Dr. Michael H Dinitz

Department of Computer Science
Johns Hopkins University
217 Malone Halll
3400 North Charles Street
Baltimore, MD 21218-2608
(410) 516-7185
mdinitz@cs.jhu.edu
http://www.cs.jhu.edu/~mdinitz/

1020 Park Ave, Apt 908
Baltimore, MD 21201
(443) 449-8573

Research Interests

Algorithms, particularly approximation and online algorithms. Hardness of approximation, combinatorial optimization, metric embeddings. Applications to networking and distributed computing.

Work Experience

- **Assistant Professor**, Johns Hopkins University, Department of Computer Science: January 2014 - present.
- **Research Assistant Professor**, Johns Hopkins University, Department of Computer Science: August 2013 - January 2014.
- **Postdoctoral Fellow**, Weizmann Institute of Science: August 2010 - present.

Education

- **Carnegie Mellon University**, Pittsburgh, PA
  Ph.D. in Computer Science: August 2010
  Thesis: *Algorithms and Models for Problems in Networking*
  Advisor: Anupam Gupta
- **Princeton University**, Princeton, NJ
  A.B. *summa cum laude* in Computer Science, certificate in Applied and Computational Mathematics: June 2005
  Awards and Honors: Shapiro Prize for Academic Excellence, 2003
- **Champlain Valley Union High School**, Hinesburg, VT
  Graduation Date: June 2001

Conference Papers (Peer-Reviewed)

1. **Michael Dinitz** and Zeyu Zhang. *Approximating Low-Stretch Spanners.* In Proceedings of the 27th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2016)
2. **Michael Dinitz**, Jeremy Fineman, Seth Gilbert, and Calvin Newport. *Smoothed Analysis of Dynamic Networks.* In Proceedings of the 29th International Symposium on Distributed Computing (DISC 2015).
3. **Michael Dinitz**, Michael Schapira, and Asaf Valadarsky. *Explicit Expanding Expanders.* In Proceedings of the 23rd European Symposium on Algorithms (ESA 2015).
4. **Michael Dinitz**, Robert Krauthgamer, and Tal Wagner. *Towards Resistance Sparsifiers.* In Proceedings of the 19th International Workshop on Randomization and Computation (RANDOM 2015).
5. Eden Chlamtac and **Michael Dinitz**. *Lowest Degree k-Spanner: Approximation and Hardness.* In Proceedings of the 17th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2014).
6. **Michael Dinitz**, Guy Kortsarz, and Zeev Nutov. *Improved Approximation Algorithm for Steiner k-Forest with Nearly Uniform Weights.* In Proceedings of the 17 International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2014).

7. **Michael Dinitz** and Merav Parter. *Braess's Paradox in Wireless Networks: The Danger of Improved Technology*. In Proceedings of the 27th International Symposium on Distributed Computing (DISC 2013).
8. **Michael Dinitz** and Anupam Gupta. *Packing Interdiction and Partial Covering Problems*. In Proceedings of the 16th Conference on Integer Programming and Combinatorial Optimization (IPCO 2013).
9. **Michael Dinitz** and Guy Kortsarz. *Matroid Secretary for Regular and Decomposable Matroids*. In Proceedings of the 24th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2013).
10. Eden Chlamtac, **Michael Dinitz**, and Robert Krauthgamer. *Everywhere-Sparse Spanners via Dense Subgraphs*. In Proceedings of the 53rd Annual Symposium on Foundations of Computer Science (FOCS 2012).
11. **Michael Dinitz** and Gordon Wilfong. *Constrained Connectivity and iBGP*. In Proceedings of the 15th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2012).
12. **Michael Dinitz**, Guy Kortsarz, and Ran Raz. *Label Cover Instances with Large Girth and the Hardness of Approximating Basic k-Spanner*. In Proceedings of the 39th International Colloquium on Automata, Languages and Programming (ICALP 2012).
13. Atish Das Sarma, **Michael Dinitz**, and Gopal Pandurangan. *Efficient Computation of Distance Sketches in Distributed Networks*. In Proceedings of the 24th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA 2012).
14. **Michael Dinitz** and Robert Krauthgamer. *Fault-Tolerant Spanners: Better and Simpler*. In Proceedings of the 30th Annual ACM Symposium on Principles of Distributed Computing (PODC 2011).
15. **Michael Dinitz** and Robert Krauthgamer. *Directed Spanners via Flow-Based Linear Programs*. In Proceedings of the 43rd Annual ACM Symposium on Theory of Computing (STOC 2011).
16. **Michael Dinitz**. *Distributed Algorithms for Approximating Wireless Network Capacity*. In Proceedings of the 29th IEEE Conference on Computer Communications (INFOCOM 2010).
17. Matthew Andrews and **Michael Dinitz**. *Maximizing Capacity in Arbitrary Wireless Networks in the SINR Model: Complexity and Game Theory*. In Proceedings of the 28th IEEE Conference on Computer Communications (INFOCOM 2009).
18. Moshe Babaioff, **Michael Dinitz**, Anupam Gupta, Nicole Immorlica, and Kunal Talwar. *Secretary Problems: Weights and Discounts*. In Proceedings of the Twentieth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2009).
19. **Michael Dinitz**. *Online, Dynamic, and Distributed Embeddings of Approximate Ultrametrics*. In Proceedings of the 22nd International Symposium on Distributed Computing (DISC 2008).
20. **Michael Dinitz**. *Compact Routing with Slack*. In Proceedings of the Twenty-Sixth Annual ACM Symposium on Principles of Distributed Computing (PODC 2007).
21. T.H.-Hubert Chan, **Michael Dinitz**, and Anupam Gupta. *Spanners With Slack*. In Proceedings of the 14th Annual European Symposium on Algorithms (ESA 2006).

Workshop Papers (Peer-Reviewed)

1. Asaf Valadarsky, **Michael Dinitz**, and Michael Schapira. *Xpander: Unveiling the Secrets of High-Performance Datacenters*. In the Fourteenth ACM Workshop on Hot Topics in Networks (HotNets 2015).

Journal Papers (Peer-Reviewed)

1. Atish Das Sarma, **Michael Dinitz**, and Gopal Pandurangan. *Efficient Computation of Distance Sketches in Distributed Networks*. Distributed Computing. 28(5), 2015, 309-320.

2. **Michael Dinitz** and Guy Kortsarz. *Matroid Secretary for Regular and Decomposable Matroids*. SIAM Journal on Computing. 43(5), 2014, 1807-1830.
3. **Michael Dinitz**, Jonah Gold, Thomas Sharkey, and Lorenzo Traldi. *Graphical Representations of Clutters*. Ars Combinatoria. 94 (2010), pp 303-320.
4. **Michael Dinitz**. *Full Rank Tilings of Finite Abelian Groups*. SIAM J. Discret. Math. 20, 1 (Jan. 2006), 160-170.
5. **Michael Dinitz** and Jeffrey Dinitz. *Enumeration of Balanced Tournament Designs on 10 Points*. Journal of Combinatorial Mathematics and Combinatorial Computing, **52** (2005), 51-63.

Surveys

1. **Michael Dinitz**. Recent advances on the matroid secretary problem. *SIGACT News* 44, 2 (June 2013), 126-142

Grants and Fellowships

- PI, NSF award 1535887. *AitF: EXPL: Wide-area Dissemination under Strict Timeliness, Reliability, and Cost Constraints*. September 2015 - August 2017. $400,000
- PI, NSF award 1464239. *CRII: AF: New Approaches to Graph Spanners*. February 2015 - January 2017. $185,000
- National Science Foundation Graduate Research Fellowship (September 2005 - September 2008)
- ARCS (Achievement Rewards for College Scientists) Scholarship: $15000

Teaching

- 600.363/463 Introduction to Algorithms / Algorithms I. Fall 2014, Fall 2015
- 600.473/673 Algorithmic Game Theory. Spring 2016
- 600.469/669 Approximation Algorithms. Spring 2015
- 600.770 Selected Topics in Algorithms for Metric Spaces. Spring 2014

Program Committees

- APPROX 2015: 18th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems
- SPAA 2013: 25th ACM Symposium on Parallelism in Algorithms and Architectures
- CATS 2013: 19th Edition of Computing: the Australasian Theory Symposium

Service

- Guest Editor, ACM Transactions on Parallel Computing, Special Issue on Selected Papers from SPAA 2013.
- Committee Member: Undergraduate and Graduate Awards (2014-2015), Systems Faculty Search (2014-2015)
- Session chair, CISS 2014 (49th Annual Conference on Information Sciences and Systems).
- Conference reviewer for: STOC, FOCS, SODA, PODC, SPAA, ESA, ICALP, ITCS, APPROX, RANDOM, INFOCOM, IPDPS, COCOON
- Journal referee for: SIAM Journal on Computing, SIAM Journal on Discrete Mathematics, Transactions on Algorithms, Algorithmica, Discrete and Computational Geometry, Computational Geometry: Theory and Applications, Transactions on Networking, Transactions on Mobile Computing, Theoretical Computer Science, Distributed Computing, Transactions on Vehicular Technologies, Transactions on Wireless Computing, Transactions on Parallel and Distributed Systems, International Journal of Algebra and Computation
- Panelist, NSF: 2015
- Grant reviewer for: NSERC Discovery Grants, US-Israel Binational Science Foundation.
- Co-Organizer, Johns Hopkins Theory Seminar (Fall 2014 - present).

Invited Talks

- July 13, 2015: "Packing Interdiction and Partial Covering Problems." 22nd International Symposium on Mathematical Programming (ISMP 2015). Pittsburgh, PA.

- ◇ June 24, 2015: "Approximating Graph Spanners." Theory Seminar, Hebrew University. Jerusalem, Israel.
- ◇ June 22, 2015: "Smoothed Analysis of Dynamic Networks." Foundations of Computer Science Seminar, Weizmann Institute of Science. Rehovot, Israel.
- ◇ June 16, 2015: "Smoothed Analysis of Dynamic Networks." 2nd Networking Summer Workshop, Hebrew University. Jerusalem, Israel.
- ◇ October 10, 2014: "Explicit Expanding Expanders." Maryland Theory Day. University of Maryland. College Park, MD.
- ◇ July 31, 2014: "Approximating Graph Spanners." Seventh Workshop on Flexible Network Design. Lugano, Switzerland.
- ◇ May 18, 2014: "Label Cover Instances with Large Girth and the Hardness of Approximating Spanners". Capital Area Theory Seminar, University of Maryland. College Park, MD.
- ◇ March 8, 2014: "Matroid Secretary for Regular and Decomposable Matroids". University of Pennsylvania Theory Seminar. Philadelphia, PA.
- ◇ January 29, 2014: "Braess's Paradox in Wireless Networks: The Danger of Improved Technology". Dagstuhl Seminar 14051: Algorithms for Wireless Communication. Wadern, Germany.
- ◇ November 18, 2013: "Matroid Secretary for Regular and Decomposable Matroids". Tel Aviv University Algorithms Seminar. Tel Aviv, Israel.
- ◇ June 5, 2013: "Matroid Secretary for Regular and Decomposable Matroids". Technion CS Theory Seminar. Haifa, Israel.
- ◇ May 8, 2013: "Matroid Secretary for Regular and Decomposable Matroids". Hebrew University CS Theory Seminar. Jerusalem, Israel.
- ◇ March 14, 2013: "Approximating Spanners via Convex Relaxations". Oregon State University. Corvallis, OR.
- ◇ March 11, 2013: "Approximating Spanners via Convex Relaxations". Lehman College. Bronx, NY.
- ◇ March 8, 2013: "Approximating Spanners via Convex Relaxations". University of California Merced. Merced, CA.
- ◇ March 5, 2013: "Approximating Spanners via Convex Relaxations". Johns Hopkins University. Baltimore, MD.
- ◇ February 28, 2013: "Approximating Spanners via Convex Relaxations". University of Massachussetts Amherst. Amherst, MA.
- ◇ February 25, 2013: "Approximating Spanners via Convex Relaxations". University of Waterloo. Waterloo, Ontario, Canada.
- ◇ February 2, 2013: "Approximating Spanners via Convex Relaxations". Colorado School of Mines. Golden, CO.
- ◇ February 19, 2013: "Approximating Spanners via Convex Relaxations". Ohio State University. Columbus, OH.
- ◇ February 8, 2013: "Approximating Spanners via Convex Relaxations". Florida State University. Tallahassee, FL.
- ◇ November 14, 2012: "Label Cover Instances with Large Girth and the Hardness of Approximating Basic k-Spanner". Ben Gurion University Theory Seminar. Beersheva, Israel.
- ◇ June 29, 2012: "Everywhere-Sparse Spanners via Dense Subgraphs". Carnegie Mellon University Theory Seminar. Pittsburgh, PA.

- ◇ May 24, 2012: "Everywhere-Sparse Spanners via Dense Subgraphs". Bar Ilan University Computer Science Seminar. Ramat Gan, Israel.
- ◇ April 4, 2012: "Approximation Algorithms for Graph Spanners". University of Haifa Computer Science Colloquium. Haifa, Israel.
- ◇ March 26, 2012: "Network Design Problems via Convex Relaxations". Google Research. New York, NY.
- ◇ March 21, 2012: "Network Design Problems via Convex Relaxations". University of Connecticut. Storrs, CT.
- ◇ January 13, 2012: "Network Design Problems via Convex Relaxations". Alcatel-Lucent Bell Labs. Murray Hill, NJ.
- ◇ September 13, 2011: " Fault-Tolerant Spanners: Better and Simpler". Warwick-Weizmann Workshop. Coventry, England.
- ◇ June 1, 2011: "Directed Spanners via Flow-Based Linear Programs." Technion Theory Seminar. Haifa, Israel.
- ◇ April 6, 2011: "Directed Spanners via Flow-Based Linear Programs." Hebrew University CS Theory Seminar. Jerusalem, Israel.
- ◇ April 5, 2011: "Directed and Fault-Tolerant Spanners." Ben Gurion University Computer Science Colloquium. Beersheva, Israel.
- ◇ March 14, 2011: "Directed Spanners via Flow-Based Linear Programs." Tel Aviv University Algorithms Seminar. Tel Aviv, Israel.
- ◇ December 8, 2010: "Directed Spaners via Flow-Based Linear Programs." Weizmann-Warwick Meeting 2010. Weizmann Institute of Science. Rehovot, Israel.
- ◇ February 2, 2010: "Approximating Wireless Network Capacity". Los Alamos National Lab. Los Alamos, New Mexico.
- ◇ January 20, 2010: "Approximating Wireless Capacity in the Physical Model". University of Vermont. Burlington, Vermont.
- ◇ January 13, 2010: "Wireless Network Capacity in the Physical Model". West Virginia University. Morgantown, West Virginia.
- ◇ August 24, 2009: "Wireless Network Capacity in the Physical Model". International Symposium on Mathematical Programming (ISMP) 2009. Chicago, Illinois.
- ◇ March 27, 2009: "Approximating Wireless Capacity in the Physical Model". University of Michigan. Ann Arbor, Michigan
- ◇ June 14, 2008: "Secretary Problems: Weights and Discounts". Alcatel-Lucent Bell Labs. Murray Hill, NJ.
- ◇ October 6, 2006: "Spanners with Slack". Workshop on Flexible Network Design. Bertinoro, Italy.
- ◇ September 1, 2004: "Full Rank Tilings of Finite Abelian Groups". University of Vermont. Burlington, Vermont.

CITIZENSHIP United States of America

REFERENCES Available upon request