Jason Li

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Education

Carnegie Mellon University — Pittsburgh, PA
Ph.D. Candidate — 2016–Current

- Co-advised by Prof. Anupam Gupta and Prof. Bernhard Haeupler
- Expected graduation May 2021

Carnegie Mellon University — Pittsburgh, PA
B.S. in Computer Science and Mathematics — 2012–2015

Experience

Microsoft Research — Redmond, WA
Research Assistant — Summer 2020

- On deterministic graph sparsification and mincut
- Supervised by Drs. Sivakanth Gopi, Janardhan Kulkarni, and Sam Wong

Toyota Technological Institute at Chicago — Chicago, IL
Research Assistant — Summer 2019

- On fast sequential and dynamic graph algorithms
- Supervised by Prof. Julia Chuzhoy and Dr. Thatchaphol Saranurak

Ben-Gurion University of the Negev — Beer-Sheva, Israel
Research Assistant — Summer 2018

- On metric embeddings
- Supervised by Prof. Ofer Neiman

Eindhoven University of Technology — Eindhoven, Netherlands
Research Assistant — Summer 2018

- On fixed-parameter tractable algorithms
- Supervised by Prof. Jesper Nederlof

ETH Zurich — Zurich, Switzerland
Research Assistant — Summer 2017

- On distributed algorithms
- Supervised by Prof. Mohsen Ghaffari

Teaching

- **Teaching Assistant** at Carnegie Mellon University — Fall 2019
  Coping with intractability: parameterized and fast-exponential algorithms (15-859FF)
- **Teaching Assistant** at Carnegie Mellon University — Fall 2018
  Advanced Algorithms (15-850)
- **Teaching Assistant** at Carnegie Mellon University — Spring 2017
  Graduate Algorithms (15-750)

Scholarships and Awards

- Machtey Best Student Paper at FOCS 2019

Jason Li

Publications

[1] A. Gupta, E. Lee, and J. Li, "The connectivity threshold for dense graphs", in *SODA 2021 (in press)*.

[2] J. Li and D. Panigrahi, "Deterministic min-cut in poly-logarithmic max-flows", in *FOCS 2020 (in press)*.

[3] 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 *FOCS 2020 (in press)*.

[4] A. Gupta, E. Lee, and J. Li, "The karger-stein algorithm is optimal for k-cut", in *Proccedings of the 52nd Annual ACM SIGACT Symposium on Theory of Computing, STOC 2020, Chicago, IL, USA, June 22-26, 2020*, K. Makarychev, Y. Makarychev, M. Tulsiani, G. Kamath, and J. Chuzhoy, Eds., ACM, 2020, pp. 473–484.

[5] J. Li, "Faster parallel algorithm for approximate shortest path", in *Proceedings of the 52nd Annual ACM SIGACT Symposium on Theory of Computing, STOC 2020, Chicago, IL, USA, June 22-26, 2020*, K. Makarychev, Y. Makarychev, M. Tulsiani, G. Kamath, and J. Chuzhoy, Eds., ACM, 2020, pp. 308–321.

[6] J. Li and J. Nederlof, "Detecting feedback vertex sets of size k in $O^*(2.7^k)$ time", in *Proceedings of the 2020 ACM-SIAM Symposium on Discrete Algorithms, SODA 2020, Salt Lake City, UT, USA, January 5-8, 2020*, S. Chawla, Ed., SIAM, 2020, pp. 971–989.

[7] J. Li, "Faster minimum k-cut of a simple graph", in *60th IEEE Annual Symposium on Foundations of Computer Science, FOCS 2019, Baltimore, Maryland, USA, November 9-12, 2019*, D. Zuckerman, Ed., IEEE Computer Society, 2019, pp. 1056–1077.

[8] V. Cohen-Addad and J. Li, "On the fixed-parameter tractability of capacitated clustering", in *46th International Colloquium on Automata, Languages, and Programming, ICALP 2019, July 9-12, 2019, Patras, Greece*, C. Baier, I. Chatzigiannakis, P. Flocchini, and S. Leonardi, Eds., ser. LIPIcs, vol. 132, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2019, 41:1–41:14.

[9] V. Cohen-Addad, A. Gupta, A. Kumar, E. Lee, and J. Li, "Tight FPT approximations for k-median and k-means", in *46th International Colloquium on Automata, Languages, and Programming, ICALP 2019, July 9-12, 2019, Patras, Greece*, C. Baier, I. Chatzigiannakis, P. Flocchini, and S. Leonardi, Eds., ser. LIPIcs, vol. 132, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2019, 42:1–42:14.

[10] J. Augustine, M. Ghaffari, R. Gmyr, K. Hinnenthal, C. Scheideler, F. Kuhn, and J. Li, "Distributed computation in node-capacitated networks", in *The 31st ACM on Symposium on Parallelism in Algorithms and Architectures, SPAA 2019, Phoenix, AZ, USA, June 22-24, 2019*, C. Scheideler and P. Berenbrink, Eds., ACM, 2019, pp. 69–79.

[11] A. Gupta, E. Lee, and J. Li, "The number of minimum k-cuts: Improving the karger-stein bound", in *Proceedings of the 51st Annual ACM SIGACT Symposium on Theory of Computing, STOC 2019, Phoenix, AZ, USA, June 23-26, 2019*, M. Charikar and E. Cohen, Eds., ACM, 2019, pp. 229–240.

[12] J. Li and M. Parter, "Planar diameter via metric compression", in *Proceedings of the 51st Annual ACM SIGACT Symposium on Theory of Computing, STOC 2019, Phoenix, AZ, USA, June 23-26, 2019*, M. Charikar and E. Cohen, Eds., ACM, 2019, pp. 152–163.

[13] A. Gupta, E. Lee, J. Li, P. Manurangsi, and M. Wlodarczyk, "Losing treewidth by separating subsets", in *Proceedings of the Thirtieth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2019, San Diego, California, USA, January 6-9, 2019*, T. M. Chan, Ed., SIAM, 2019, pp. 1731–1749.

[14] A. Gupta, E. Lee, and J. Li, "Faster exact and approximate algorithms for k-cut", in *59th IEEE Annual Symposium on Foundations of Computer Science, FOCS 2018, Paris, France, October 7-9, 2018*, M. Thorup, Ed., IEEE Computer Society, 2018, pp. 113–123.

[15] M. Ghaffari and J. Li, "New distributed algorithms in almost mixing time via transformations from parallel algorithms", in *32nd International Symposium on Distributed Computing, DISC 2018, New Orleans, LA, USA, October 15-19, 2018*, U. Schmid and J. Widder, Eds., ser. LIPIcs, vol. 121, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2018, 31:1–31:16.

[16] B. Haeupler and J. Li, "Faster distributed shortest path approximations via shortcuts", in *32nd International Symposium on Distributed Computing, DISC 2018, New Orleans, LA, USA, October 15-19, 2018*, U. Schmid and J. Widder, Eds., ser. LIPIcs, vol. 121, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2018, 33:1–33:14.

[17] B. Haeupler, J. Li, and G. Zuzic, "Minor excluded network families admit fast distributed algorithms", in *Proceedings of the 2018 ACM Symposium on Principles of Distributed Computing, PODC 2018, Egham, United Kingdom, July 23-27, 2018*, C. Newport and I. Keidar, Eds., ACM, 2018, pp. 465–474.

[18] A. Gupta, A. Kumar, and J. Li, "Non-preemptive flow-time minimization via rejections", in *45th International Colloquium on Automata, Languages, and Programming, ICALP 2018, July 9-13, 2018, Prague, Czech Republic*, I. Chatzigiannakis, C. Kaklamanis, D. Marx, and D. Sannella, Eds., ser. LIPIcs, vol. 107, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2018, 70:1–70:13.

[19] M. Ghaffari and J. Li, "Improved distributed algorithms for exact shortest paths", in *Proceedings of the 50th Annual ACM SIGACT Symposium on Theory of Computing, STOC 2018, Los Angeles, CA, USA, June 25-29, 2018*, I. Diakonikolas, D. Kempe, and M. Henzinger, Eds., ACM, 2018, pp. 431–444.

[20] A. Gupta, E. Lee, and J. Li, "An FPT algorithm beating 2-approximation for k-cut", in *Proceedings of the Twenty-Ninth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2018, New Orleans, LA, USA, January 7-10, 2018*, A. Czumaj, Ed., SIAM, 2018, pp. 2821–2837.