

Jonathan Ledlie

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Education

HARVARD UNIVERSITY

Ph.D. Computer Science, September 2007.
Committee: Prof. Margo Seltzer (advisor), Prof. Michael Mitzenmacher, Dr. Jim Waldo
Dissertation titled: *A Locality-Aware Approach to Distributed Systems*
Passed Qualifying Exam in May 2003, titled:
Improving Topology Awareness in Structured Overlays with Logical Identifier Selection.

UNIVERSITY OF WISCONSIN – MADISON

M.S. Computer Science. December 2000. Advisor: Prof. Remzi Arpaci-Dusseau.
Thesis: *Dámelo! An Explicitly Co-locating Web Cache File System.*

COLUMBIA UNIVERSITY

B.A. May 1996. Double major in Computer Science, Computer Systems concentration,
and History, East Asian concentration.

Conference Publications

Jonathan Ledlie, Paul Gardner, and Margo Seltzer, *Network Coordinates in the Wild*, In Proceedings of the Fourth USENIX Symposium on Networked Systems Design and Implementation (NSDI), Cambridge, MA, April 2007.

Ian Rose, Rohan Murty, Peter Pietzuch, Jonathan Ledlie, Mema Roussopoulos, and Matt Welsh, *Cobra: Content-based Filtering and Aggregation of Blogs and RSS Feeds*, In Proceedings of the Fourth USENIX Symposium on Networked Systems Design and Implementation (NSDI), Cambridge, MA, April 2007.

Jonathan Ledlie, Peter Pietzuch, and Margo Seltzer, *Stable and Accurate Network Coordinates*, In Proceedings of IEEE International Conference on Distributed Computing Systems (ICDCS), Lisbon, Portugal, July 2006.

Peter Pietzuch, Jonathan Ledlie, Jeffrey Shneidman, Mema Roussopoulos, Matt Welsh, and Margo Seltzer, *Network-Aware Operator Placement for Stream-Processing Systems*, In Proceedings of the 22nd International Conference on Data Engineering (ICDE), Atlanta, GA, April 2006.

Jonathan Ledlie and Margo Seltzer, *Distributed, Secure Load Balancing with Skew, Heterogeneity, and Churn*, In Proceedings of IEEE INFOCOM 2005, Miami, FL. March 2005.

Daniel Ellard, Jonathan Ledlie, Pia Malkani, and Margo Seltzer, *Passive NFS Tracing of Email and Research Workloads*, In Proceedings of the Second Annual USENIX File and Storage Technologies Conference (FAST), San Francisco, CA. March 2003.

**Workshop
Publications**

Jonathan Ledlie, Nathan Eagle, Matthew Tierney, Mark Adler, Harri Hansen, and Jamey Hicks, *Mosoko: a Mobile Marketplace for Developing Regions*, In Proceedings of Designing Interactive Systems for Communities in the Developing World, Cape Town, South Africa, February 2008.

Jonathan Ledlie, Peter Pietzuch, Michael Mitzenmacher, and Margo Seltzer, *Wired Geometric Routing*, In Proceedings of the Sixth International Workshop on Peer-to-Peer Systems (IPTPS), Bellevue, WA, February 2007.

Peter Pietzuch, Jonathan Ledlie, Michael Mitzenmacher, and Margo Seltzer, *Network-Aware Overlays with Network Coordinates*, In Proceedings of International Workshop on Dynamic Distributed Systems (IWDDS), Lisbon, Portugal, July 2006.

Peter Pietzuch, Jonathan Ledlie, and Margo Seltzer, *Supporting Network Coordinates on PlanetLab*, In Proceedings of the Second Workshop on Real, Large Distributed Systems (WORLDS), San Francisco, CA, December 2005.

Jonathan Ledlie, Chaki Ng, David Holland, Kiran-Kumar Muniswamy-Reddy, Uri Braun, and Margo Seltzer, *Provenance-Aware Sensor Data Storage*, In Proceedings of the IEEE International Workshop of Networking Meets Databases (NetDB), Tokyo, Japan, April 2005.

Peter Pietzuch, Jeff Shneidman, Jonathan Ledlie, Matt Welsh, Margo Seltzer, Mema Roussopoulos, *Evaluating DHT-Based Service Placement for Stream-Based Overlays*, In Proceedings of the International Workshop on Peer-to-Peer Systems (IPTPS), Ithaca, NY, February 2005.

Jonathan Ledlie, Jeff Shneidman, Mema Roussopoulos, Matt Welsh, and Margo Seltzer, *Open Problems in Data Collection Networks*, In Proceedings of the Eleventh ACM SIGOPS European Workshop, Leuven, Belgium, September 2004.

Jonathan Ledlie, Jeff Shneidman, Margo Seltzer, and John Huth, *Scooped, Again*, In Proceedings of the Second International Workshop on Peer-to-Peer Systems (IPTPS), Berkeley, CA, February 2003.

Jonathan Ledlie, Jacob Taylor, Laura Serban, and Margo Seltzer, *Self-Organization in Peer-to-Peer Systems*, In Proceedings of Tenth ACM SIGOPS European Workshop, Saint-Emilion, France, September 2002.

Theses

Jonathan Ledlie, *A Locality-Aware Approach to Distributed Systems*, Ph.D. Thesis, Harvard University Computer Science Technical Report, September 2007.

Jonathan Ledlie, *Dámelo! An Explicitly Co-locating Web Cache File System*, Master's Thesis, University of Wisconsin-Madison, December 2000.

**Technical
Reports and
Non-Refereed
Publications**

Margo Seltzer, Kiran-Kumar Muniswamy-Reddy, David Holland, Uri Braun, and Jonathan Ledlie, *Provenance-Aware Storage Systems*, Harvard University Computer Science Technical Report TR-18-05, July 2005.

Jeff Shneidman, Peter Pietzuch, Jonathan Ledlie, Mema Roussopoulos, Margo Seltzer, and Matt Welsh, *Hourglass: An Infrastructure for Connecting Sensor Networks and Applications*, Harvard University Computer Science Technical Report TR-21-04, May 2004.

Jonathan Ledlie, Jeff Shneidman, Matthew Amis, Michael Mitzenmacher, and Margo Seltzer, *Reliability- and Capacity-based Selection in Distributed Hash Tables*, Harvard University Computer Science Technical Report, September 2003.

Daniel Ellard, Jonathan Ledlie, and Margo Seltzer, *The Utility of File Names*, Harvard University Computer Science Technical Report TR-05-03, March 2003.

Daniel Ellard, Jonathan Ledlie, Pia Malkani, and Margo Seltzer, *Everything You Always Wanted to Know About NFS Trace Analysis, But Were Afraid to Ask*, Harvard University Computer Science Technical Report TR-06-02, June 2002.

Jonathan Ledlie, Laura Serban, and Dafina Toncheva, *Scaling Filename Queries in a Large-Scale Distributed File System*, Harvard University Computer Science Technical Report TR-03-02, January 2002.

Jonathan Ledlie, Matthew McCormick, and Omer Zaki, *Adaptively Scheduling Processes on a Simultaneous Multithreading (SMT) Processor*, University of Wisconsin-Madison Computer Architecture Project, December 2000.

Jonathan Ledlie and Justin Forrester, *X-Join and the Benefits of Free Work*, University of Wisconsin-Madison Databases Project, May 2000.

**Professional
Activities**

Program Committee of First Workshop on Social Network Systems, in conjunction with the EuroSys 2008 Conference.

Industry Research Experience	<p>NOKIA RESEARCH SCIENTIST, Cambridge, MA <i>Sept. 2007 - Present</i> Member of Research Staff</p> <ul style="list-style-type: none"> • Developed new Internet services and applications for mobile phones. <p>MICROSOFT RESEARCH INTERN, Cambridge, UK <i>May-Aug. 2004</i> Intern in Cambridge Distributed Systems Group.</p> <ul style="list-style-type: none"> • Developed scalable architecture for distributed resource discovery. • Mentored by Antony Rowstron and Miguel Castro. <p>SUN MICROSYSTEMS INTERN, Burlington, MA <i>June-Aug. 2000</i> Intern in Performance Applications/High End Server Engineering groups at Sun Microsystems.</p> <ul style="list-style-type: none"> • Characterized Oracle DSS I/O performance on ccNUMA hardware. • Developed visual Java tool to monitor thread migration and scheduler capability. • Advised by Gupa Kumar.
Work Experience	<p>OPERATING SYSTEMS ENGINEER, Sudbury, MA <i>Jan. - Oct. 2001</i></p> <ul style="list-style-type: none"> • Developed specialized file system for streaming video caches at Vividon, Inc. • Contributed to initial commercial implementation of MIT's Exokernel OS (acquired by Starbak Communications in 2003). <p>SENIOR WEB ENGINEER, New York, NY <i>Mar. 1998 - May 1999</i> Senior Web Engineer at nytimes.com, the online version of the New York Times.</p> <ul style="list-style-type: none"> • Rewrote user login and registration programs to be faster and require fewer database transactions using Roguewave C++, Perl's DBI module, and FastCGI (millions of users daily). • Stress-tested online NYT article archive by building a multi-threaded Java application to simulate and track simultaneous client requests. <p>WEB DEVELOPER / DATABASE ENGINEER, New York, NY <i>Feb. 1997 - Dec. 2000</i></p> <ul style="list-style-type: none"> • Wrote applications in PL/SQL, Perl, and Java/JDBC to present search results, handle shopping carts, and track customers and advertising for Dissemination, Inc. • Configured Oracle, Netscape, and Apache web servers and handled Unix system administration for several Solaris and Linux servers, including setup of a secure commerce site. • Continued as consultant for two years.
Awards	<ul style="list-style-type: none"> • Dudley House Fellow, Harvard University (2004-2006). • File and Storage Technologies 2003 Conference (FAST) Student Stipend Winner. • Best Class Graduate Operating Systems Project, University of Wisconsin-Madison (Spring 2000). • National Merit Scholar (1990).
Skills and Responsibilities	<ul style="list-style-type: none"> • Courses on computational complexity, networks, software modeling, digital logic, architecture, distributed systems, cryptography and security, sensor networks, artificial intelligence, operating systems, and database systems. • Coordinate compute cluster for Systems research group at Harvard University. • External reviewer for: HotOS 2003, OSDI 2004, INFOCOM 2005, and FAST 2005.

Teaching Experience	TEACHING FELLOW, Harvard University <i>Spring 2004</i> Graduate Peer-to-Peer Systems
	<ul style="list-style-type: none"> • Assisted Prof. Mema Roussopoulos in teaching seminar on recent peer-to-peer research topics. • Guided small groups of students in semester-long research projects. • Analyzed papers in detail in one-on-one sessions with students.
	UNDERGRADUATE ADVISOR, Harvard University <i>Summer 2003</i> Advised Matthew Amis (Harvard undergraduate) on research in peer-to-peer systems leading to conference submission.
	TEACHING FELLOW, Harvard University <i>Spring 2003</i> Undergraduate Operating Systems
	<ul style="list-style-type: none"> • Taught weekly section and graded student projects in introductory Operating Systems.
	Graduate Operating Systems <i>Fall 2001</i>
	<ul style="list-style-type: none"> • Helped plan syllabus on classical Operating Systems material. • Evaluated students' analyses of each paper. • Counseled small groups of students on semester-long research projects.
TEACHING ASSISTANT, University of Wisconsin-Madison <i>Fall 2000</i> Graduate Operating Systems	
<ul style="list-style-type: none"> • Evaluated students' analyses of each paper. • Counseled small groups of students on semester-long research projects. 	
Introduction to Programming <i>Fall 1999, Spring 2000</i>	
<ul style="list-style-type: none"> • Conducted weekly section and graded as part of large teaching team. 	
HIGH SCHOOL TEACHER, Englewood, NJ <i>1996 - 1997</i> Computer science and electronics teacher at Dwight-Englewood School.	
<ul style="list-style-type: none"> • Implemented experimental curriculum that integrates math, science, and technology in innovative project-based high school program. • Wrote 150+ page textbook for on-going use in curriculum. • Coached cross-country team and served as faculty advisor to students' advanced programming activities. 	
Activities	HARVARD EECS GRADUATE STUDENT SOCIETY, Cambridge, MA <i>2003 - 2005</i> Co-founder and head of group that organized student gatherings and informational sessions.
	QUAD BIKES, Cambridge, MA <i>2002 - Present</i> Member of Board of Directors for non-profit bicycle shop whose mission is to encourage safe, accessible bike use in the Boston area.
	VARSITY INTERCOLLEGIATE CREW, New York, NY <i>1991 - 1996</i> Rowed on varsity lightweight sweep squad at Columbia.
	OTHER EXTRACURRICULAR ACTIVITIES
<ul style="list-style-type: none"> • Intramural rowing with Harvard's Dudley House. • Completed Timberman Half-Ironman Triathlon in 2003. • Pottery with Radcliffe Ceramics Studio. • Long-distance bicycle trips through Ireland, Canada, and Eastern Europe. 	
Citizenship	United States and European Union (British)