

Curriculum vitae for **Adam Wierman**

CONTACT DETAILS

Computer and Mathematical Sciences
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RESEARCH OVERVIEW

“Better design through modeling and measurement”

My research uses analytic tools to provide new insights into the design of scheduling and resource allocation policies in computer systems. Most of my research focuses on network application such as data centers, routers, and wireless networks; however, I also have ongoing work studying manufacturing systems and call centers. The analytic tools that form the basis of my research tend to come from queueing theory and applied probability; however, my recent work also draws heavily from tools in economics and algorithms.

RESEARCH KEYWORDS

Energy efficient computing; Scheduling and resource allocation; Networking; Data centers; Queueing theory; Game theory; Social networks; Smart grid.

EMPLOYMENT

2007-pres Assistant Professor of Computer Science
 California Institute of Technology

July-Dec 2006 Visiting Researcher
 EURANDOM Institute
 Hosted by: Ivo Adan and Onno Boxma

EDUCATION

2007 Ph.D. in Computer Science
 Carnegie Mellon University, Pittsburgh, PA
 Advised by Mor Harchol-Balter, Associate Professor.
 Thesis committee: Mor Harchol-Balter, John Lafferty, Bruce Maggs,
 Alan Scheller-Wolf, and Ward Whitt.

2004 Masters of Science in Computer Science
 Carnegie Mellon University, Pittsburgh, PA
 Advised by Mor Harchol-Balter, Associate Professor

2001 B.S. in Computer Science with an additional major in Mathematics,
 and minors in Psychology and Statistics
 Carnegie Mellon University, Pittsburgh, PA
 Advised by Mark Stehlik, Assistant Dean for Undergraduate Education

SELECTED HONORS AND AWARDS

2012 Student Minghong Lin receives an IBM Ph.D. Fellowship
2011 ACM Sigmetrics “Rising Star” award recipient
2011 IEEE Infocom “Best Paper” award recipient
2011 ACM Greenmetrics “Best Student Paper” award recipient
2010 IFIP Performance “Best Paper” award recipient
2010 ASCIT Teaching award recipient
2010 Visiting Fellow at the Isaac Newton Institute of Mathematical Sciences
2009 NSF CAREER grant recipient
2008 Okawa Foundation grant recipient
2008 Finalist for the Microsoft New Faculty Fellowship
2008 Honorable Mention for the INFORMS Doctoral Dissertation Award
for Operations Research in Telecommunications
2008 CMU School of Computer Science Distinguished Dissertation Award recipient
2007 Named a Siebel Scholar
2006 Carnegie Mellon Graduate Student Teaching Award recipient
2005 Alan J. Perlis School of Computer Science Student Teaching Award recipient
2005 Carnegie Mellon Graduate Student Teaching Award Honorable Mention
2003 ACM Sigmetrics “Best Student Paper” award recipient
2003-2006 National Science Foundation Graduate Fellowship recipient
2001 Graduated CMU with University and College Honors
2000 Inducted into Phi Kappa Phi
2000 Inducted into Phi Beta Kappa

PROFESSIONAL SERVICE

Editorial positions

2012-pres Operations Research associate editor
2011-pres ACM Sigmetrics board of directors
2010-pres Performance Evaluation editorial board

Conference-related duties:

2012 Steering Committee: Greenmetrics
2012 Program Committee: Workshop on Pricing and Incentives in Networks (W-Pin)
2012 Program Committee: ACM Sigmetrics/Performance
2012 Program Committee: Greenmetrics
2012 Program Committee: MAMA
2012 Program Committee: WWW
2012 Program Committee: INFORMS MSOM
2012 Program Committee: DCPerf
2011 SIG Webmaster: ACM Sigmetrics
2011 Program Committee: ACM Greenmetrics
2011 Conference co-Chair: Southern California Network Economics & Game Theory
(SoCal NEGT)
2011 Program Committee: IEEE Workshop on Green and Sustainable Communication Networks
2011 Program Committee: Conference on Utility and Cloud Computing (UCC)
2011 Program Committee: IEEE ITC-23
2011 Program Committee: IFIP Performance

2011 Program Committee: ACM Sigmetrics
 2011 Program Committee: ICST ValueTools
 2010 SIG Webmaster: ACM Sigmetrics
 2010 Conference co-Chair: Southern California Network Economics & Game Theory (SoCal NEGT)
 2010 Program Committee: ACM Greenmetrics
 2010 Program Committee: EXERT Workshop
 2010 Program Committee: IEEE ITC-22
 2010 Program Committee: IFIP Performance
 2010 Program Committee: ACM Sigmetrics
 2010 Conference co-Chair: ACM Hotmetrics
 2010 Program Committee: Newton Institute Stochastic Processes in Comm. Sciences (SCS)
 2009 Conference co-Chair: Southern California Network Economics & Game Theory (SoCal NEGT)
 2009 SIG Webmaster: ACM Sigmetrics
 2009 Conference co-Chair: EURANDOM Young European Queueing Theorists Symposium (YEQT-III)
 2009 Discussant: ACM Hotmetrics
 2009 Program Committee: Net-COOP
 2009 Program Committee: ACM Hotmetrics
 2009 Program Committee: ACM Greenmetrics
 2009 Program co-Chair: IEEE ICCCN Network Algorithms and Perf. Eval. Track
 2009 Program Committee: ACM Sigmetrics/Performance
 2009 Program Committee: IEEE ITC-21
 2009 Best Paper Committee: IEEE Mascots
 2009 Program Committee: IEEE Mascots
 2009 Conference Webmaster: ACM Sigmetrics
 2008 SIG Webmaster: ACM Sigmetrics
 2008 Discussant: ACM Hotmetrics
 2008 Publicity co-Chair: ACM Sigmetrics
 2008 Program Committee: ACM Sigmetrics
 2008 Program Committee: IEEE Mascots
 2007 Program Committee: ACM Sigmetrics
 2007 Conference Webmaster: ACM Sigmetrics
 2007 Best Paper Committee: ACM Sigmetrics

Invited Referee for Journals and Conferences (each listed only once):

Nature, Journal of the ACM (JACM), IEEE Transactions on Networking (ToN), Operations Research (OR), Annals of Operations Research (ANOR), Management Science (MS), Performance Evaluation (PEVA), Journal of Scheduling (JoS), Journal of Algorithms (JoA), Queueing Systems: Theory and Applications (QUESTA), Journal of Parallel and Distributed Computing (JPDC), Computer Networks (COMNET), Parallel Computing (PARCOMP), Applied Mathematics Letters, Operations Research Letters, Performance Evaluation Review (PER), ACM Sigmetrics, IFIP Performance, IEEE Infocom, QEST Conference, IEEE Mascots, ICST ValueTools Conference, IEEE International Parallel and Distributed Processing Symp (IPDPS), Conference on Decision and Control (CDC), The World-wide Web (WWW) Conference, ACM Hotmetrics, IEEE ITC, IEEE ICCCN, IEEE DSN, Wiley Encyclopedia of Operations Research and Management Science, Journal of Systems and Software, Internet Measurement Conference (IMC), IEEE Transactions on Automated Control (TAC), Probability in the Engineering and Informational Sciences (PEIS), Manufacturing and Service Operations management (MSOM).

Session Organizer/Chair (each listed only once):

INFORMS Applied Probability Conference, INFORMS General Meeting, ACM Sigmetrics, ACM Hotmetrics, IFIP Performance, IEEE INFOCOM.

Professional Memberships:

ACM, IEEE, INFORMS

TEACHING EXPERIENCE

Courses taught at Caltech:

- CS/EE 144 *The ideas behind the web*
Winter 2012, 2011, 2010
This course is targeted at juniors and seniors and focuses on all the things that go into making Google, Yahoo, and Facebook work.
Online reviews of professor for Winter 2012: 4.42/5, 76% response rate.
Online reviews of professor for Winter 2011: 4.76/5, 74% response rate.
Online reviews of professor for Winter 2010: 4.77/5, 70% response rate.
- CS/EE 145 *Projects in Networking*, co-taught with Steven Low
Spring 2012, 2011, 2010
Students work in small groups to design and execute a project in the area of networking, broadly construed. The goal is for the project to either end with a deliverable (e.g. a working web application prototype) or a publishable conference paper.
Online reviews of professor for Spring 2012: TBD.
Online reviews of professor for Spring 2011: 4.00/5, 44% response rate.
Online reviews of professor for Spring 2010: 5.00/5, 38% response rate.
- CS/EE 146 *Advanced Networking*
Spring 2011
This is a topics course in networking, with changing focus from year to year. In 2011, the focus was on “green IT”.
Online reviews of professor for Spring 2011: 4.11/5, 79% response rate.
- CS/EE 147 *Network performance evaluation*
Spring 2010, Winter 2009, Fall 2008
Course covers introductory stochastic modeling, scheduling theory, and queueing theory.
Online reviews of professor for Spring 2010: 4.71/5, 47% response rate.
Online reviews of professor for Winter 2009: 5.00/5, 86% response rate.
Online reviews of professor for Fall 2008: 6.90/7, 69% response rate.
- CS/SS 241 *Introduction to SISL, Topics in Algorithmic Game Theory*, co-taught with John Ledyard
Winter 2007
This topics course is jointly offered by CS and Economics. In 2007 it focused on Algorithmic Game Theory.
Combination of online and paper reviews of professor: 6.70/7, 83% response rate.

Teaching awards:

- Spring 2010 Caltech ASCIT Teaching Award
Spring 2006 Carnegie Mellon Graduate Student Teaching Award.
Spring 2005 Alan J. Perlis School of Computer Science Student Teaching Award.
Spring 2005 Honorable Mention for the Carnegie Mellon Graduate Student Teaching Award.

ADVISING EXPERIENCE

Affiliated postdoctoral fellows:

- Sachin Adlakha 2010-2012, supervised jointly with Steven Low and K. Mani Chandy
Krishna Jagannathan 2010-2011, supervised jointly with Eytan Modiano (MIT), now at IIT Madras
Daniel Golovin 2009-2011, supervised jointly with Andreas Krause, now at Google

Lijun Chen	2008-2011, supervised jointly with Steven Low, now at U. of Colorado at Boulder
Jason Marden	2007-2009, supervised jointly with John Ledyard, now at U. of Colorado at Boulder
Lachlan Andrew	2007-2008, supervised jointly with Steven Low, now at Swinburne University

Graduate student advising:

Elizabeth Bodine-Baron	Co-advised with Babak Hassibi, entered in 2007, expected graduation in 2012.
Subhonmesh Bose	Co-advised with Steven Low, entered in 2009
Masoud Farivar	Co-advised with Steven Low, entered in 2009
Ragavendran Gopalakrishnan	Entered in 2008, expected graduation in 2013.
Minghong Lin	Entered in 2008, expected graduation in 2013.
Zhenhua Liu	Co-advised with Steven Low, entered in 2009
Jayakrishnan Nair	Co-advised with Steven Low, entered in 2007, expected graduation in 2012.

Graduate student qualification/thesis/candidacy committees:

Mayank Bakshi	2011, Caltech, EE dissertation committee
Sormeh Shadbakht	2011, Caltech, EE dissertation committee
Annie Liu	2011, Caltech, CS candidacy exam
Sean Keller	2010, Caltech, CS candidacy exam
Dave Buchfuhrer	2010, Caltech, CS candidacy exam and dissertation committee
Longbo Huang	2010, USC, EE dissertation committee
Mahyar Salek	2009, USC, CS candidacy exam
Daniel Wilhelm	2008, Caltech, CNS candidacy exam

Undergraduate research advising:

Michael Wu	2010 SURF student "Power measurements for data centers"
Yuehua (Fred) Zhao	2010 SURF student "Power measurements for data centers"
Christina Lee	2010 SURF student "Effect of social networks on stable matchings."
Sherwin Doroudi	2009-2010 Independent study "Understanding fairness using a queueing game." Work will be submitted to a journal shortly.
Matthew Maurer	2009-2010 Independent study "Energy-aware geographical routing for data centers."
Anthony Chong	2009-2010 Senior thesis "Peer effects in 2-sided matchings and the Caltech rotation problem."
Sherwin Doroudi	2008 SURF student – winner of a Rose Hills Foundation Fellowship "A game theoretic approach to the sensor coverage problem." Published at the Southern California Conf. for Undergrad Research
Benjamin Flora	2008 SURF student "SMART online multi-objective scheduling."
Matthew Maurer	2008 SURF student "Energy use reduction via power modeling."
Gwendolyn Stockman	Senior honors thesis at CMU in 2005-2006. "The impact of abandonment in multi-class priority queues."

Undergraduate academic advising:

Benjamin Flora	Graduated, 2010
Sean Seol Woong Choi	Graduated, 2011
Christopher Kennelly	Graduated, 2011
Claudia Whitten	Graduated, 2011
Eric Mecklenburg	Expected graduation 2012
Kelley Hecker	Expected graduation 2012
Brian Merlob	Expected graduation 2012
Isaac Sheff	Expected graduation 2012
Benjamin Slawski	Expected graduation 2012
Daniel Emmons	Expected graduation 2013
Henry Li	Expected graduation 2013
Carson McNeil	Expected graduation 2013
Riley Patterson	Expected graduation 2013
Matt Dughi	Expected graduation 2014
Vizhen Wang	Expected graduation 2014
Mike Yurko	Expected graduation 2014
Shiyu Zhao	Expected graduation 2014

INSTITUTE SERVICE

May 2012	E11 faculty mentor for 3 students
April 2012	Gave "Intro to CS@Caltech" talk to undergrads
May 2011	E11 faculty mentor for 2 students
Apr 2011	Talk at PreFrosh weekend
Apr 2011	CS diagnostic exam committee
Dec 2010	Guest lecture for CS9
Dec 2010	Guest lecture for E2
Sept 2010	CS option talk during freshman orientation
2010-2011	Member of student/faculty conference committee on CS
2010-2011	CMS faculty hiring committee
2010-2011	CS/EC faculty hiring committee
2010-2011	CS undergraduate option representative
2010-2011	IST Lunch Bunch co-organizer
May 2010	How to apply to grad school presentation
May 2010	Participated in student-faculty lunch
May 2010	E11 faculty mentor for 2 students
Feb 2010	E11 faculty mentor for 3 students
Nov 2009	Guest lecture for CS9
Nov 2009	Presentation at the CMI workshop
Oct 2009	Participated in student-faculty lunch
Oct 2009	Presentation at Annenberg building dedication
Sept 2009	Caltech representative for organizing the SoCal NEGT workshop
2009-2010	CS graduate admissions committee
2009-2010	CS/EC hiring committee
2009-2010	IST Lunch Bunch co-organizer
Apr 2009	Participated in prefrosh weekend dinner
Mar 2009	Participated in student-faculty lunch
Feb 2009	E11 faculty mentor for 1 student
Nov 2008	New Student's Parents day lunch
Nov 2008	Co-founded the Rigorous System Design Research Group (RSRG)
Oct 2008	Presentation at the IST Lunch Bunch
2008-2009	IST Lunch Bunch co-organizer

2008-2009 Member of student/faculty conference committee on CS
 2008-2009 CS/EC hiring committee
 2008-2009 CS graduate admissions committee
 Aug 2008 Gave talk on “Applying to PhD programs in CS” to undergraduates
 Jun-Aug 2008 SURF mentor for 3 undergraduate students
 Mar-Jun 2008 Research mentor for 1 student in CS 280
 Apr 2008 Organized Graduate Student Appreciation Week events
 Feb 2008 E11 Faculty Mentor
 Oct 2007 Met with EAS visiting committee
 2007-2008 IST Lunch Bunch co-organizer
 2007-2008 CS Graduate Student Admissions committee
 2007-2008 CS/EC Hiring committee

CONTRACT AND GRANT SUPPORT

Grant support:

5/2011 – 5/2014 NSF CCF-1101470
 ICES: A revealed preference approach to computational complexity in economics
Adam Wierman (PI), Federico Echienique (co-PI)
 7/2009 – 6/2014 NSF CNS-0846025
 CAREER: Towards a rigorous foundation for scheduling in modern systems
Adam Wierman (PI)
 8/2008 – 8/2011 NSF CCF-0830511
 Bridging probabilistic and competitive analysis of scheduling policies
Adam Wierman (PI)
 8/2008 Okawa Foundation research grant
Adam Wierman (PI)

Industrial support:

3/2012 IBM Ph.D Fellowship winner
My student Minghong Lin
 3/2012 Facebook Fellowship finalist
My student Minghong Lin
 3/2011 Facebook Fellowship finalist
My student Minghong Lin
 5/2008 Microsoft Research Faculty Grant
Adam Wierman (PI)

Industrial interactions:

AT&T Student interned in 2011, 2012.
 Facebook Student interned in 2011. Sponsored course “clickmaniac” project in 2012, 2013.
 Student named **finalist for Facebook Fellowship** in 2011 and 2012.
 Google Invited visit in 2009. Student interned in 2011, 2012.
 HP Student interned in 2011, 2012.
 IBM Invited visits in 2007, 2008, 2009. Student won the **IBM Ph.D. Fellowship** in 2012.
 Microsoft Invited visits in 2008, 2009, 2010, 2011.
 Rand Student interned in 2011.
 SoCal Edison 2 students interned in 2010, 2 students worked part-time 2010-2012.
 Yahoo Invited visit in 2009. Joint workshop 2009, 2010, 2011. Student interned in 2009.

Complete list of publications by **Adam Wierman**

Electronic copies of all listed publications are available on my web page. My web page also includes this list of publications indexed by year, topic, coauthor, and venue.

Thesis

- [07] Adam Wierman. “Scheduling for today’s computer systems: Bridging theory and practice.” Ph.D. Thesis. Carnegie Mellon University, Pittsburgh, PA. May 2007. CMU-CS-07-126. **Co-recipient of the Carnegie Mellon School of Computer Science Distinguished Dissertation Award. Finalist receiving Honorable Mention for the INFORMS Doctoral Dissertation Award for Operations Research in Telecommunications.**

Preprints

- [12] Subhonmesh Bose, Elizabeth Bodine-Baron, Babak Hassibi, and Adam Wierman. “The cost of an epidemic over a complex network: A random matrix approach.”
- [12] Jayakrishnan Nair, Sachin Adlakha, and Adam Wierman. “Energy procurement strategies in the presence of intermittent sources.”
- [12] Jayakrishnan Nair, Adam Wierman, and Bert Zwart. “The impact of network effects on the provisioning of large scale systems.”
- [12] Kai Wang, Minghong Lin, Florin Ciucu, Adam Wierman, and Chuang Lin. “Characterizing the impact of the workload on the value of dynamic resizing in data centers.”
- [12] Vinod Ramaswamy, Sachin Adlakha, Srinivas Shakkottai and Adam Wierman. “If You Can’t Beat ’Em, Join ’Em: Incentives for P2P-Assisted Content Distribution.”
- [12] Federico Echenique, Daniel Golovin, and Adam Wierman. “A revealed preference view of computational complexity in economics.”
- [12] A.A.A. Kock, L.F.P. Etman, J.E. Rooda, L.J.B.F. Adan, M. van Vuuren, and Adam Wierman. “Aggregate modeling of multi-processing workstations.”
- [12] Jason Marden and Adam Wierman. “Distributed welfare games.”

Refereed Journal and Conference Publications

- [12] Lachlan Andrew, Adam Wierman, and Ao Tang. “Speed scaling for processor sharing systems: Optimality and Robustness.” Performance Evaluation. Accepted subject to minor revisions.
- [12] Jason Marden and Adam Wierman. “Overcoming the limitations of utility design for multiagent systems.” IEEE Transactions on Automated Control. Accepted subject to minor revisions.
- [12] Adam Wierman and Bert Zwart. “Is tail-optimal scheduling possible?” To appear in Operations Research.
- [12] A.C.C. van Wijk, I.J.B.F. Adan, O.J. Boxma and A. Wierman. “Fairness and efficiency for polling models with the k-gated service discipline.” To appear in Performance Evaluation.
- [12] Minghong Lin, Zhenhua Liu, Lachlan L. H. Andrew and Adam Wierman. “Online algorithms for geographical load balancing.” In Proceedings of IEEE IGCC, 2012.
- [12] Federico Echenique and Adam Wierman. “Finding a Walrasian equilibrium is easy for a fixed number of agents.” In Proceedings of ACM EC, 2012.

- [12] Zhenhua Liu, Yuan Chen, Cullen Bash, Adam Wierman, Daniel Gmach, Zhikui Wang, Manish Marwah, and Chris Hyser. “Renewable and cooling aware workload management for sustainable data centers.” In Proceedings of ACM Sigmetrics, 2012.
- [12] Kai Wang, Minghong Lin, Florin Ciucu, Adam Wierman, and Chuang Lin. “Characterizing the impact of the workload on the value of dynamic resizing in data centers.” In Proceedings of ACM Sigmetrics, 2012. (Accepted as a poster.)
- [12] Chang Woo Yang, Adam Wierman, Sanjay Shakkottai, and Mor Harchol-Balter. “Many flows asymptotics for SMART scheduling policies.” IEEE Transactions on Automated Control (2012) 57:2, 376-391.
- [11] Minghong Lin, Adam Wierman, and Bert Zwart. “The heavy-traffic growth rate of Shortest Remaining Processing Time.” Performance Evaluation (2011) 68:10, 955-966.
- [11] Jonatha Anselmi, Urtzi Ayesta, and Adam Wierman. “Competition yields efficiency in load balancing games.” Performance Evaluation (2011) 68:11, 986-1001.
- [11] Jonatha Anselmi, Urtzi Ayesta, and Adam Wierman. “Competition yields efficiency in load balancing games.” Proceedings of *IFIP Performance*, 2011.
- [11] Federico Echenique, Daniel Golovin, and Adam Wierman. “A revealed preference view of computational complexity in economics.” Proceedings of *EC* 2011.
- [11] Ragavendran Gopalakrishnan, Jason Marden and Adam Wierman. “Characterizing distribution rules for cost sharing games.” Proceedings of *NetGCoOp*, 2011.
- [11] Minghong Lin, Adam Wierman, Lachlan Andrew, and Eno Thereska. “Online dynamic capacity provisioning in data centers.” Proceedings of *Allerton*, 2011.
- [11] Jayakrishnan Nair, Adam Wierman, and Bert Zwart. “Exploiting network effects in the provisioning of large scale systems.” Proceedings of *IFIP Performance*, 2011.
- [11] Elizabeth Bodine-Baron, Christina Lee, Anthony Chong, Babak Hassibi, and Adam Wierman. “Peer effects and stability in matching markets.” Proceedings of the *Symposium on Algorithmic Game Theory*, 2011.
- [11] Zhenhua Liu, Minghong Lin, Adam Wierman, Steven Low, and Lachlan Andrew. “Geographical load balancing with renewables.” Proceedings of *ACM Greenmetrics*, 2011. **“Best Student Paper” award winner.**
- [11] Elizabeth Bodine-Baron, Subhonmesh Bose, Babak Hassibi, and Adam Wierman. “Minimizing the social cost of an epidemic.” Proceedings of *GameNets* 2011.
- [11] Zhenhua Liu, Minghong Lin, Adam Wierman, Steven Low, and Lachlan Andrew. “Greening geographical load balancing.” Proceedings of *ACM Sigmetrics*, 2011.
- [11] Minghong Lin, Adam Wierman, Lachlan Andrew, and Eno Thereska. “Dynamic right-sizing for power-proportional data centers.” Proceedings of *Infocom* 2011. **“Best Paper” award winner.**
- [11] Adam Wierman. “Fairness and scheduling in single server queues.” Surveys in Operations Research and Management Science (2011) 16(1):39-48.
- [10] Elizabeth Bodine-Baron, Babak Hassibi and Adam Wierman. “Distance-dependent Kronecker graphs for modeling social networks.” IEEE Journal of Selected Topics in Signal Processing (2010) 4(4):718-731.
- [10] Elizabeth Bodine-Baron, Babak Hassibi and Adam Wierman. “Distance-dependent Kronecker graphs for modeling social networks.” Proceedings of IEEE THEMES, 2010.
- [10] Jayakrishnan Nair, Adam Wierman, and Bert Zwart. “Tail-robust scheduling via Limited Processor Sharing.” Performance Evaluation (2010) 14(11):978-995.

- [10] Jayakrishnan Nair, Adam Wierman, and Bert Zwart. “Tail-robust scheduling via Limited Processor Sharing.” Proceedings of *IFIP Performance* 2010. **“Best Paper” award winner.**
- [10] Ragavendran Gopalakrishnan, Jason Marden, and Adam Wierman. “An architectural view of game theoretic control.” Proceedings of *ACM Hotmetrics* 2010.
- [10] Lachlan Andrew, Minghong Lin, and Adam Wierman. “Optimality, fairness, and robustness in speed scaling designs.” Proceedings of *ACM Sigmetrics* 2010.
- [10] Jayakrishnan Nair, Adam Wierman, and Bert Zwart. “Scheduling for the tail: Robustness versus optimality.” Proceedings of Allerton 2010.
- [09] Jason Marden and Adam Wierman. “Overcoming limitations of game-theoretic distributed control.” Proceedings of *Conference on Decision and Control (CDC)* 2009.
- [09] Wei Chen, Dayu Huang, Ankur Kulkarni, Jayakrishnan Unnikrishnan, Quanyan Zhu, Prashant G. Mehta, Sean Meyn and Adam Wierman. “Approximate dynamic programming using fluid and diffusion approximations with applications to power management.” Proceedings of *Conference on Decision and Control (CDC)* 2009.
- [09] Elizabeth Bodine-Baron, Babak Hassibi, Adam Wierman. “Generalizing Kronecker graphs in order to model searchable networks.” Proceedings of *Allerton* 2009.
- [09] Adam Wierman, Lachlan L.H. Andrew, and Ao Tang. “Power-aware speed scaling in processor sharing systems.” Proceedings of *INFOCOM* 2009.
- [09] Ho-Lin Chen, Jason Marden, and Adam Wierman. “On the impact of heterogeneity and back-end scheduling in load balancing designs.” Proceedings of *INFOCOM* 2009.
- [08] Jason Marden and Adam Wierman. “Distributed welfare games with applications to sensor coverage.” Proceedings of *Conference on Decision and Control (CDC)* 2008.
- [08] Misja Nuyens, Adam Wierman, and Bert Zwart. “Preventing large sojourn times using SMART scheduling.” *Operations Research* (2008) 56(1):88-101.
- [08] Adam Wierman, Lachlan L.H. Andrew and Ao Tang. “Stochastic analysis of power-aware scheduling.” Proceedings of *Allerton* 2008.
- [08] Adam Wierman and Misja Nuyens. “Scheduling despite inexact job-size information.” Proceedings of *ACM Sigmetrics* 2008.
- [08] Misja Nuyens and Adam Wierman. “The foreground-background queue: a survey.” *Performance Evaluation* (2008) 65(3-4):286-307.
- [07] Adam Wierman. “Revisiting the performance of large jobs in the M/GI/1 queue.” Proceedings of *Allerton* 2007.
- [07] Adam Wierman, Erik Winands and Onno Boxma. “Scheduling in polling systems.” *Performance Evaluation* (2007) 64(9-12):1009-1028.
- [07] Adam Wierman, Erik Winands and Onno Boxma. “Scheduling in polling systems.” Proceedings of *IFIP Performance* 2007.
- [07] Adam Wierman. “Fairness and classifications.” *Performance Evaluation Review* (2007) 34(4):4-12.
- [06] Chang Woo, Adam Wierman, Sanjay Shakkottai, and Mor Harchol-Balter. “Tail asymptotics for policies favoring short jobs in a many-flows regime.” Proceedings of *ACM Sigmetrics* 2006.
- [06] Bianca Schroeder, Adam Wierman, and Mor Harchol-Balter. “Closed versus open system models and their impact on performance and scheduling.” Proceedings of *NSDI* 2006.

- [06] Adam Wierman, Takayuki Osogami, Mor Harchol-Balter, and Alan Scheller-Wolf. “How many servers are best in a dual-priority M/PH/k system?” *Performance Evaluation* (2006) 63:12,1253-1272.
- [06] Bianca Schroeder, Mor Harchol-Balter, Arun Iyengar, Erich Nahum, and Adam Wierman. “How to determine a good multi-programming level for external scheduling.” Proceedings of *IEEE ICDE 2006*.
- [05] Takayuki Osogami, Adam Wierman, Alan Scheller-Wolf, and Mor Harchol-Balter. “Multi-server queuing systems with multiple priority classes.” *Queueing Systems* (2005) 51:1,331-360.
- [05] Adam Wierman and Mor Harchol-Balter. “Classifying scheduling policies with respect to higher moments of conditional response time.” Proceedings of *ACM Sigmetrics 2005*.
- [05] Adam Wierman, Mor Harchol-Balter, and Takayuki Osogami. “Nearly insensitive bounds on SMART scheduling.” Proceedings of *ACM Sigmetrics 2005*.
- [04] Adam Wierman, Julia Salzman, Michael Jablonski, and Anant Godbole. “An improved upper bound for the pebbling threshold of the n -path.” *Discrete Mathematics* (2004) 275, 367-373.
- [04] Adam Wierman, Nikhil Bansal, and Mor Harchol-Balter. “A note comparing response times in the M/GI/1/FB and M/GI/1/PS Queues.” *Operations Research Letters* (2004) 32:1, 73-76.
- [03] Adam Wierman, Takayuki Osogami, and Jörgen Olsén. “A unified framework for modeling TCP-Vegas, TCP-SACK, and TCP-Reno.” Proceedings of *IEEE Mascots 2003*.
- [03] Adam Wierman and Mor Harchol-Balter. “Classifying scheduling policies with respect to unfairness in an M/GI/1.” Proceedings of *ACM Sigmetrics 2003*. **“Best Student Paper” award winner.**
- [02] Mor Harchol-Balter, Karl Sigman, and Adam Wierman. “Asymptotic convergence of scheduling policies with respect to slowdown.” *Performance Evaluation* (2002) 49, 241-256.
- [02] Mor Harchol-Balter, Karl Sigman, and Adam Wierman. “Asymptotic convergence of scheduling policies with respect to slowdown.” Proceedings of *IFIP Performance 2002*.

Refereed workshop papers

- [12] Jayakrishnan Nair, Sachin Adlakha, and Adam Wierman. “Inventory management in the presence of renewable energy.” Proceedings of MSOM, 2012.
- [11] Sherwin Doroudi, Ragavendran Gopalakrishnan, and Adam Wierman. “Dispatching to incentivize fast service in multi-server queues.” To appear in *Performance Evaluation Review*. An earlier version appeared at the *MAMA workshop at Sigmetrics 2011*.
- [10] Minghong Lin, Adam Wierman, and Bert Zwart. “The average response time in a heavy-traffic SRPT queue.” *Performance Evaluation Review* (2010) 38:2, 12-14. An earlier version appeared at the *MAMA workshop at Sigmetrics 2010*.
- [09] Lachlan Andrew, Adam Wierman, and Ao Tang. “Optimal speed scaling under arbitrary power functions.” *Performance Evaluation Review* (2009) 37:2, 39-41. An earlier version appeared at the *MAMA workshop at Sigmetrics 2009*.
- [08] Ho-Lin Chen, Jason Marden, and Adam Wierman. “The effect of local scheduling in load balancing designs.” *Performance Evaluation Review*. 36:2, 110-112. An earlier version appeared at the *MAMA workshop at Sigmetrics 2008*.
- [06] Adam Wierman. “On the effect of inexact size information in size based policies.” *Performance Evaluation Review*. 34:3, 21-23. An earlier version appeared in the *MAMA workshop at Sigmetrics 2006*.

- [04] Takayuki Osogami, Adam Wierman, Mor Harchol-Balter, and Alan Scheller-Wolf. “A recursive analysis technique for multi-dimensionally infinite Markov chains.” *Performance Evaluation Review*. (2004) 32:2, 3-5. An earlier version appeared in the *MAMA workshop at Sigmetrics 2004*.
- [04] Adam Wierman and Mor Harchol-Balter. “Formalizing SMART scheduling.” *Performance Evaluation Review*. (2004) 32:2, 12-13. An earlier version appeared in the *MAMA workshop at Sigmetrics 2004*.
- [03] Adam Wierman, Takayuki Osogami, and Jörgen Olsén. “Modeling TCP-Vegas under on/off traffic.” *Performance Evaluation Review* (2003) 31:2, 6-8. An earlier version appeared in the *MAMA workshop at Sigmetrics 2003*.
- [02] Mor Harchol-Balter, Karl Sigman, and Adam Wierman. “Understanding the slowdown of large jobs.” *Performance Evaluation Review* (2002) 30:3, 9-11. An earlier version appeared in the *MAMA workshop at Sigmetrics 2002*.

Chapters in Books

- [12] Adam Wierman, Lachlan L. H. Andrew, and Minghong Lin. “Speed scaling: An algorithmic perspective.” Sanjay Ranka and Ishfaq Ahmad. *Handbook of Energy-Aware and Green Computing*. CRC Press, to appear.
- [08] Jack Mostow, Gregory S. Aist, Cathy Huang, Brian Junker, Rebecca Kennedy, Hua Lan, DeWitt Latimer IV, Rollanda O’Connor, Regina Tassone, and Adam Wierman. “4-Month evaluation of a learner-controlled reading tutor that listens.” Melissa Holland and F. Pete Fisher (Editors), *The path of speech technologies in computer-assisted language learning*. Routledge, 2008.

Unrefereed Letters

- [11] Lachlan L. H. Andrew, Minghong Lin, Zhenhua Liu, and Adam Wierman. “Algorithms for Dynamic Capacity Provisioning.” Proceedings of Conf. on Optical Internet (COIN) 2012.
- [11] Federico Echenique, Daniel Golovin, and Adam Wierman. “Complexity and economics: computational constraints may not matter.” ACM SigEcom Exchanges (2011) 10:1, 2-5.
- [10] Lachlan L.H. Andrew, Minghong Lin, Ao Tang, and Adam Wierman. Speed Scaling to Trade-off Efficiency, Simplicity, Robustness and Fairness. IEEE COMSOC Multimedia Communications Technical Committee E-Letter (2010) 5:4, 32-36.

Technical Reports which do not overlap with above lists

- [03] Adam Wierman and Mor Harchol-Balter. “Bounds on a fair policy with near optimal performance.” *Carnegie Mellon School of Computer Science Technical Report CMU-CS-03-198*.
- [02] Adam Wierman and Nikhil Bansal. “Competitive analysis of M/GI/1 queueing policies” *Carnegie Mellon School of Computer Science Technical Report CMU-CS-02-201*.

Selected conference and invited talks by Adam Wierman

- June 2012 Algorithmic challenges in sustainable data centers
Keynote at the Stochastic Networks Conference
- May 2012 Energy procurement in the presence of intermittent sources
Keynote at the Imperial College Energy-Performance colloquium
- May 2012 Algorithmic challenges for greening data centers
Keynote at the Imperial College Energy-Performance colloquium
- May 2012 Algorithmic challenges in sustainable data centers
Keynote at the STOC workshop on Computational Sustainability
- Mar 2012 Dynamic capacity provisioning in data centers
Invited talk at Texas A&M, Host: Srinivas Shakkottai
- Feb 2012 Dynamic capacity provisioning in data centers
Invited talk at ITA, Host: Sujay Sanghavi
- Dec 2011 Algorithmic challenges for greening IT
Invited talk at CMU, Host: Mor Hachol-Balter
- Nov 2011 Algorithmic challenges for greening IT
Invited talk at Berkeley, Host: Rhonda Righter
- Nov 2011 Algorithmic challenges for greening IT
Invited talk at UT Austin, Host: Sujay Sanghavi and Sanjay Shakkottai
- Sept 2011 Online dynamic capacity provisioning in data centers
Invited talk at the Allerton Conference, Host: Yi Lu
- July 2011 Speed scaling: Optimality vs. robustness
Invited talk at INFORMS Applied Probability Conference
- June 2011 Algorithmic challenges for greening IT
Keynote talk at ACM Sigmetrics conference
- May 2011 A revealed preference view of computation for economics.
Invited talk at MSR New England, Host: Ishai Menache
- May 2011 A revealed preference view of computation for economics.
Invited talk at MIT, Host: Devavrat Shah
- Mar 2011 A revealed preference view of computation for economics.
Invited talk at Univ. of Colorado at Boulder, Host: Jason Marden
- Feb 2011 Scheduling to balance energy and delay.
Invited talk at UC Riverside, Host: Victor Zordan
- Nov 2010 A revealed preference view of computation for economics.
Invited talk at Basque Center for Applied Mathematics, Host: Urtzi Ayesta
- Nov 2010 Scheduling to balance energy and delay.
Invited talk at Basque Center for Applied Mathematics, Host: Urtzi Ayesta
- Nov 2010 A revealed preference view of computation for economics.
Invited talk at Social NEGT
- Sept 2010 Scheduling for the tail: Robustness versus Optimality.
Invited talk at Allerton, Host: R. Srikant and Bruce Hajek
- Aug 2010 Algorithmic issues for green data centers.
NSF Workshop on the Science of Power Management.
- June 2010 Scheduling to balance energy and delay.
Invited talk at Cambridge University Newton Institute
- Dec 2009 Scheduling to balance energy and delay.
Invited talk at Tokyo Institute of Technology, Host: T. Osogami and H. Takagi
- Dec 2009 Overcoming limitations of game theoretic control.
Conference on Decision and Control
- Nov 2009 Scheduling to balance energy and delay.

- Nov 2009 *Invited talk at EURANDOM, Host: Onno Boxma*
Scheduling to balance energy and delay.
- Oct 2009 *Invited talk at Stanford, Host: Tim Roughgarden and Ramesh Johari*
Overcoming limitations of game theoretic control.
- Oct 2009 *Invited talk at INFORMS annual meeting, Applied Probability section*
Understanding fairness using a queueing game.
- Oct 2009 *Invited talk at INFORMS annual meeting, Applied Probability section*
Speed scaling for power management.
- Oct 2009 *Invited talk at INFORMS annual meeting, Applied Probability section*
Scheduling to balance energy and delay.
- Sept 2009 *Invited talk at UCLA, Host: Mihaela van der Schaar*
Scheduling to balance energy and delay.
- Sept 2009 *Invited talk at UCSD, Host: Ruth Williams & Tara Javidi*
Scheduling to balance energy and delay.
- July 2009 *Columbia Distinguished IEOR Seminar, Host: Ward Whitt*
Scheduling to balance energy and delay.
- July 2009 *Invited talk at Cornell, Host: Kevin Tang*
Stochastic analysis of power-aware speed scaling.
- June 2009 *Invited talk at INFORMS Applied Probability meeting*
Scheduling to balance energy and delay.
- May 2009 *Invited talk at USC, Host: Rahul Jain*
Power management via speed scaling.
- Apr 2009 *Lee Center Workshop*
On the impact of heterogeneity and back-end scheduling in load balancing designs.
IEEE INFOCOM
- Mar 2009 The impact of back-end scheduling in load balancing games.
Invited talk at Yahoo Research workshop
- Oct 2008 Scheduling despite inexact job size information
Invited talk at INFORMS annual meeting, Telecommunications section
- Oct 2008 The effect of local scheduling in load balancing designs
Invited talk at INFORMS annual meeting, Applied Probability section
- Sept 2008 Stochastic analysis of power-aware scheduling
The Allerton Conference, Host: Bruce Hajek and R. Srikant
- Sept 2008 Does helping the little guy help everyone?
Distinguished Lecture Series at Carnegie Mellon
- Aug 2008 Does helping the little guy help everyone?
Invited mini-course at the Adv. Network Sci. Lecture Series at UCSD,
Host: Massimo Franceschetti and Tara Javidi
- June 2008 “Non-cooperative cooperation.”
ACM Hotmetrics Work in Progress session
- June 2008 “Scheduling despite inexact job-size information.”
ACM Sigmetrics
- May 2008 “The effect of local scheduling in load balancing designs.”
ACM MAMA workshop at Sigmetrics
- Apr 2008 “Practical Theory.”
Invited talk at Microsoft Research, Host: Harold Javid
- Mar 2008 “Scheduling for today’s systems.”
INFORMS Telecommunication Conference, Dissertation Award Finalist Session
- Jan 2008 “Modern scheduling issues.”
Invited talk at IBM Research Watson, Host: Cathy Xia and Mark Squillante
- Oct 2007 “Scheduling in polling systems.”
The IFIP Performance conference

- Sept 2007 “Revisiting the performance of large jobs in the M/GI/1 queue.”
The Allerton Conference, Host: Bruce Hajek and R. Srikant
- July 2007 “Revisiting the performance of large jobs in the M/GI/1 queue.”
INFORMS Applied Probability conference
- July 2007 “Scheduling in polling systems.”
INFORMS Applied Probability conference
- May 2007 “Scheduling for today’s computer systems.”
Ph.D. Thesis Defense at CMU
- Mar 2007 “Fairness in queues.”
Invited talk at CMU, Host: Mor Harchol-Balter
- Feb 2007 “Scheduling for today’s computer systems.”
Invited talk at NYU, Host: Michael Pinedo
- Dec 2006 “Levels of information: How much do policies need to know about job sizes.”
Invited talk at CWI, the Netherlands, Host: Rudesindo Nunez Queija
- Nov 2006 “Characterizing the effect of inexact size information in size based policies.”
INFORMS joint conference, Scheduling section
- Nov 2006 “A class of policies that prioritize small jobs.”
Invited talk at University of Twente, the Netherlands, Host: Richard Boucherie
- Oct 2006 “Fairness in queues.”
Invited talk at EURANDOM Institute, the Netherlands, Host: Onno Boxma
- Sept 2006 “A class of policies that prioritize small jobs.”
Invited talk at TU/e, the Netherlands, Host: Ivo Adan
- June 2006 “On the effect of inexact size information in size based policies.”
ACM MAMA workshop at Sigmetrics
- May 2006 “Classifying policies that prioritize small jobs.”
Invited talk at Stanford University, Hosts: Peter Glynn and Balaji Prabhakar
- Dec 2005 “Understanding the impact of SMART scheduling.”
Invited talk at Columbia University, Host: Ward Whitt
- Nov 2005 “Understanding the effects of SMART scheduling.”
INFORMS joint conference, Scheduling section
- July 2005 “Classifying scheduling policies with respect to moments of conditional response time.”
Joint CMU & TU/e Collaborative Workshop
- July 2005 “Classifying scheduling policies with respect to fairness and predictability.”
INFORMS Applied Probability conference, Applied Probability section
- June 2005 “Classifying scheduling policies with respect to higher moments of conditional response time.”
ACM Sigmetrics
- July 2004 “Formalizing SMART scheduling.”
EURANDOM Workshop on quantitative models for production and communication networks
- June 2004 “Formalizing SMART scheduling”
ACM MAMA workshop at Sigmetrics
- May 2004 “Scheduling web servers: Theory and practice.”
University of Calgary, Host: Carey Williamson
- May 2004 “Achieving low mean response times while providing fairness.”
CORS/INFORMS joint conference
- Oct 2003 “A unified framework for modeling TCP-Vegas, TCP-SACK, and TCP-Reno.”
IEEE MASCOTS
- Oct 2003 “Prioritization in multiserver queues.”
INFORMS joint conference, Applied Probability section
- June 2003 “Classifying scheduling policies with respect to unfairness in and M/GI/1.”

ACM Sigmetrics (Best Student Paper Award recipient)
Sept 2002 “Asymptotic convergence of scheduling policies with respect to slowdown.”
IFIP Performance
May 2002 “Understanding the slowdown of large jobs in an M/GI/1 system.”
ACM MAMA workshop at Sigmetrics
Aug 2001 “Reduction of map exploration in S3P.”
MIT Lincoln Laboratory, Host: Jeremy Kepner
July 2000 “The splitting number.”
East Tennessee State University, Host: Anant Godbole
July 2000 “The splitting number.”
MAA MathFest