper (SIGCOMM 2009)

Second Place in the 2011 University of Maryland Mobility Contest

Research Experience

Research Assistant

University of Maryland CATT Laboratory

Development of software for reporting and recording automobile accidents and incidents within the DC metropolitan area.

2003–2006

College Park, MD

Research Assistant 2006–Present
University of Maryland College Park, MD
Development of new techniques and analysis of existing techniques for Internet host geolocation in Metropolitan Area Networks.

Research Assistant 2006–2007
University of Maryland College Park, MD
Design and implementation of a secure distributed hash table resilient to attacks or failures from a predetermined number of distinct, globally identifiable classes of participants.

Research Assistant 2007
University of Maryland College Park, MD
Study of the desired system properties of a post-modern Internet architecture, including the mechanisms to achieve such properties.

Research Assistant 2007–2008
University of Maryland College Park, MD
Implementation of a simple cooperative online game and analysis of a hybrid peer-to-peer and client-server architecture for online games.

Research Assistant 2008
University of Maryland College Park, MD
Design and development of PeerWise, an Internet routing overlay which exploits triangle inequality violations in Internet latencies and the presence of mutual advantage among participating nodes to achieve lower latencies to a set of destinations.

Research Assistant 2008
University of Maryland College Park, MD
Development of a distributed online social network using flexible, lightweight chits as a new security primitive.

Research Assistant 2008-2009
University of Maryland College Park, MD
Design of 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.

Research Assistant 2008-2009
University of Maryland College Park, MD
Design and user-study driven evaluation of mechanisms for bootstrapping a PKI in online social networks using exclusive shared secrets that users have established out-of-band.

Research Assistant 2010-Present
University of Maryland College Park, MD
Design of a pseudonymous rendezvous abstraction and implementation of a system, Twain, that supports a wide range of application-specific privacy and connectivity guarantees, including a form of location-based social network PKI bootstrapping.

Other Experience

Chief Technology Officer 2010-2011
Atmosphere Entertainment, LLC College Park, MD
Design and development of Atmo, a modern jukebox where users can vote on the music playing in shared spaces directly from their mobile phones.