Julia Chuzhoy

Professor,
Toyota Technological Institute at Chicago

Professor (part time),
Department of Computer Science,
University of Chicago

Contact Information

Address:	Toyota Technological Institute at Chicago
	6045 S. Kenwood Ave.,
	Chicago IL 60637
Phone:	773-834-2490
Email:	cjulia@ttic.edu
Web page:	`http://ttic.uchicago.edu/~cjulia`

Research Interests

Combinatorial optimization; Approximation algorithms; Hardness of approximation; Graph theory; Dynamic Algorithms.

Education

2000-2004	Technion, Israel	Ph.D. in Computer Science <u>Thesis title</u>: "Hardness of Approximation and New Approximability Classes" <u>Advisor</u>: Prof. S. Naor
1998-2000	Technion, Israel	M.Sc. in Computer Science <u>Thesis title</u>: "Approximation Algorithms for Hard Cut Problems" <u>Advisor</u>: Prof. Y. Rabani
1995-1998	Technion, Israel	B.A. in Computer Science (Summa Cum Laude)

Academic Appointments

2017-current	Professor Toyota Technological Institute at Chicago
2019-current	Professor (part time) Department of Computer Science, University of Chicago
2018-2019	Weston visiting professor Department of Computer Science and Applied Mathematics, Weizmann Institute of Science
2012-2017	Associate Professor Toyota Technological Institute at Chicago
2013-2019	Associate Professor (part time) Department of Computer Science, University of Chicago
2007-2012	Assistant Professor Toyota Technological Institute at Chicago
2007-2013	Assistant Professor (part time) Department of Computer Science, University of Chicago
2006-2007	Member, School of Mathematics, Institute for Advanced Study
2005-2006	Postdoctoral Associate, Department of Computer and Information Science, University of Pennsylvania
2004-2006	Postdoctoral Associate, Computer Science and Artificial Intelligence Lab, Massachusetts Institute of Technology

Awards and honors

- Michael and Sheila Held Prize (National Academy of Sciences) — 2020

- Invited section speaker at the International Congress of Mathematicians,
  Mathematical Aspects of Computer Science section — 2014

- FOCS 2012 Best Paper Award for "A Polylogarithimic Approximation
  Algorithm for Edge-Disjoint Paths with Congestion 2" co-authored with Shi Li — 2012

- Alfred P. Sloan Research Fellowship — 2011

- NSF CAREER award — 2009

- Rothschild Postdoctoral Fellowship — 2004

- Scholarship from the Planning and Budgeting Committee
  (Vatat) of the Council for Higher Education in Israel — 2000-2003

- Intel Ph.D. Fellowship — 2001

- Wolf Prize for outstanding Ph.D. students — 2003

- Wolf Prize for outstanding M.Sc. students — 2000

- Excellent Teaching Assistant award (Technion)   1998, 1999, 2000

- Undergraduate studies via the Technion Excellence Program   1995-1998

Funding

- NSF HDR TRIPODS award 2216899 "Institute for Data, Econometrics, Algorithms and Learning (IDEAL)", $1,967,500, Sept 1, 2022 – Aug 31, 2027 (split among a number of institutions and PI's).

- NSF grant "AF: Small: Graph Theory and Its Uses in Algorithms and Beyond", $398,163, Jul. 1, 2020 — Jun. 30, 2024.

- NSF grant "AF: Small: Graph Routing, Vertex Sparsifiers, and Connections to Graph Theory", $449,720, Sept. 1, 2016 – Aug. 31, 2020.

- NSF grant "AF: Small: Algorithms for Graph Routing, Drawing and Partitioning", $472,136, Jan. 1, 2014 – Dec. 31, 2016.

- Alfred P. Sloan Research Fellowship, $50,000, Sept. 15, 2011 - Sept. 15, 2013.

- NSF CAREER grant "CAREER: Approximation Algorithms and Hardness of Network Optimization Problems", $460,690, Jan. 1, 2009 – Dec. 31, 2013.

Teaching Experience

2009-current	Toyota Technological Institute at Chicago
	<u>Courses</u>:
	Algorithms
	Approximation Algorithms
2000-2003	Computer Science Department, Technion
	<u>Courses</u>:
	Discrete Mathematics
	Security in Computer Systems

Ph. D. Students

- Ron Mosenzon (TTIC).

- Rachit Nimavat (TTIC). Expected graduation: 2023.

- Zihan Tan (University of Chicago; co-supervised with Laszlo Babai). Graduated in 2022.

- David H. K. Kim (University of Chicago; co-supervised with Laszlo Babai). Graduated in 2018.

- Parinya Chalermsook (University of Chicago; co-supervised with Janos Simon). Graduated in 2012. Currently: faculty member in the Department of Computer Science, Aalto University, Finland.

Summer Interns Mentored

The students are listed together with their affiliation at the time of the internship.

- Rhea Jain (UIUC; co-mentored with Ohad Trabelsi) - 2023.

- Mina Dalirrooyfard (MIT; co-mentored with Yury Makarychev) - 2019.

- Jason Li (CMU; co-mentored with Yury Makarychev) - 2019.

- Zihan Tan (U. of Chicago) - 2017.

- Ali Vakilian (MIT) - 2017

- Aravind Gollakota (undergraduate student; Cornell University; co-mentored with Madhur Tulsiani) - 2017

- Sepideh Mahabadi (MIT; co-mentored with Yury Makarychev) - 2016

- Vivek Madan (UIUC) - 2016

- Joshua Kaplan (undergraduate student; University of Chicago) - 2015

- David H.K. Kim (University of Chicago) - 2014 and 2015

- David Witmer (CMU; co-mentored with Yury Makarychev) - 2014

- Euiwoong Lee (CMU; co-mentored with Yury Makarychev) - 2014

- Siyu Young (Princeton Unversity) - 2013

- Rajesh Chitnis (University of Maryland) -2013.

- Alina Ene (University of Illinois at Urbana-Champaign) - 2011, 2012.

- Shi Li (Princeton University) - 2011.

- Yuan Zhou (CMU; co-mentored with Yury Makarychev) - 2010.

- Aravindan Vijayaraghavan (Princeton University; co-mentored with Yury Makarychev) - 2010.

- MohammadHossein Bateni (Princeton University) - 2009.

- Deeparnab Chakrabarty (Georgia Tech) - 2008.

Conference Program Committees

- 52nd Annual ACM Symposium on Theory of Computing (STOC) 2020, Program Committee chair.

- Highlights of Algorithms 2016

- 55th Annual IEEE Symposium on Foundations of Computer Science (FOCS) 2014

- Innovations in Theoretical Computer Science (ITCS) 2013

- 45th ACM Symposium on the Theory of Computing (STOC) 2013

- 14th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) 2011

- 51st Annual IEEE Symposium on Foundations of Computer Science (FOCS) 2010

- 11th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) 2008

- 48th Annual IEEE Symposium on Foundations of Computer Science (FOCS) 2007

- 10th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) 2007

- 8th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) 2005

Journal Editing

- SIAM Journal on Computing, 2014 - 2020

- Editor of SICOMP Special Issue for FOCS 2014

- Algorithmica, 2011-2015

Publications

Journal Papers

- J. Chuzhoy, D.H.K. Kim and R. Nimavat. New Hardness Results for Routing on Disjoint Paths. SIAM J. Comput. Vlume 51, issue 2, pages 17-189, 2022. Preliminary version appeared in *Proc. of the 49th Annual ACM SIGACT Symposium on Theory of Computing, (STOC)*, pages 86-99, 2017.

- J. Chuzhoy and Z. Tan. Towards Tight(er) Bounds for the Excluded Grid Theorem. *J. Comb. Theory, Ser. B*, volume 146, pages 219-265, 2021. Preliminary version appeared in *Proc. of the Thirtieth Annual ACM-SIAM Symposium on Discrete Algorithms, (SODA)*, pages 1445–1464, 2019.

- J. Chuzhoy, D.H.K. Kim and R. Nimavat. Almost Polynomial Hardness of Node-Disjoint Paths in Grids. *Theory Computing*, volume 17, pages 1–57, 2021. Preliminary version appeared in *Proc. of the 50th Annual ACM SIGACT Symposium on Theory of Computing (STOC)*, pages 1220-1233, 2018.

- C. Chekuri and J. Chuzhoy. Polynomial Bounds for the Grid-Minor Theorem. *Journal of the ACM*, Volume 63, Issue 5, Article no. 40, 2016. Preliminary version appeared in *Proc. of the 46th Annual Symposium on the Theory of Computing (STOC)*, pages 60–69, 2014.

- J. Chuzhoy and S. Li. A Polylogarithimic Approximation Algorithm for Edge-Disjoint Paths with Congestion 2. *Journal of the ACM*, Volume 63, Issue 5, article no. 45, 2016. Preliminary version appeared in *Proc. of the 53rd Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 233–242, 2012.

- J. Chuzhoy. Routing in Undirected Graphs with Constant Congestion. *SIAM Journal on Computing* (special issue for STOC 2012), 45(4), pp. 1490-1532, 2016. Preliminary version appeared in *Proc. of the 44th Symposium on Theory of Computing (STOC)*, pp. 855-874, 2012.

- J. Chuzhoy, Y. Makarychev, A. Vijayaraghavan and Y. Zhou. Approximation algorithms and hardness of the k-route cut problem. *ACM Transactions on Algorithms (TALG) - Special Issue on SODA'12*, 12(1), article no. 2, 2016. Preliminary version appeared in *Proc. of the Twenty-Third Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pp. 780-799, 2012.

- M. Bateni and J. Chuzhoy. Approximation algorithms for the directed k-tour and k-stroll problems. *Algorithmica*, 65(3), pp. 545-561, 2013. Preliminary version appeared in *Proc. of APPROX 2010*, Lecture Notes in Computer Science 6302, pp. 25–38, 2010.

- J. Chuzhoy and S. Khanna. An $O(k^3 \log n)$-Approximation Algorithm for Vertex-Connectivity Survivable Network Design. *Theory of Computing*, 8(1), pp. 401-413, 2012. Preliminary version appeared in *Proc. of the 50th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 437-441, 2009.

- Matthew Andrews, Julia Chuzhoy, Venkatesan Guruswami, Sanjeev Khanna, Kunal Talwar, and Lisa Zhang. Inapproximability of edge-disjoint paths and low congestion routing on undirected graphs. Combinatorica 30 (5), pp. 485-520, 2010. Preliminary version appeared in *Proc. 46th IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 226-244, 2006.

- J. Chuzhoy and S. Khanna. Polynomial flow-cut gaps and hardness of directed cut problems. *Journal of the ACM*, 56 (2), Article 6, 2009. Preliminary version appeared in *Proc. 39th ACM Symposium on Theory of Computing (STOC)*, pp. 179-188, 2007.

- C. Chekuri, J. Chuzhoy, L. Lewin-Eytan, S. Naor and A. Orda. Non-cooperative multicast and facility location games. *IEEE Journal on Selected Areas in Communications: Non-Cooperative Behavior in Networking* (special issue of EC 2006), Volume 25(6), pp. 1193-1206, 2007. Preliminary version appeared in *Proc. of the 7th ACM Conference on Electronic Commerce (EC)*, pp. 72-81, 2006.

- J. Chuzhoy, A. Gupta, S. Naor and A. Sinha. On the approximability of some network design problems. ACM *Transactions on Algorithms (TALG)*, (special issue of SODA 2005), Volume 4(2), 2008. Preliminary version appeared in *Proc. 16th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pp. 943-951, 2005.

- J. Chuzhoy and S. Naor. The hardness of metric labeling. *SIAM Journal on Computing*, Volume 36(5), pp. 1376 – 1386, 2006. Preliminary version appeared in *Proc. 45th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 108-114, 2004.

- J. Chuzhoy and S. Naor. New hardness results for congestion minimization and machine scheduling. *Journal of the ACM*, Volume 53(5), pp. 707 – 721, 2006. Preliminary version appeared in *Proc. 36th Annual ACM symposium on Theory of computing (STOC)*, pp. 28-34, 2004.

- J. Chuzhoy, S. Guha, E. Halperin, G. Kortsarz, S. Khanna, R. Krauthgamer and S. Naor. Asymmetric k-center is log*n-hard to approximate. *Journal of the ACM*, Volume 52, Issue 4, pp. 538-551, 2005. Preliminary version appeared in *Proc. 36th Annual ACM Symposium on Theory of Computing (STOC)*, pp. 21-27, 2004.

- J. Chuzhoy, S. Naor. Covering problems with hard capacities. *SIAM Journal on Computing*, Volume 36 (2), pp. 498-515, 2006. Preliminary version appeared in *Proc. 43rd Annual Symposium on Foundations of Computer Science (FOCS)*, pp. 481-489, 2002.

- J. Chuzhoy, R. Ostrovsky and Y. Rabani. Approximation algorithms for the job interval selection problem and related scheduling problems. *Mathematics of Operations Research*, Volume 31(4), pp. 730-738, 2006. Preliminary version appeared in *Proc. 42nd Annual Symposium on Foundations of Computer Science (FOCS)*, pp. 348-356, 2001.

Unpublished Manuscripts

- J. Chuzhoy and R. Nimavat. Large Minors in Expanders, arXiv:1901.09349, 2019.

Papers in Refereed Conferences

- J. Chuzhoy and R. Zhang. A New Deterministic Algorithm for Fully Dynamic All-Pairs Shortest Paths. In *Proceedings of the 55th Annual ACM Symposium on Theory of Computing, (STOC)*, pages 1159–1172, 2023.

- J. Chuzhoy, M. Dalirrooyfard, V. Grinberg and Z. Tan. A New Conjecture on Hardness of 2-CSP's with Implications to Hardness of Densest k-Subgraph and Other Problems. In *14th Innovations in Theoretical Computer Science Conference, (ITCS)*, LIPIcs volue 251, pages 38:1–38:23, 2023.

- J. Chuzhoy. A Distanced Matching Game, Decremental APSP in Expanders, and Faster Deterministic Algorithms for Graph Cut Problems. In *Proc. of the 2023 ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 2122–2213, 2023.

- J. Chuzhoy, Z. Tan. A Subpolynomial Approximation Algorithm for Graph Crossing Number in Low-Degree Graphs. In *Proc. of the 54th Annual ACM SIGACT Symposium on Theory of Computing (STOC)*, pages 303-316, 2022.

- J. Chuzhoy. Decremental All-Pairs Shortest Paths in Deterministic Near-Linear Time. In *Proc of 53rd Annual ACM SIGACT Symposium on Theory of Computing (STOC)*, pages 626–639, 2021.

- J. Chuzhoy and T. Saranurak. Deterministic Algorithms for Decremental Shortest Paths via Layered Core Decomposition. In *Proc. of the 2021 ACM-SIAM Symposium on Discrete Algorithms (SODA)* pages 2478-2496, 2021.

- J. Chuzhoy, S. Mahabadi and Z. Tan. Towards Better Approximation of Graph Crossing Number. In *Proc. of 61st IEEE Annual Symposium on Foundations of Computer Science (FOCS)*, pages 73–84, 2020.

- J. Chuzhoy, Y. Gao, J. Li, D. Nanongkai, R. Peng and T. Saranurak. A Deterministic Algorithm for Balanced Cut with Applications to Dynamic Connectivity, Flows, and Beyond. In *Proc. of 61st IEEE Annual Symposium on Foundations of Computer Science (FOCS)*, pages 1158–1168, 2020.

- P. Chalermsook, J. Chuzhoy and T. Saranurak. Pinning Down the Strong Wilber 1 Bound for Binary Search Trees. In *Approximation, Randomization, and Combinatorial Optimization (APPROX/RANDOM)*, pages 33:1–33:21, 2020.

- J. Chuzhoy, M. Parter and Z. Tan. On Packing Low-Diameter Spanning Trees. In *47th International Colloquium on Automata, Languages, and Programming (ICALP)*, pages 33:1–33:18, 2020.

- J. Chuzhoy and S. Khanna. A New Algorithm for Decremental Single-Source Shortest Paths with Applications to Vertex-Capacitated Flow and Cut Problems. In *Proc. of the 51st Annual ACM SIGACT Symposium on Theory of Computing (STOC)*, pages 389–400, 2019.

- J. Chuzhoy and Z. Tan. Towards Tight(er) Bounds for the Excluded Grid Theorem. In *Proc. of the Thirtieth Annual ACM-SIAM Symposium on Discrete Algorithms, (SODA)*, pages 1445–1464, 2019.

- J. Chuzhoy, D.H.K. Kim and R. Nimavat. Almost Polynomial Hardness of Node-Disjoint Paths in Grids. In *Proc. of the 50th Annual ACM SIGACT Symposium on Theory of Computing (STOC)*, pages 1220-1233, 2018. Invited to Theory of Computing journal.

- J. Chuzhoy, D.H.K. Kim and R. Nimavat. Improved Approximation Algorithm for Node-Disjoint Paths in Grid Graphs with Sources on Grid Boundary. In *Proc. of the 45th International Colloquium on Automata, Languages, and Programming, (ICALP)*, pages 38:1–38:14, 2018.

- J. Chuzhoy, D.H.K. Kim and R. Nimavat. New Hardness Results for Routing on Disjoint Paths. In *Proc. of the 49th Annual ACM SIGACT Symposium on Theory of Computing, (STOC)*, pages 86-99, 2017. Invited to the SICOMP STOC 2017 special issue.

- J. Chuzhoy and A. Ene. On Approximating Maximum Independent Set of Rectangles. In *Proc. of the 57th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pages 820-829, 2016.

- J. Chuzhoy, D. H. K. Kim and S. Li. Improved Approximation for Node-Disjoint Paths in Planar Graphs. In *Proc. of the 48th Annual ACM SIGACT Symposium on Theory of Computing (STOC)*, pages 556-569, 2016.

- J. Chuzhoy and D. H. K. Kim. On Approximating Node-Disjoint Paths in Grids. In *Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques (APPROX/RANDOM)*, pages 187–211, 2015.

- J. Chuzhoy. Excluded Grid Theorem: Improved and Simplified. *Proceedings of the Forty-Seventh Annual ACM on Symposium on Theory of Computing (STOC)*, pages 645-654, 2015.

- C. Chekuri and J. Chuzhoy. Degree-3 Treewdith Sparsifiers. In *Proc. of the 26th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 242–255, 2015.

- J. Chuzhoy. Improved Bounds for the Flat Wall Theorem. In *Proc. of the 26th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pages 256–275, 2015.

- C. Chekuri and J. Chuzhoy. Polynomial Bounds for the Grid-Minor Theorem. In *Proc. of the 46th Annual Symposium on the Theory of Computing (STOC)*, pages 60–69, 2014. Invited to the STOC 2014 Special Issue.

- C. Chekuri and J. Chuzhoy. Large-Treewidth Graph Decompositions and Applications. In *Proc. of the 45th Annual ACM Symposium on Theory of Computing (STOC)*, pages 291–300, 2013.

- J. Chuzhoy and S. Li. A Polylogarithimic Approximation Algorithm for Edge-Disjoint Paths with Congestion 2. In *Proc. of the 53rd Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 233–242, 2012. Co-winner of the FOCS 2012 Best Paper Award.

- P. Chalermsook, J. Chuzhoy, S. Kannan and S. Khanna. Improved Hardness Results for Profit Maximization Pricing Problems with Unlimited Supply. In *APPROX 2012*, Lecture Notes in Computer Science 7408, pp. 73–84.

- P. Chalermsook, J. Chuzhoy, A. Ene and S. Li. Approximation Algorithms and Hardness of Integral Concurrent Flow. In *Proc. of the 44th Symposium on Theory of Computing (STOC)*, pp. 689-708, 2012.

- J. Chuzhoy. On Vertex Sparsifiers with Steiner Nodes. In *Proc. of the 44th Symposium on Theory of Computing (STOC)*, pp. 673-688, 2012.

- J. Chuzhoy. Routing in Undirected Graphs with Constant Congestion. In *Proc. of the 44th Symposium on Theory of Computing (STOC)*, pp. 855-874, 2012. Invited to the STOC 2012 Special Issue.

- J. Chuzhoy, Y. Makarychev, A. Vijayaraghavan and Y. Zhou. Approximation algorithms and hardness of the k-route cut problem. In *Proc. of the Twenty-Third Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pp. 780-799, 2012. Invited to the SODA 2012 Special Issue.

- J. Chuzhoy. An algorithm for the graph crossing number problem. In *Proc. of the 43rd annual ACM Symposium on Theory of computing (STOC)*, pp. 303-312, 2011.

- J. Chuzhoy, Y. Makarychev and A. Sidiropoulos. On graph crossing number and edge planarization. In *Proc. of the Twenty-Second Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pp. 1050–1069, 2011.

- M. Bateni and J. Chuzhoy. Approximation algorithms for the directed k-tour and k-stroll problems. In *Proc. of APPROX 2010*, Lecture Notes in Computer Science 6302, pp. 25–38, 2010.

- P. Chalermsook and J. Chuzhoy. Resource minimization for fire containment. In *Proc. of the Twenty-First Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pp. 1334-1349, 2010.

- D. Chakrabarty, J. Chuzhoy and S. Khanna. On allocating goods to maximize fairness. *Proc. of the 50th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 107-116, 2009.

- J. Chuzhoy and S. Khanna. An $O(k^3 \log n)$-approximation algorithm for vertex-connectivity survivable network design. *Proc. of the 50th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 437-441, 2009.

- J. Chuzhoy and P. Chalermsook. Maximum independent set of rectangles. *Proc. of the Nineteenth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pp. 892-901, 2009.

- J. Chuzhoy and S. Khanna. Algorithms for single-source vertex-connectivity. *Proc. of the 2008 49th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 105-114, 2008.

- T. Chakraborty, J. Chuzhoy and S. Khanna. Network design for vertex connectivity. *Proc. of the 2008 ACM Symposium on Theory of Computing (STOC)*, pp. 167 - 176, 2008.

- J. Chuzhoy and S. Khanna. Polynomial flow-cut gaps and hardness of directed cut problems. *Proc. 39th ACM Symposium on Theory of Computing (STOC)*, pp. 179-188, 2007. Invited to the STOC 2007 Special Issue.

- J. Chuzhoy, V. Guruswami, S. Khanna and K. Talwar. Hardness of routing with congestion in directed graphs. *Proc. 39th ACM Symposium on Theory of Computing (STOC)*, pp. 165-178, 2007.

- J. Chuzhoy and S. Khanna. Hardness of cut problems in directed graphs. *Proc. 38th ACM Symposium on Theory of Computing (STOC)*, pp. 527-536, 2006.

- M. Bădoiu, J. Chuzhoy, P. Indyk and A. Sidiropoulos. Embedding ultrametrics into low-dimensional spaces. *Proc. 22nd ACM Symposium on Computational Geometry (SOCG)*, pp. 187-196, 2006.

- M. Andrews, J. Chuzhoy, S. Khanna and L. Zhang. Hardness of the undirected edge-disjoint paths problem with congestion. *Proc. 46th IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 226-244, 2006.

- C. Chekuri, J. Chuzhoy, L. Lewin-Eytan, S. Naor and A. Orda. Non-cooperative multicast and facility location games. *Proc. of the 7th ACM Conference on Electronic Commerce (EC)*, pp. 72-81, 2006. Invited to the EC 2006 Special Issue.

- M. Bădoiu, J. Chuzhoy, P. Indyk and A. Sidiropoulos. Low-distortion embeddings of general metrics into the line. *Proc. 37th Annual ACM Symposium on Theory of Computing (STOC)*, pp. 225-233, 2005.

- J. Chuzhoy, A. Gupta, S. Naor and A. Sinha. On the approximability of some network design problems. *Proc. 16th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pp. 943-951, 2005.

- J. Chuzhoy and Y. Rabani. Approximating k-median with non-uniform capacities. *Proc. 16th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, pp. 952-958, 2005.

- J. Chuzhoy, S. Guha, S. Khanna and S. Naor. Machine minimization for scheduling jobs with interval constraints. *Proc. 45th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 81-90, 2004.

- J. Chuzhoy and S. Naor. The hardness of metric labeling. *Proc. 45th Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, pp. 108-114, 2004.

- J. Chuzhoy and S. Naor. New hardness results for congestion minimization and machine scheduling. *Proc. 36th Annual ACM symposium on Theory of computing (STOC)*, pp. 28-34, 2004.

- J. Chuzhoy, S. Guha, E. Halperin, G. Kortsarz, S. Khanna, and S. Naor. Asymmetric k-center is log*n-hard to approximate. *Proc. 36th Annual ACM Symposium on Theory of Computing (STOC)*, pp. 21-27, 2004.

- R. Bhatia, J. Chuzhoy, A. Freund and S. Naor. Algorithmic aspects of bandwidth trading. *Proc. 30th International Colloquium on Automata, Languages, and Programming (ICALP)*, 2003. Lecture Notes in Computer Science 2719, pp. 751-766, Springer-Verlag, 2003.

- J. Chuzhoy, S. Naor. Covering problems with hard capacities. *Proc. 43rd Annual Symposium on Foundations of Computer Science (FOCS)*, pp. 481-489, 2002.

- J. Chuzhoy, R. Ostrovsky and Y. Rabani. Approximation algorithms for the job interval selection problem and related scheduling problems. *Proc. 42nd Annual Symposium on Foundations of Computer Science (FOCS)*, pp. 348-356, 2001.

Expository Articles

- J. Chuzhoy. Flows, Cuts and Integral Routing in Graphs — an Approximation Algorithmist's Perspective. In *Proc. of the International Congress of Mathematicians*, pp. 585-607, 2014.

- J. Chuzhoy. Large-Treewidth Graph Decompositions. *Encyclopedia of Algorithms*, pp. 1057-1059, 2016.

- J. Chuzhoy. Generalized Steiner Network. *Encyclopedia of Algorithms*, 2008.

Theses

- Hardness of approximation and new approximability classes. Ph.D. thesis, Technion, 2004.

- Approximation algorithms for hard cut problems. M.Sc. thesis, Technion, 2000.

Other Professional Activities

- Member of the Steering Committee of ITCS conference (Innovations in Theoretical Computer Science); 2021-current.

- Member of the Steering Committee of SODA (ACM-SIAM Symposium on Discrete Algorithms); 2019-current.

- Member of the Organizing Committee for the SIAM Conference on Discrete Mathematics (DM18), 2018.

- Served on a sectional panel of the "Mathematical Aspects of Computer Science" section in International Congress of Mathematicians 2018.

- Co-organizer of BIRS workshops "Approximation Algorithms and the Hardness of Approximation" (2017 and 2020).

- Organizer of Distinguished Lecture Series at TTIC, 2014 – 2016.

- Chair of the search committee for the Chief Academic Officer for TTIC, 2016.

- Member of the search committee for the Chair of the Department of Computer Science at the University of Chicago, 2015.

- Participated as invited speaker in "Women in Theory" workshops in 2008 and 2014, and in Association for Women in Mathematics Symposium in 2015. The workshops and the symposium were geared towards undergraduate and graduate female students in the areas of theoretical computer science and mathematics. As part of the "Women in Theory" 2008 program, I mentored three graduate female students: Sudeepa Roy (UPenn), Noga Zewi (Technion), and Kshipra Bhawalkar (Stanford).

- Co-organized together with Yury Makarychev the Fall 2010 Midwest Theory day.

- Organized TTIC workshop on approximation algorithms and their limitations, Feb. 2009.

Major Invited Talks

- Invited presentation at SODA 2023.

- A survey talk on Graph Crossing Number at Highlights of Algorithms, June 2022.

- Plenary speaker at Mathematical Congress of the Americas, (virtual) July 2021

- Plenary speaker at Eurocomb, Vienna, Aug 2017.

- Tutorial speaker at Theory Fest / STOC, Montreal, June 2017.

- Invited speaker at Tutte's 100th Distinguished Lecture Series, University of Waterloo, May 2017.

- Invited speaker at the 15th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT), Reykjavik, Iceland, Jun. 2016

- Plenary speaker at the 2016 SIAM Meeting on Discrete Mathematics, Atlanta GA, Jun. 2016

- Colloquium Distinguished Speaker, Max Planck Institute for Informatics at Saarbrucken, Germany, Jun. 2016

- Plenary speaker at Workshop on Graph Theory, Oberwolfach, Germany, Jan. 2016

- Invited speaker at the American Mathematical Society sectional meeting, Chicago, Oct. 2015.

- Invited speaker at the Workshop on Graph Classes, Optimization, and Width Parameters (GROW), Assois, France, Oct. 2015

- Invited speaker at International Symposium on Mathematical Programming (ISMP), Pittsburgh, PA, Jul. 2015

- Plenary speaker, annual conference of Simons Collaboration on Algorithms and Geometry, New York, NY, May 2015.

- Invited speaker at Association for Women in Mathematics Symposium, College Park MD, Apr. 2015.

- Invited section speaker at International Congress of Mathematicians, Seoul, Korea, Aug. 2014

- Invited speaker at Women in Theory workshop, New York, NY, May 2014.

- Plenary speaker, Workshop on Flexible Network Design, Fields Institute, Toronto, Jul. 2013.

- Invited speaker at FOCS 2013 workshop on Bidimensional Structures: Algorithms and Combinatorics, Oct. 2013

- Plenary speaker at Bertinoro Workshop on Algorithms and Graphs, Dec 2013

- Invited distinguished speaker at University of Maryland Theory Day, Oct. 2012

- Invited speaker at APPROX, Boston, MA, Aug 2012.

- Plenary speaker at BIRS workshop on approximation algorithms and hardness of approximation, Nov. 2011.

- Invited speaker at workshop on approximation algorithms, Princeton, Jun. 2011.

- Invited speaker at International Symposium on Mathematical Programming (ISMP), Chicago IL, Aug. 2009

- Invited speaker at Women in Theory workshop, Princeton NJ, Jun. 2008.

- Invited speaker at the IBM Research/NYU/Columbia Theory Day, Dec. 2006.