

Jeffrey A. Pang

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EDUCATION

- June 2009 (expected) **Ph.D. Candidate in Computer Science, Carnegie Mellon University**
- Thesis Topic: Quantifying and Mitigating Privacy Threats in Wireless Protocols
 - Advisor: Srinivasan Seshan
- M.S. in Computer Science, Carnegie Mellon University**
- May 2003 **B.A. in Computer Science (Honors), UC Berkeley**
- GPA: 3.95/4.00
 - Highest Achievement Award in Computer Science (1st in major)

EMPLOYMENT HISTORY

- Sep 2003 – Present **Graduate Research Assistant**
Carnegie Mellon University, with Prof. Srinivasan Seshan
Investigated problems and novel solutions in wireless security and privacy, network games, and Internet infrastructure.
- Wireless Privacy: Quantified and developed solutions for privacy problems in wireless link layer protocols. Evaluated how well features in 802.11 traffic, can identify users. Developed a Bayesian model that successfully fingerprints many users. Designed, implemented, and evaluated SlyFi, an identifier-free link layer protocol that prevents user tracking and profiling but is as efficient as existing protocols, which do not. *This work was published at HotOS 2007, MobiCom 2007, and MobiSys 2008 (awarded Best Paper Award).*
- P2P Games: Co-designed and developed Colyseus, a distributed object store using a scalable publish-subscribe system. Modified commercial games Quake II and Quake III to use the object store to demonstrate its utility for supporting massively multiplayer online games and evaluated object placement strategies for online games. *This work was published at NSDI 2006.*
- Internet Measurement: Measured the availability, usage, and deployment characteristics of the Domain Name System (DNS) and studied how well local DNS servers obey TTLs through DNS log analysis. *This work was published in two papers at IMC 2004.*
- Internet Measurement: Analyzed data from a large content delivery network to study the benefits of overlay routing versus multihoming. *This work was published at SIGCOMM 2004.*
- Jun 2008 – Aug 2008 **Research Intern**
Intel Research Seattle, with Dr. Ben Greenstein
Wireless Privacy: Designed a location-privacy preserving reputation system for wireless access points (APs) and other wireless services, to improve mobile AP selection. Designed, implemented, and deployed a measurement framework to measure wireless and backhaul performance of Wi-Fi hotspots in the wild. Conducted measurements of hotspots in the Seattle area. *This work will be published at MobiSys 2009.*

- Jun 2007 – Aug 2007 **Research Intern**
Intel Research Seattle, with Dr. Ben Greenstein and Prof. David Wetherall
Wireless Privacy: Designed and implemented Tryst, a prototype architecture that makes local service discovery confidential and authenticated. Integrated Tryst with the MadWiFi 802.11 driver in the Linux kernel using the Click Modular Router framework. *This work was published at HotNets 2007.*
- Jun 2006 – Aug 2006 **Research Intern**
Microsoft Research Redmond, with Dr. John Douceur and Dr. Jacob Lorch
P2P Games: Designed and implemented techniques for increasing the scalability of peer-to-peer multiplayer games in low bandwidth settings as part of the Donnybrook project. Modified Quake III, a popular First Person Shooter game, to run on Donnybrook, and conducted a large user study comparing Donnybrook to existing architectures. *This work was published at IPTPS 2007 and SIGCOMM 2008.*
- May 2005 – Aug 2005 **Research Intern**
Intel Research Pittsburgh, with Prof. Haifeng Yu
Distributed File Systems: Designed and implemented D2, a locality preserving distributed file system based on a distributed hash table with explicit load balancing. Analyzed real world file system workloads and demonstrated performance and availability improvements over other distributed file system designs. *This work was published at ICDCS 2007.*
- Jun 2002 – May 2003 **Undergraduate Research Assistant**
U.C. Berkeley, with Profs. Anthony Joseph, John Kubiawicz, and Brian Barsky
DHT Applications: Co-designed, developed, and evaluated email services over OceanStore. Designed and implemented a prototype for managing tentative updates in the wide area using multicast and gossip protocols.
- Image-based Rendering: Developed optically correct blurring techniques for image based rendering. Co-authored two computer graphics survey papers.
- Apr 2001 – Jan 2002 **Software Engineering Intern**
Sun Microsystems
Designed and implemented module extensions for the Forte for Java IDE (now part of Sun Java Studio). Developed servlets and JSP for the Forte for Java web portal. Authored technical content for the web portal.

TEACHING EXPERIENCE

- Jan 2007 – May 2007 **Teaching Assistant, Carnegie Mellon University**
Graduate Computer Networks (15-744). Developed and administered homework assignments, gave lectures, and handled administrative tasks.
- Jan 2004 – May 2004 **Teaching Assistant, Carnegie Mellon University**
Computer Networks (15-441). Developed and administered programming projects, gave lectures, and handled administrative tasks.

PUBLICATIONS

Refereed Conference Publications

- Jeffrey Pang**, Ben Greenstein, Michael Kaminsky, Damon McCoy, Srinivasan Seshan. Wifi-Reports: Improving Wireless Network Selection with Collaboration. In *ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2009, Kraków, Poland. To appear. [20% acceptance rate]
- Ashwin Bharambe, John R. Douceur, Jacob R. Lorch, Thomas Moscibroda, **Jeffrey Pang**, Srinivasan Seshan, Xinyu Zhuang. Donnybrook: Enabling Large-Scale, High-Speed, Peer-to-Peer Games. In *ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, 2008, Seattle, WA. [12.2% acceptance rate]

Ben Greenstein, Damon McCoy, **Jeffrey Pang**, Tadayoshi Kohno, Srinivasan Seshan, and David Wetherall. Improving Wireless Privacy with an Identifier-Free Link Layer Protocol. In *ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2008, Breckenridge, CO. **Best Paper Award**. [18% acceptance rate]

Jeffrey Pang, Ben Greenstein, Ramakrishna Gummadi, Srinivasan Seshan, and David Wetherall. 802.11 User Fingerprinting. In *ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2007, Montreal, QC, Canada. [11.1% acceptance rate]

Jeffrey Pang, Phillip B. Gibbons, Michael Kaminsky, Srinivasan Seshan, Haifeng Yu. Defragmenting DHT-based Distributed File Systems. In *IEEE International Conference on Distributed Computing Systems (ICDCS)*, 2007, Toronto, ON, Canada. [13.5% acceptance rate]

Ashwin Bharambe, **Jeffrey Pang**, and Srinivasan Seshan. Colyseus: A Distributed Architecture for Interactive Multiplayer Games. In *USENIX Symposium on Network Design and Implementation (NSDI)*, 2006, San Jose, CA. [25.4% acceptance rate]

Jeffrey Pang, James Hendricks, Aditya Akella, Bruce Maggs, Roberto De Prisco and Srinivasan Seshan. Availability, Usage, and Deployment Characteristics of the Domain Name System. In *ACM/USENIX Internet Measurement Conference (IMC)*, 2004, Taormina, Sicily, Italy. [24.8% acceptance rate]

Jeffrey Pang, Aditya Akella, Anees Shaikh, Balachander Krishnamurthy and Srinivasan Seshan. On the Responsiveness of DNS-based Network Control. In *ACM/USENIX Internet Measurement Conference (IMC)*, 2004, Taormina, Sicily, Italy. [24.8% acceptance rate]

Aditya Akella, **Jeffrey Pang**, Bruce Maggs, Srinivasan Seshan and Anees Shaikh. Overlay Routing vs Multihoming: An End-to-End Perspective. In *ACM Conference on Applications, Technologies, Architectures, and Protocols for Computer Communication (SIGCOMM)*, 2004, Portland, OR. [9.11% acceptance rate]

Refereed Workshop Publications

Jeffrey Pang, Ben Greenstein, Damon McCoy, Srinivasan Seshan, and David Wetherall. Tryst: The Case for Confidential Service Discovery. In *ACM SIGCOMM Workshop on Hot Topics in Networks (HotNets)*, 2007, Atlanta, GA. [18% acceptance rate]

Ben Greenstein, Ramakrishna Gummadi, **Jeffrey Pang**, Mike Y. Chen, Tadayoshi Kohno, Srinivasan Seshan, and David Wetherall. Can Ferris Bueller Still Have His Day Off? Protecting Privacy in the Wireless Era. In *USENIX Workshop on Hot Topics in Operating Systems (HotOS)*, 2007, San Diego, CA. [20% acceptance rate]

Jeffrey Pang, Frank Uyeda, and Jacob Lorch. Scaling Peer-to-Peer Games in Low Bandwidth Environments. In *International Workshop on Peer-to-Peer Systems (IPTPS)*, 2007, Bellevue, WA. [23.3% acceptance rate]

Selected Posters, Demos, and Work-in-Progress Talks

Jeffrey Pang, Ben Greenstein, Michael Kaminsky, Damon McCoy, and Srinivasan Seshan. Wifi-Reports: Improving Wireless Network Selection with Collaboration. In *USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, 2008, San Diego, CA. Work-in-progress session.

Jeffery Pang. Mechanisms to Mitigate Wireless Privacy Threats. In *ACM MobiSys PhD Forum*, 2008, Breckenridge, CO. Poster session.

Jeffrey Pang, Frank Uyeda, John Douceur, and Jacob R. Lorch. Scaling Peer-to-Peer Multiplayer Games with Doppelgangers. In *USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, 2006, Seattle, WA. Poster session.

Ashwin Bharambe, **Jeffrey Pang**, and Srinivasan Seshan. Colyseus: A Distributed Architecture for Interactive Multiplayer Games. In *USENIX OSDI Workshop on Real Large Distributed Systems (WORLDS)*, 2006, Seattle, WA. Demo session.

Selected Technical Reports and Invited Papers

Xinyu Zhuang, Ashwin Bharambe, **Jeffrey Pang**, Srinivasan Seshan. Player Dynamics in Massively Multiplayer Online Games. *CMU CS Technical Report Number CMU-CS-07-158*, 2007.

Brian A. Barsky, Daniel R. Horn, Stanley A. Klein, **Jeffrey A. Pang**, Meng Yu. Camera Models and Optical Systems Used in Computer Graphics: Part I, Object-Based Techniques. In *ICCSA: International Conference on Computational Science and Its Applications*, 2003, Montreal, QC, Canada. Invited paper.

Brian A. Barsky, Daniel R. Horn, Stanley A. Klein, **Jeffrey A. Pang**, Meng Yu. Camera Models and Optical Systems Used in Computer Graphics: Part II, Image-Based Techniques. In *ICCSA: International Conference on Computational Science and Its Applications*, 2003, Montreal, QC, Canada. Invited paper.

AWARDS AND HONORS

- **Best Paper Award:** MobiSys, 2008
- **NSF Graduate Fellowship Honorable Mention:** 2003
- **Highest Achievement Award in Computer Science:** U.C. Berkeley, 2003
- **Upsilon Pi Epsilon:** U.C. Berkeley, 2001

PROFESSIONAL SERVICE

- **Student Volunteer:** HotNets 2005 (managed submission website)
- **External Reviewer:** SIGCOMM 04, 06, INFOCOM 07, NSDI 05, 07, 08, 09, Mobicom 04, Pervasive 09, IMC 04, USENIX ATC 04, NOSSDAV 04, IPTPS 04, ICME 07, WCNC 09, Computer Networks 09, JASC Advances in Peer-to-Peer Streaming Systems, IEEE Network Magazine Special Edition on Recent Developments in Network Intrusion Detection

REFERENCES

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