

# Jacob R. Lorch

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## Education

### Ph.D. in Computer Science

December 2001

*University of California, Berkeley*

Dissertation title: “Operating Systems Techniques for Reducing Processor Energy Consumption”

Committee: Alan Jay Smith (advisor), Randy H. Katz, Geoffrey Keppel

GPA: 4.0

### M.S. in Computer Science

December 1995

*University of California, Berkeley*

Dissertation title: “A Complete Picture of the Energy Consumption of a Portable Computer”

Advisor: Alan Jay Smith

GPA: 4.0

### B.S. in Computer Science, B.S. in Mathematics

May 1992

*Michigan State University*

GPA: 4.0

## Professional Experience

**Principal Researcher**, Systems Group, Microsoft Research

2016–present

**Senior Researcher**, Systems Group, Microsoft Research

2013–2016

**Researcher**, Systems Group, Microsoft Research

2002–2013

*Microsoft Corporation*

- Led, and participated in, research projects advancing the state of the art in systems and security
- Wrote and published papers in top-tier scientific conferences on operating systems, distributed systems, networking, and security
- Incorporated research advances into company products and services, including Azure, Bing, Windows, and System Center Configuration Manager
- Mentored summer interns working on research projects

### Graduate Student Researcher

1993–2001

*University of California, Berkeley*

- Devised and implemented research agenda to analyze the energy consumption of portable computers and develop systems techniques for improving their battery life
- Collaborated with colleagues on other systems research topics
- Published papers in conferences and journals

### Research Intern

Summers 1992–1994

*Apple Computer, Inc.*

- Measured the energy consumption of components of Macintosh computers in different states
- Wrote software to measure the real-life usage of various power states to form a complete picture of computer energy consumption

- Course Consultant** 1993  
*National Technological University*
- Helped participants in a remote-learning computer architecture class understand the lecture materials
  - Graded assignments and exams
- Software Engineer** Summers 1991–1992  
*Total Travel Management*
- Improved software to continually search online resources for ways to get customers better prices for already-booked travel, including adding support for Southwest Airlines
  - Wrote software to robustly and automatically manage allocation of jobs to computers
- Engineering Intern** Summer 1990  
*Schlumberger CAD/CAM*
- Developed and presented a new approach to writing software tests

## Honors and Awards

- Best Paper Award**, Symposium on Networked Systems Design and Implementation (NSDI) 2009
- Outstanding Graduate Student Delegate**, International Achievement Summit 2002
- Siebel Scholar** 2002
- Fellowship Winner**, University of California, Berkeley 1996
- Fellowship Winner**, National Science Foundation 1992-1995
- Second Place in World**, ACM Programming Contest (team captain) 1992
- First Place in Region**, ACM Programming Contest (team captain) 1991
- Top 50 Finisher**, Putnam Mathematics Prize Competition 1992
- Top 100 Finisher**, Putnam Mathematics Prize Competition 1989–1991

## Service

- Program Committee Co-Chair**, Symp. on Networked Systems Design and Implementation (NSDI) 2019
- Program Committee Member**, Symp. on Networked Systems Design and Implementation (NSDI) 2018
- Program Committee Member**, Symposium on Operating Systems Principles (SOSP) 2017
- Program Committee Member**, Symposium on Security and Privacy (S&P) 2017
- Program Committee Member**, Symp. on Networked Systems Design and Implementation (NSDI) 2017
- Program Committee Member**, Symposium on Security and Privacy (S&P) 2016
- Program Committee Member**, Symp. on Networked Systems Design and Implementation (NSDI) 2016
- Program Committee Chair**, International Conference on Peer-to-Peer Computing (P2P) 2015
- Treasurer**, Symposium on Operating Systems Principles (SOSP) 2015
- Program Committee Member**, International World Wide Web Conference (WWW) 2015
- Program Committee Member**, Conference on File and Storage Technologies (FAST) 2014
- Program Committee Member**, Network and Distributed System Security Symposium (NDSS) 2014
- Program Committee Member**, Workshop on Hot Topics in Operating Systems (HotOS) 2013
- Program Committee Member**, Int. Conference on Distributed Computing Systems (ICDCS) 2013
- Program Committee Member**, International Conference on Peer-to-Peer Computing (P2P) 2013
- Program Committee Member**, International Conference on Peer-to-Peer Computing (P2P) 2012
- Program Committee Member**, Workshop on Massively Multiuser Virtual Environments (MMVE) 2012
- Program Committee Member**, European Conference on Computer Systems (EuroSys) 2011
- Panelist**, NSF Expeditions in Computing 2011
- Program Committee Member**, Workshop on Massively Multiuser Virtual Environments (MMVE) 2010
- Registration Chair**, Symposium on Operating Systems Principles (SOSP) 2009
- Program Committee Member**, International Workshop on Peer-to-Peer Systems (IPTPS) 2009
- Program Committee Member**, International Workshop on Peer-to-Peer Systems (IPTPS) 2008
- Sponsorships Chair**, Symposium on Operating Systems Principles (SOSP) 2007

## Patents

1. “Decentralized sleep management,” Feb. 2017, U.S. Patent No. 9,582,062.
2. “Automated verification of a software system,” Jan. 2017, U.S. Patent No. 9,536,093.
3. “Trusted hardware component for distributed systems,” Sep. 2016, U.S. Patent No. 9,455,992.
4. “End-to-end security for hardware running verified software,” Jun. 2016, U.S. Patent No. 9,363,087.
5. “Partitioned artificial intelligence for networked games,” May 2016, U.S. Patent No. 9,327,194.
6. “Utilization of a protected module to prevent offline dictionary attacks,” Mar. 2016, U.S. Patent No. 9,294,281.
7. “Securing anti-virus software with virtualization,” Jan. 2016, U.S. Patent No. 9,230,100.
8. “Personal identification combining proximity sensing with biometrics,” Oct. 2015, U.S. Patent No. 9,152,868.
9. “Operating a sleep management service,” Feb. 2015, U.S. Patent No. 8,966,063.
10. “Fast, non-write-cycle-limited persistent memory for secure containers,” Aug. 2014, U.S. Patent No. 8,812,908.
11. “Method and apparatus for thwarting traffic analysis in online games,” May 2014, U.S. Patent No. 8,719,336.
12. “Leveraging remote server pools for client applications,” Oct. 2013, U.S. Patent No. 8,549,106.
13. “Securing anti-virus software with virtualization,” Nov. 2012, U.S. Patent No. 8,307,443.
14. “Network coordinate systems using IP information,” Mar. 2012, U.S. Patent No. 8,144,611.
15. “Network application performance enhancement using speculative execution,” Mar. 2012, U.S. Patent No. 8,140,646.
16. “Partitioned artificial intelligence for networked games,” Mar. 2012, U.S. Patent No. 8,137,199.
17. “Collection ordering for replicated state machines,” Mar. 2012, U.S. Patent No. 8,135,987.
18. “Automatic commutativity detection for Generalized Paxos,” Oct. 2011, U.S. Patent No. 8,046,413.
19. “Isolation environment-based information access,” Sep. 2011, U.S. Patent No. 8,024,815.
20. “Reducing bandwidth requirements for peer-to-peer gaming based on error difference between actual game object state and simulated game object state being below an error threshold,” Apr. 2011, U.S. Patent No. 7,925,601.
21. “Reducing bandwidth requirements for peer-to-peer gaming based on importance of remote objects to a local player,” Dec. 2009, U.S. Patent No. 7,627,632.
22. “Lossless recovery for computer systems with map assisted state transfer,” Dec. 2008, U.S. Patent No. 7,472,129.
23. “Efficient changing of replica sets in distributed fault-tolerant computing system,” Feb. 2008, U.S. Patent No. 7,334,154.