

Cristian Lumezanu

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Current Position

Postdoctoral Fellow, College of Computing, Georgia Institute of Technology

Education

Ph.D., Computer Science, University of Maryland, College Park	09/2009
<i>Thesis:</i> Using Internet Geometry to Improve End-to-End Communication Performance	
<i>Advisors:</i> Neil Spring, Bobby Bhattacharjee	
M.S., Computer Science, University of Maryland, College Park	06/2006
B.S., Computer Science, Politehnica University, Bucharest, Romania	07/2002

Awards

Computing Innovation Postdoctoral Fellowship, <i>NSF/CRA/CCC</i>	2009 - 2011
Computer Science Department Fellowship, <i>University of Maryland</i>	2003 - 2005
Diploma of Excellency for Outstanding Professional Results, <i>Politehnica University, Bucharest</i>	2002
Merit-based Fellowship, <i>Politehnica University, Bucharest</i>	1997-2002

Professional Experience

Georgia Institute of Technology, Atlanta, GA

Postdoctoral fellow	11/2009 - present
Working in the Network Operations and Internet Security Lab (NOISE) with Nick Feamster; current projects include network event prediction based on social media user behavior, autonomous and flexible traffic engineering and designing fine-grained contracts for Internet connectivity.	

University of Maryland, College Park, MD

Research assistant	06/2004 - 10/2009
I worked on projects spanning several areas in systems and networking: <i>overlay networks</i> (PeerWise mutual-advantageous routing overlays, Sherpa location framework), <i>Internet measurement</i> (measurement study on triangle inequality violations in the Internet latency space), <i>distributed systems</i> (OverSeq message ordering protocol), and <i>security</i> (Pistachio static analysis tool for network protocol implementations).	
Teaching assistant, Computer Networks (CMSC 711)	Spring 2007
Teaching assistant, Computer Science II (CMSC 214)	Fall 2003, Spring 2004

Alcatel-Lucent Bell Laboratories, Murray Hill, NJ

Researcher/Intern

Summer 2009

I designed and built a system to eliminate redundant traffic and increase available bandwidth in cellular wireless networks; I studied the effect of packet loss on redundancy elimination.

IBM T.J. Watson Research Center, Hawthorne, NY

Researcher/Intern

Summer 2005, Summer 2006

I designed optimization-based resource allocation protocols for distributed information dissemination applications.

Politehnica University, Bucharest, Romania

Instructor, Cisco Networking Academy Program

03/2001 - 07/2002

Teaching Assistant, Communication Protocols

Spring 2002

Netappi Software, Bucharest, Romania

Software engineer

04/2002 - 06/2003

Publications

Refereed Publications

1. PeerWise: Symbiotic Relationships in Internet Routing Overlays
Cristian Lumezanu, Randy Baden, Dave Levin, Neil Spring, Bobby Bhattacharjee
Transactions on Networking, to appear
2. The Effect of Packet Loss on Redundancy Elimination in Cellular Wireless Networks
Cristian Lumezanu, Katherine Guo, Neil Spring, Bobby Bhattacharjee
Internet Measurement Conference (IMC), 2010
3. Don't Love Thy Nearest Neighbor
Cristian Lumezanu, Dave Levin, Bo Han, Neil Spring, Bobby Bhattacharjee
International Workshop on Peer-to-Peer Systems (IPTPS), 2010
4. Triangle Inequality Variations in the Internet
Cristian Lumezanu, Randy Baden, Neil Spring, Bobby Bhattacharjee
Internet Measurement Conference (IMC), 2009
5. Symbiotic Relationships in Internet Routing Overlays
Cristian Lumezanu, Randy Baden, Dave Levin, Neil Spring, Bobby Bhattacharjee
Symposium on Networked Systems Design and Implementation (NSDI), 2009
6. Triangle Inequality and Routing Policy Violations in the Internet
Cristian Lumezanu, Randy Baden, Neil Spring, Bobby Bhattacharjee
Lecture Notes in Computer Science, vol. 5448 (Sue B. Moon, Renata Teixeira and Steve Uhlig, Editors), pages 45-56, Springer-Verlag, 2009
also in *Passive and Active Measurement Conference (PAM), 2009*
7. Motivating Participation in Internet Routing Overlays
Dave Levin, Randy Baden, **Cristian Lumezanu**, Neil Spring, Bobby Bhattacharjee
Workshop on the Economics of Networks, Systems, and Computation (NetEcon), 2008

8. Online Optimization for Latency Assignment in Distributed Real-Time Systems
Cristian Lumezanu, Sumeer Bhola, Mark Astley
International Conference on Distributed Computing Systems (ICDCS), 2008
9. Measurement Manipulation and Space Selection in Network Coordinates
Cristian Lumezanu, Neil Spring
International Conference on Distributed Computing Systems (ICDCS), 2008
10. Rule-Based Static Analysis of Network Protocol Implementations
Octavian Udrea, **Cristian Lumezanu**, Jeffrey S. Foster
Journal of Information and Computation, Special Issue on Foundations and Automated Reasoning, volume 206, issues 2-4, 2008
11. PeerWise Discovery and Negotiation of Faster Paths
Cristian Lumezanu, Dave Levin, Neil Spring
Workshop on Hot Topics in Networking (HotNets), 2007
12. Boycotting and Extorting Nodes in an Internetwork
Dave Levin, Adam Bender, **Cristian Lumezanu**, Neil Spring, Bobby Bhattacharjee
Workshop on the Economics of Networked Systems and Incentive-Based Computing (NetEcon+IBC), 2007
13. Decentralized Message Ordering for Publish/Subscribe Systems
Cristian Lumezanu, Neil Spring, Bobby Bhattacharjee
Lecture Notes in Computer Science, vol. 4290 (Marteen van Steen and Michi Henning, Editors), pages 162-179, Springer-Verlag, 2006
also in *International Middleware Conference, 2006*
14. Rule-Based Static Analysis of Network Protocol Implementations
Octavian Udrea, **Cristian Lumezanu**, Jeffrey S. Foster
Usenix Security Symposium, 2006
15. Utility Optimization for Event-Driven Distributed Infrastructures
Cristian Lumezanu, Sumeer Bhola, Mark Astley
International Conference on Distributed Computing Systems (ICDCS), 2006

Posters and Technical Reports

16. Autonomous Traffic Engineering with Self-Configuring Topologies
Srikanth Sundaresan, **Cristian Lumezanu**, Nick Feamster, Pierre François
ACM Sigcomm, 2010
17. Online Optimization for Latency Assignment in Distributed Real-Time Systems
Cristian Lumezanu, Sumeer Bhola, Mark Astley
IBM Research Report 24503, IBM TJ Watson Research Center, 2008
18. Playing Vivaldi in Hyperbolic Space
Cristian Lumezanu, Neil Spring
CS-TR-4843, University of Maryland, College Park, 2006

Theses and Scholarly Papers

19. Using Internet Geometry to Improve End-to-end Communication Performance
Cristian Lumezanu
Ph.D. Thesis, University of Maryland, College Park, 2009
20. Decentralized Message Ordering
Cristian Lumezanu
Masters Scholarly Paper, University of Maryland, College Park, 2006

21. ePetitioner: Electronic Petitioning System
Cristian Lumezanu
B.S. Thesis, Politehnica University, Bucharest, 2002

Under Submission

22. Autonomous Traffic Engineering with Self-Configuring Link Weights
Srikanth Sundaresan, **Cristian Lumezanu**, Nick Feamster, Pierre François
under submission to the International Conference on emerging Networking EXperiments and Technologies (CoNEXT), 2010

Talks and Presentations

1. Don't Love Thy Nearest Neighbor
International Peer-to-Peer Symposium, San Jose, CA, April 2010
2. Triangle Inequality Variations in the Internet
Internet Measurement Conference, Chicago, IL, November 2009
3. Redundancy Elimination in Cellular Wireless Networks
Alcatel-Lucent Bell Laboratories, Murray Hill, NJ, August 2009
4. Using Internet Geometry to Improve End-to-End Communication
Georgia Tech, Atlanta, GA, June 2009
5. Symbiotic Relationships in Internet Routing Overlays
Networked Systems Design and Implementation Symposium, Boston, MA, April 2009
6. Don't Love Thy Nearest Neighbor
Graduate Research Interaction Day, College Park, MD, April 2009
7. Triangle Inequality and Routing Policy Violations in the Internet
Passive and Active Measurement Conference, Seoul, Korea, April 2009
8. Measurement Manipulation and Node Selection in Network Coordinates
International Conference on Distributed Computing Systems, Beijing, China, June 2008
9. PeerWise Discovery and Negotiation of Faster Paths
Graduate Research Interaction Day, College Park, MD, April 2008
10. PeerWise Discovery and Negotiation of Faster Paths
Workshop on Hot Topics in Networking, Atlanta, GA, November 2007
11. Decentralized Message Ordering for Publish/Subscribe Systems
International Middleware Conference, Melbourne, Australia, December 2006
12. Online Optimization for Latency Assignment in Distributed Real-Time Systems
IBM T.J. Watson Research Center, Hawthorne, NY, August 2006
13. Utility Optimization for Event-Driven Distributed Infrastructures
International Conference on Distributed Computing Systems, Lisbon, Portugal, July 2006
14. Utility Optimization for Event-Driven Distributed Infrastructures
IBM T.J. Watson Research Center, Hawthorne, NY, August 2005

Professional Service

Member in Professional Societies

Association for Computing Machinery (ACM)

Sigma XI

Committee member

ACM Sigcomm, Poster and demo session 2010

Reviewer

Transactions on Parallel and Distributed Systems 2010

International Conference of Measurement and Modelling of Computer Systems (SIGMETRICS) 2006, 2007, 2008, 2009

International Conference on Computer Communications (Infocom) 2005, 2009

Internet Measurement Conference (IMC) 2006, 2008

International Conference on Network Protocols (ICNP) 2007

Workshop on Real Large Distributed Systems (WORLDS) 2006

International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSS-DAV) 2006

International Conference on High Performance Computing (HiPC) 2006

Symposium on Networked Systems Design and Implementation (NSDI) 2006

International Peer-to-Peer Symposium (IPTPS) 2005

International Workshop on Hot Topics in Peer-to-Peer Systems (HotP2P) 2004

Patents

System and method for distributed utility optimization in a messaging infrastructure

United States Patent 7,689,695

Distributed online optimization for latency assignment and slicing

United States Patent Application 20090178047

Method and apparatus for reducing redundant traffic in communication networks

Patent filed 01/15/2010, serial no. 12/688,307 (docket no. ALU/805939)

Method and apparatus for reducing effects of lost packets on redundancy reduction in communication networks

Continuation of patent "Method and apparatus for reducing redundant traffic in communication networks" (docket no. 807009-US-CIP)

Method and apparatus for reducing application update traffic in cellular networks

Patent filed 06/30/2010, serial no. 12/826,955 (docket no. 805938-US-NP)