

# Benjamin J. Moseley

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## CONTACT INFORMATION

Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213

<http://www.andrew.cmu.edu/user/moseleyb/>  
[moseleyb@andrew.cmu.edu](mailto:moseleyb@andrew.cmu.edu)

## RESEARCH INTERESTS

Algorithms, operations research, parallel and distributed computing, scheduling, large data analysis, and foundations of machine learning

## EDUCATION

**University of Illinois: Urbana-Champaign:** 2012 Ph.D. in Computer Science  
• Thesis: Online Scheduling Algorithms for Broadcasting and General Cost Functions  
• Advisor: Chandra Chekuri

**University of Illinois: Urbana-Champaign:** 2007-2008 Master of Science in Computer Science  
• Thesis: Online Scheduling to Minimize the Maximum Delay Factor  
• Advisor: Chandra Chekuri

**University of Illinois: Urbana-Champaign:** 2003-2006 Bachelor of Science in Computer Science

## HONOURS AND AWARDS

**NIPS Oral Presentation 2017** (top 1.3% of submissions)  
**Simons-Berkeley Fellow 2016**  
**Yahoo! Academic Career Enhancement (ACE) Award 2015**  
**Google Faculty Research Award 2015**  
**Best Paper Award IPDPS 2015**  
**Best Paper Award SPAA 2013**  
Feng Chen Memorial Award 2011  
**Best Student Paper Award SODA 2010**  
Outstanding Teaching Award Spring 2008  
List of Teachers Ranked as Excellent Spring 2008

## EMPLOYMENT

**Carnegie Mellon University**, Pittsburgh, PA  
*Assistant Professor of Operations Research* **January 2018– Current**  
*Assistant Professor of Machine Learning (by courtesy)* **January 2018– Current**

**Washington University in St. Louis**, St. Louis, MO  
*Assistant Professor of Computer Science and Engineering* **July 2014– December 2017**

**Yahoo! Research**, New York, NY  
*Consulting Senior Research Scientist* **May 2016 – June 2016**  
Host: Maxim Sviridenko

**Toyota Technological Institute at Chicago**, Chicago, IL  
*Research Assistant Professor* **September 2012– July 2014**

**Sandia National Laboratories**, Albuquerque, NM  
*Faculty Summer Sabbatical* **June 2013 – August 2013**  
Host: Cindy Phillips

**Yahoo! Labs**, Santa Clara, CA  
*Research Scientist Intern* **May 2010 – August 2010 and May 2011 – August 2011**  
Host: Ravi Kumar

**Great Lakes IT inc**, Chicago, IL  
*Senior Programmer* **December 2004 – August 2012**

1. Kunal Agrawal, Jing Li, Kefu Lu and Benjamin Moseley  
Scheduling Parallelizable Jobs Online to Maximize Throughput  
*In Proceedings of the 15th Latin American Theoretical Informatics Symposium (LATIN 2018).*
2. Benjamin Moseley and Joshua Wang  
Approximation Bounds for Hierarchical Clustering: Average-Linkage, Bisecting K-means, and Local Search  
*In Advances in Neural Information Processing Systems, 2017 (NIPS 2017).*  
**Oral Presentation** (top 40 out of 3240 submissions)
3. Sungjin Im, Benjamin Moseley, Kirk Pruhs and Clifford Stein  
An  $O(\log \log m)$ -competitive Algorithm for Online Machine Minimization  
*In Proceedings of the Real-Time Systems Symposium, 2017 (RTSS 2017).*
4. Sungjin Im, Benjamin Moseley, Kirk Pruhs and Clifford Stein  
Minimizing Maximum Flow Time on Related Machines via Dynamic Posted Pricing  
*In Proceedings of the 25th Annual European Symposium on Algorithms (ESA 2017).*
5. Shali Jiang, Gustavo Malkomes, Geoff Converse, Alyssa Shofner, Benjamin Moseley, Roman Garnett  
Efficient Nonmyopic Active Search  
*In Proceedings of the 34th International Conference on Machine Learning (ICML 2017).*
6. Kunal Agrawal, Jing Li, Kefu Lu and Benjamin Moseley  
Scheduling Parallelizable Jobs Online to Maximize Throughput  
*In Proceedings of the 29th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2017). Brief Announcement.*
7. Sungjin Im, Benjamin Moseley, and Xiaorui Sun  
Efficient Massively Parallel Methods for Dynamic Programming  
*In Proceedings of the Symposium on Theory of Computing (STOC 2017)*
8. Shalmoli Gupta, Ravi Kumar, Kefu Lu, Benjamin Moseley, and Sergei Vassilvitskii  
Local Search Methods for k-Means with Outliers  
*In Proceedings of the International Conference on Very Large Data Bases (VLDB 2017)*
9. Gustavo Malkomes, Kefu Lu, Blakeley Hoffman, Roman Garnett, Benjamin Moseley and Richard Mann  
Cooperative Set Function Optimization Without Communication or Coordination  
*In Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AA-MAS 2017)*
10. Varun Gupta, Benjamin Moseley, Marc Uetz and Qiaomin Xie  
Stochastic Online Scheduling on Unrelated Machines  
*In Proceedings of the 19th Conference on Integer Programming and Combinatorial Optimization (IPCO 2017).*
11. Sungjin Im, Benjamin Moseley and Shi Li  
Breaking  $1 - 1/e$  Barrier for Non-preemptive Throughput Maximization  
*In Proceedings of the 19th Conference on Integer Programming and Combinatorial Optimization (IPCO 2017).*
12. Sungjin Im, and Benjamin Moseley  
Fair Scheduling via Iterative Quasi-Uniform Sampling  
*In Proceedings of the 28th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2017).*
13. Sungjin Im, Janardhan Kulkarni, Benjamin Moseley and Kamesh Munagala  
A Competitive Flow Time Algorithm for Heterogeneous Clusters under Polytope Constraints  
*In Proceedings of the 19th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2016).*
14. Sungjin Im and Benjamin Moseley  
General Profit Scheduling and the Power of Migration on Heterogeneous Machines  
*In Proceedings of the 28th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2016).*

15. Kunal Agrawal, Jing Li, Kefu Lu and Benjamin Moseley  
Scheduling Parallelizable Jobs Online to Minimize Maximum Flow Time  
*In Proceedings of the 28th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2016).*
16. Shaurya Ahuja, Kefu Lu, and Benjamin Moseley  
Partitioned Feasibility Tests for Sporadic Tasks on Heterogeneous Machines  
*In Proceedings of the 30th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2016).*
17. Kunal Agrawal, Jing Li, Kefu Lu, and Benjamin Moseley  
Scheduling Parallel DAG Jobs Online to Minimize Average Flow Time  
*In Proceedings of the 27th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2016).*
18. Gustavo Malkomes, Matt Kusner, Wenlin Chen, Kilian Weinberger and Benjamin Moseley  
Fast Distributed k-Center Clustering with Outliers on Massive Data  
*In Proceedings of the 29th Conference on Neural Information Processing Systems (NIPS 2015)*
19. Roozbeh Ebrahimi, Samuel McCauley and Benjamin Moseley  
Scheduling Parallel Jobs Online with Convex and Concave Parallelizability  
*In Proceedings of the 13th Workshop on Approximation and Online Algorithms (WAOA 2015)*
20. Michael A. Bender, Jonathan Berry, Simon D. Hammond, Branden Moore, Benjamin Moseley and Cynthia A. Phillips  
k-Means Clustering on Two-Level Memory Systems  
*In The International Symposium on Memory Systems (MEMSYS 2015).*
21. Sungjin Im and Benjamin Moseley  
Weighted Reordering Buffer Improved via Variants of Knapsack Covering Inequalities  
*In The 42nd International Colloquium on Automata, Languages, and Programming (ICALP 2015).*
22. Noa Avigdor-Elgrabli, Sungjin Im, Benjamin Moseley and Yuval Rabani  
On the Randomized Competitive Ratio of Reordering Buffer Management with Non-Uniform Costs  
*In The 42nd International Colloquium on Automata, Languages, and Programming (ICALP 2015).*
23. Sungjin Im, Janardhan Kulkarni and Benjamin Moseley  
Temporal Fairness of Round Robin: Competitive Analysis for Lk-norms of Flow Time  
*In Proceedings of the 27th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2015).*
24. Sungjin Im and Benjamin Moseley  
Scheduling in Bandwidth Constrained Tree Networks  
*In Proceedings of the 27th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2015).*
25. Sungjin Im and Benjamin Moseley  
Fast and Better Distributed MapReduce Algorithms for k-Center Clustering  
*In Proceedings of the 27th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2015). Brief Announcement.*
26. Michael A. Bender, Jonathan W Berry, Simon Hammond, Karl Hemmert, Samuel McCauley, Branden Moore, Benjamin Moseley, Cynthia A Phillips, David Resnick, and Arun Rodrigues  
Two-Level Main Memory Co-Design: Multi-Threaded Algorithmic Primitives, Analysis, and Simulation  
*In Proceedings of the 29th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2015).*  
**Awarded Best Paper**
27. Sungjin Im, Benjamin Moseley and Kirk Pruhs  
Stochastic Scheduling of Heavy-tailed Jobs  
*In Proceedings of the 32nd Symposium on Theoretical Aspects of Computer Science (STACS 2015).*
28. Sungjin Im, Shi Li, Benjamin Moseley, and Eric Torng  
A Dynamic Programming Framework for Non-Preemptive Scheduling Problems on Multiple Machines  
*In Proceedings of the 26th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2015).*

29. Sungjin Im, Benjamin Moseley, Kirk Pruhs and Eric Torng  
Competitively Scheduling Tasks with Intermediate Parallelizability  
*In Proceedings of the 26th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2014).*
30. Antonios Antoniadis, Neal Barcelo, Daniel Cole, Kyle Fox, Benjamin Moseley, Michael Nugent and Kirk Pruhs  
Packet Forwarding Algorithms in a Line Network  
*In Proceedings of the 11th Latin American Theoretical Informatics Symposium (LATIN 2014).*
31. Antonios Antoniadis, Sungjin Im, Ravishankar Krishnaswamy, Vishwanath Nagarajan, Benjamin Moseley, Kirk Pruhs and Cliff Stein  
Hallucination Helps: Energy Efficient Virtual Circuit Routing  
*In Proceedings of the 25th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2014).*
32. Sungjin Im and Benjamin Moseley  
New Approximations for Reordering Buffer Management  
*In Proceedings of the 25th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2014).*
33. Kyle Fox, Sungjin Im, Janardhan Kulkarni and Benjamin Moseley  
Online Non-clairvoyant Scheduling to Simultaneously Minimize All Convex Functions  
*In Proceedings of the 16th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2013).*
34. Ravi Kumar, Benjamin Moseley, Sergei Vassilvitskii and Andrea Vattani  
Fast Greedy Algorithms in MapReduce and Streaming  
*In Proceedings of the 25th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2013).*  
**Awarded Best Paper**
35. Sungjin Im and Benjamin Moseley  
Online Batch Scheduling for Flow Objectives  
*In Proceedings of the 25th Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2013). Brief Announcement.*
36. Arpita Ghosh, Satyen Kale, Kevin Lang and Benjamin Moseley  
Bargaining for Revenue Shares on Tree Trading Networks  
*In Proceedings of the 23rd International Joint Conference on Artificial Intelligence (IJCAI 2013).*
37. Benjamin Moseley, Kirk Pruhs and Cliff Stein  
The Complexity of Scheduling for p-norms of Flow and Stretch  
*In Proceedings of the 16th Conference on Integer Programming and Combinatorial Optimization (IPCO 2013).*
38. Kyle Fox, Sungjin Im and Benjamin Moseley  
Energy Efficient Scheduling of Parallelizable Jobs  
*In Proceedings of the 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2013).*
39. Neal Barcelo, Sungjin Im, Benjamin Moseley and Kirk Pruhs  
Shortest-Elapsed-Time-First on a Multiprocessor  
*In Proceedings of the Mediterranean Conference on Algorithms (MedAlg 2012).*
40. Bahman Bahmani, Benjamin Moseley, Andrea Vattani, Ravi Kumar and Sergei Vassilvitskii  
Scalable K-Means++  
*In Proceedings of the International Conference on Very Large Data Bases (VLDB 2012).*
41. Kevin Lang, Benjamin Moseley and Sergei Vassilvitskii  
Handling Forecast Errors while Bidding for Display Advertising  
*In Proceedings of the International Conference on World Wide Web (WWW 2012).*
42. Sungjin Im, Benjamin Moseley and Kirk Pruhs  
Online Scheduling with General Cost Functions  
*In Proceedings of the 23rd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2012).*

43. Anupam Gupta, Sungjin Im, Ravishankar Krishnaswamy, Benjamin Moseley and Kirk Pruhs  
Scheduling Heterogeneous Processors Isn't As Easy As You Think  
*In Proceedings of the 23rd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2012)*
44. Alina Ene, Sungjin Im and Benjamin Moseley  
Fast Clustering using MapReduce  
*In Proceedings of the 17th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2011)*
45. Silvio Lattanzi, Benjamin Moseley, Siddharth Suri and Sergei Vassilvitskii  
Filtering: A Method for Solving Graph Problems in MapReduce  
*In Proceedings of the 23rd Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2011)*
46. Benjamin Moseley, Anirban Dasgupta, Ravi Kumar and Tamas Sarlos  
On Scheduling in Map-Reduce and Flow-Shops  
*In Proceedings of the 23rd Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2011)*
47. Kyle Fox and Benjamin Moseley  
Online Scheduling on Identical Machines using SRPT  
*In Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2011)*
48. Jeff Edmonds, Sungjin Im and Benjamin Moseley  
Online Scalable Scheduling for the  $\ell_k$ -norms of Flow Time Without Conservation of Work  
*In Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2011)*
49. Sungjin Im and Benjamin Moseley  
An Online Scalable Algorithm for Minimizing  $\ell_k$ -norms of Weighted Flow Time on Unrelated Machines  
*In Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2011)*
50. Chandra Chekuri, Avigdor Gal, Sungjin Im, Samir Khuller, Jian Li, Richard McCutchen, Benjamin Moseley and Louiqa Raschid  
New Models and Algorithms for Throughput Maximization in Broadcast Scheduling  
*In Proceedings of the 8th Workshop on Approximation and Online Algorithms (WAOA 2010)*
51. Anupam Gupta, Sungjin Im, Ravishankar Krishnaswamy, Benjamin Moseley and Kirk Pruhs  
Scheduling Jobs with Varying Parallelizability to Reduce Variance  
*In Proceedings of the 22nd Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA 2010)*
52. Sungjin Im and Benjamin Moseley  
An Online Scalable Algorithm for Average Flow Time in Broadcast Scheduling  
*In Proceedings of the 21st Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2010)*  
**Awarded Best Student Paper**
53. Chandra Chekuri, Sungjin Im and Benjamin Moseley  
Longest Wait First for Broadcast Scheduling  
*In Proceedings of the 7th Workshop on Approximation and Online Algorithms (WAOA 2009)*
54. Chandra Chekuri, Sungjin Im and Benjamin Moseley  
Minimizing Maximum Response Time and Delay Factor in Broadcast Scheduling  
*In Proceedings of the 17th Annual European Symposium on Algorithms (ESA 2009)*
55. Chandra Chekuri and Benjamin Moseley  
Online Scheduling to Minimize the Maximum Delay Factor.  
*In Proceedings of the 20th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2009)*

REFEREED JOURNAL  
PAPERS

56. Roozbeh Ebrahimi, Samuel McCauley and Benjamin Moseley. Scheduling Parallel Jobs Online with Convex and Concave Parallelizability. *Theory of Computing Systems*. 2016. **Special Issue for best papers at WAOA 2015.**
57. Michael A. Bender, Jonathan W Berry, Simon Hammond, Karl Hemmert, Samuel McCauley, Branden Moore, Benjamin Moseley, Cynthia A Phillips, David Resnick, and Arun Rodrigues  
Two-Level Main Memory Co-Design: Multi-Threaded Algorithmic Primitives, Analysis, and Simulation  
*Accepted to Journal of Parallel and Distributed Computing: Special Issue for best papers at IPDPS 2015.*
58. Sungjin Im, Benjamin Moseley, Kirk Pruhs and Eric Torng  
Competitively Scheduling Tasks with Intermediate Parallelizability  
*In ACM Transactions on Parallel Computing Special Issue for best papers at SPAA 2014*. 3(1): 4 (2016).
59. Ravi Kumar, Benjamin Moseley, Sergei Vassilvitskii and Andrea Vattani  
Fast Greedy Algorithms in MapReduce and Streaming  
*In ACM Transactions on Parallel Computing: Special Issue for best papers at SPAA 2013*. 2(3): 14 (2015).
60. Benjamin Moseley  
Scheduling to Minimize Energy and Flow Time in Broadcast Scheduling  
*In Journal of Scheduling*. 18(1): 107-118 (2015).
61. Sungjin Im, Benjamin Moseley and Kirk Pruhs  
Online Scheduling with General Cost Functions  
*In SIAM Journal on Computing*. 43(1): 126-143 (2014).
62. Daniel Cole, Sungjin Im, Benjamin Moseley and Kirk Pruhs  
Speed Scaling for Total Stretch Plus Energy  
*In Operations Research Letters*. 40(3): 180-184 (2012).
63. Bahman Bahmani, Benjamin Moseley, Andrea Vattani, Ravi Kumar and Sergei Vassilvitskii  
Scalable K-Means++  
*In Proceedings of the International Conference on Very Large Data Bases*. 5(7): 622-633 (2012).
64. Chandra Chekuri, Sungjin Im and Benjamin Moseley  
On Scheduling to Minimize Maximum Response Time and Maximum Delay Factor  
*In Theory of Computing: Special Issue in honor of Rajeev Motwani*. 8(1): 165-195 (2012).
65. Sungjin Im and Benjamin Moseley  
An Online Scalable Algorithm for Average Flow Time in Broadcast Scheduling  
*In ACM Transactions on Algorithms*. 8(4): 39 (2012)
66. Sungjin Im, Benjamin Moseley and Kirk Pruhs  
A Tutorial on Amortized Local Competitiveness in Online Scheduling  
*In SIGACT News*. 42(2): 83-97 (2011).

TUTORIALS

FUNDING

- NSF: SPX: Collaborative Research: Harnessing the Power of High-Bandwidth Memory via Provably Efficient Parallel Algorithms. Moseley, PI. Total: \$249,999. 09/15/17-8/31/2021
- NSF: AITF: Applied Algorithmic Foundation for Scheduling Multiprogrammed Parallelizable Workloads. Moseley, PI. Co-PIs Kunal Agrawal (WashU) and Angelina Lee (WashU). Total: \$650,000 . 10/1/17-9/30/21.
- NSF: AF Small: Collaborative Research: Algorithmic and Computational Frontiers of MapReduce for Big Data Analysis. Moseley, PI. 2016. Total: \$252,767. 7/1/16-6/30/19.
- NSF: REU Site: Big Data Analytics. Sanmay Das, PI. Moseley, Senior Personnel. 2016. Total: \$359,111. 4/2/16-3/31/19.
- Yahoo! Academic Career Enhancement (ACE) Award. Moseley, PI. 2015. Total \$10,000 (Gift)

- Google Faculty Research Award: “Fast Distributed Algorithms for Clustering Data”. Moseley, PI. 2015. Total: \$31,845 (Gift)

PHD STUDENTS

- Kefu Lu. Entered Fall 2014.
- Thomas Lavastida. Entered Fall 2016.

UNDERGRADUATE  
ADVISEES

- Matt Abbott. 2017 Summer REU.
- Bryce Bagley. 2017 Spring independent study and Summer.
- Geoff Converse. 2016 Summer REU. → PhD University of Iowa in CS.
- Alyssa Shofner. 2016 Summer REU.
- Blakeley Hoffman. 2015 Summer REU and independent study Fall 2015. → Student at MIT CS.
- Roman Blum. 2015 research project. → PhD Brown University in CS.
- Diqiu Zhou. 2015 research project.

THESIS COMMITTEES

- Matt Kusner. First position: Alan Turing Institute.

INVITED  
PRESENTATIONS

2017 George Washington University  
 2017 University of Chicago  
 2017 Carnegie Mellon University  
 2017 Columbia University  
 2017 Saint Louis University  
 2016 Simons Institute at UC-Berkeley  
 2016 Stanford University  
 2016 LogicBlox  
 2016 Technical University of Munich  
 2015 Workshop at STOC 2015. Algorithmic Frontiers of Modern Massively Parallel Computation  
 2014 University of California Merced  
 2014 University of Pittsburgh  
 2014 Dartmouth College  
 2014 Virginia Tech  
 2014 Columbia University  
 2013 Northwestern University  
 2013 Washington University  
 2013 University of Illinois at Chicago  
 2013 Dagstuhl seminar on scheduling  
 2013 University of Chicago  
 2012 University of Minnesota  
 2012 Yahoo  
 2012 Google  
 2012 Oregon State University  
 2012 University of Buffalo  
 2012 Toyota Technological Institute at Chicago  
 2012 Sandia National Laboratories  
 2012 Shonan meeting on large-scale distributed computation

CONFERENCE  
AND WORKSHOP  
PRESENTATIONS

- “Fair Scheduling via Iterative Quasi-Uniform Sampling”. SODA 2017. Barcelona, Spain.
- “General Profit Scheduling and the Power of Migration on Heterogeneous Machines”. SPAA 2016. Monterey, CA.
- “Scheduling Parallel DAG Jobs to Minimize the Average Flow Time”. New Challenges in Scheduling Theory. Aussois, France.
- “Scheduling in Bandwidth Constrained Tree Networks”. Portland, OR. SPAA 2015.
- “Fast and Better Distributed MapReduce Algorithms for k-Center Clustering”. Portland, OR. SPAA 2015.
- “Online Non-clairvoyant Scheduling to Simultaneously Minimize All Convex Functions”. La Roche-en-Ardenne, Belgium. MAPSP 2015.

- “Two-Level Main Memory Co-Design: Multi-Threaded Algorithmic Primitives, Analysis, and Simulation”. Hyderabad, India. IPDPS 2015. Best Paper plenary presentation.
- “Competitively Scheduling Tasks with Intermediate Parallelizability”. Prague, Czech Republic. SPAA 2014.
- “New Approximations for Reordering Buffer Management”. Portland, OR. SODA 2014.
- “Bargaining for Revenue Shares on Tree Trading Networks”. Beijing, China. IJCAI 2013.
- “Fast Greedy Algorithms in MapReduce and Streaming”. Montreal, Canada. SPAA 2013. Best paper presentation.
- “Online Batch Scheduling for Flow Objectives”. Montreal, Canada. SPAA 2013.
- “The Complexity of Scheduling for p-norms of Flow and Stretch”. Valparaiso, Chile. IPCO 2013.
- “Scheduling Heterogeneous Processors Isn’t As Easy As You Think”. Kyoto, Japan. SODA 2012.
- “Fast Clustering using MapReduce”. Chicago, IL. Midwest Theory Day 2012 at Northwestern.
- “Filtering: A Method for Solving Graph Problems in MapReduce”. San Jose, CA. SPAA 2011.
- “On Scheduling in Map-Reduce and Flow-Shops”. San Jose, CA. SPAA 2011.
- “An Online Scalable Algorithm for Minimizing  $\ell_k$ -norms of Weighted Flow Time on Unrelated Machines”. San Francisco, CA. SODA 2011.
- “An Online Scalable Algorithm for Average Flow Time in Broadcast Scheduling”. Austin, TX. SODA 2010. Best Student Paper presentation.
- “Online Scheduling to Minimize the Maximum Delay Factor”.
  - New York, NY. SODA 2009.
  - Chicago, IL. Midwest Theory Day 2008 at Northwestern.

#### INSTRUCTION

Numbers in the right margin are student evaluations of instructor/course quality (maximum 7.0/7.0).

Fall 2017	CSE 240: Logic and Discrete Mathematics	undergrad	174 Students	(6.04/5.95)
Fall 2017	CSE 544: Special Topics	grad	3 Students	(NA/NA)
Spring 2017	CSE 581: Approximation Algorithms	grad	29 Students	(6.62/6.69)
Fall 2015	CSE 240: Logic and Discrete Mathematics	undergrad	174 Students	(5.67/5.18)
Spring 2015	CSE 240: Logic and Discrete Mathematics	undergrad	67 Students	(6.52/6.33)
Fall 2014	CSE 581: Approximation Algorithms	grad	15 Students	(6.22/6.00)

#### PROFESSIONAL ACTIVITIES

- Editorial Boards
  - Associate Editor for Operations Research Letters
  - Associate Editor for IEEE Transactions on Knowledge and Data Engineering (TKDE)
  - Associate Editor for Mathematical Foundations of Computing
- Guest Editor
  - Special Issue of Journal of Scheduling devoted to selected papers from the 2016 Seminar on New Challenges in Scheduling Theory Seminar
  - Special Issue of Journal of Scheduling devoted to selected papers from the 2014 Seminar on New Challenges in Scheduling Theory Seminar
- Program committee member for:
  - International Conference on Web Search and Data Mining (WSDM 2018)
  - Conference on Artificial Intelligence (AAAI 2018)
  - ACM-SIAM Symposium on Discrete Algorithms (SODA 2018)
  - Knowledge Discovery, Data Mining, and Data Science Research (KDD 2017, Senior Program committee)
  - European Symposium on Algorithms Track B (ESA 2017)
  - International Conference on Parallel Processing (ICPP 2017)
  - International Conference on Artificial Intelligence and Statistics (AISTATS 2017)
  - IEEE International Parallel & Distributed Processing Symposium 2017 (IPDPS 2017)



- International Conference on Web Search and Data Mining (WSDM 2016)
- International Conference on High Performance Computing, Data and Analytics (HiPC 2016)
- Workshop on Approximation and Online Algorithms (WAOA 2016)
- IEEE International Parallel & Distributed Processing Symposium 2016 (IPDPS 2016)
- ACM Symposium on Parallelism in Algorithms and Architectures 2016 (SPAA 2016)
- Workshop on Models and Algorithms for Planning and Scheduling Problems 2015 (MAPSP 2015)
- International Computing and Combinatorics Conference 2015 (COCOON 2015)
- International Computing and Combinatorics Conference 2014 (COCOON 2014)
- International Symposium on Algorithms and Computation 2013 (ISAAC 2013)
- Workshop on Approximation and Online Algorithms (WAOA 2013)
- Organizer:
  - Workshop on New Challenges in Scheduling Theory 2018. Aussois, France.
  - Workshop on New Challenges in Scheduling Theory 2016. Aussois, France.
  - Workshop on New Challenges in Scheduling Theory 2014. Aussois, France.
- Reviewer or referee for:
  - Symposium on Foundations of Computer Science (FOCS)
  - Symposium on the Theory of Computing (STOC)
  - Symposium on Discrete Algorithms (SODA)
  - Neural Information Processing Systems (NIPS)
  - International Colloquium on Automata, Languages and Programming (ICALP)
  - European Symposium on Algorithms (ESA)
  - International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)
  - International European Conference on Parallel and Distributed Computing (Euro-Par)
  - Workshop on Approximation and Online Algorithms (WAOA)
  - Symposium on Theoretical Aspects of Computer Science (STACS)
  - Latin American Theoretical Informatics Symposium (LATIN)
  - Innovations in Theoretical Computer Science (ITCS)
  - Integer Programming and Combinatorial Optimization (IPCO)
  - ACM Symposium on Parallel Algorithms and Architectures (SPAA)
  - ACM Transactions on Algorithms (TALG)
  - Operations Research
  - Algorithmica
  - Journal of Scheduling (JoS)
  - IEEE Transactions on Knowledge and Data Engineering (TKDE)
  - Concurrency and Computation: Practice and Experience
  - Networks
  - IEEE Transactions on Signal Processing
  - Theory of Computing Systems
  - Parallel Computing
  - Mathematics of Operations Research
  - International Journal of Information and Communication Technology (IJICT)
  - IEEE Transactions on Signal Processing
  - Journal of Combinatorial Optimization
  - Journal of Computer Science and Technology (JCST)
  - Journal of Computer and System Sciences (JCSS)
  - Transactions on Cloud Computing