

List of Publications

a. Survey

N. Garg, "Minimizing Average Flow-Time", *Efficient Algorithms: Essays Dedicated to Kurt Mehlhorn on the Occasion of His 60th Birthday, Lecture Notes in Computer Science 5760* 2009: 187-198

b. Journal

1. A. Aggarwal, L. Anand, M. Bansal, N. Garg, N. Gupta, S. Gupta, S. Jain, "A 3-Approximation for Facility Location with Uniform Capacities", *Mathematical Programming*, DOI 10.1007/s10107-012-0565-4, June 2012.
2. N. Garg, T. Kavitha, A. Kumar, K. Mehlhorn, J. Mestre, "Assigning papers to referees", *Algorithmica* 58(1):119-136, 2010.
3. N. Garg and J. Könemann, "Faster and Simpler Algorithms for Multicommodity Flow and Other Fractional Packing Problems", *SIAM J. Comput.* 37(2): 630-652, 2007.
4. V. Arya, N. Garg, R. Khandekar, A. Meyerson, K. Munagala and V. Pandit, "Local Search Heuristics for k -median and facility location problems", *SIAM Journal on Computing*, 33(3): 544-562, 2004.
5. G. Even, N. Garg, J. Koenemann, R. Ravi and A. Sinha, "Min-max tree covers", *Operations Research Letters*, 32(4):309-315, 2004
6. N. Garg, V.V. Vazirani, and M. Yannakakis, "Multiway cuts in directed and node weighted graphs", *Journal of Algorithms*, 50(1):49-61, 2004.
7. N. Garg, M. Papatriantafilou and P. Tsigas, "Distributed List Coloring: How to Dynamically Allocate Frequencies to Mobile Base Stations", *Wireless Networks*, 8(1):49-60, 2002.
8. S. Albers, N. Garg and S. Leonardi, "Minimizing stall time in single and parallel disk systems", *Journal of the ACM*, 47(6):969-986, 2000.
9. N. Garg, G. Konjevod and R. Ravi, "A poly-logarithmic approximation algorithm for the group steiner tree problem", *Journal of Algorithms*, 37(1):66-84, 2000.
10. Y. Dinitz, N. Garg and M.X. Goemans, "On the single-source unsplittable flow problem", *Combinatorica* 19(1):17-41, 1999.
11. S. Chaudhuri, N. Garg and R. Ravi, "The p -neighbor k -center problem", *Information Processing Letters*, 65(3):131-134, 1998.
12. N. Garg, H. Saran and V.V. Vazirani, "Finding separator cuts in planar graphs within twice the optimal", *SIAM Journal on Computing*, 29(1):159-179, 1999.
13. N. Garg and D.S. Hochbaum, "An $O(\log k)$ approximation algorithm for the k minimum spanning tree problem in the plane", *Algorithmica*, 18(1):111-121, 1997.
14. N. Garg, V.V. Vazirani, and M. Yannakakis, "Primal-dual approximation algorithms for integral flow and multicut in trees, with applications to matching and set cover", *Algorithmica*, 18(1):3-20, 1997.
15. N. Garg, V.V. Vazirani, and M. Yannakakis, "Approximate max-flow min-(multi)cut theorems and their applications", *SIAM Journal on Computing*, 25(2):235-251, 1996.
16. N. Garg and V.V. Vazirani, "A polyhedron with all s - t cuts as vertices, and adjacency of cuts", *Mathematical Programming (A)*, 70(1):17-25, 1995.

c. Refereed Conferences

1. S. Anand, K. Bringmann, T. Friedrich, N. Garg and A. Kumar, "Minimizing maximum (weighted) flow-time on related and unrelated machines", *40th International Colloquium on Automata, Languages and Programming*, 2013:to appear.
2. M. Bansal, N. Garg, N. Gupta, "A 5-Approximation for Capacitated Facility Location", *20th European Symposium on Algorithms*, 2012: 133-144.
3. K.M. Elbassioni, N. Garg, D. Gupta, A. Kumar, V. Narula, A. Pal, "Approximation Algorithms for the Unsplittable Flow Problem on Paths and Trees", *32nd International Conference on Foundations of Software Technology and Theoretical Computer Science*, 2012: 267-275.
4. S. Anand, N. Garg, A. Kumar, "Resource augmentation for weighted flow-time explained by dual fitting", *23rd Annual ACM-SIAM Symposium on Discrete Algorithms*, 2012: 1228-1241.
5. S. Anand, N. Garg, N. Megow, "Meeting Deadlines: How Much Speed Suffices?", *38th International Colloquium on Automata, Languages and Programming*, 2011: 232-243.
6. A. Aggarwal, L. Anand, M. Bansal, N. Garg, N. Gupta, S. Gupta, S. Jain, "A 3-Approximation for Facility Location with Uniform Capacities", *Integer Programming and Combinatorial Optimization*, 2010: 149-162.
7. J.S. Chadha, N. Garg, A. Kumar, V. N. Muralidhara, "A competitive algorithm for minimizing weighted flow time on unrelated machines with speed augmentation", *41st Annual ACM Symposium on Theory of Computing* 2009: 679-684.
8. N. Garg, A. Kumar, V. N. Muralidhara, "Minimizing Total Flow-Time: The Unrelated Case", *19th International Symposium on Algorithms and Computation*, 2008: 424-435.
9. N. Garg, A. Gupta, S. Leonardi and P. Sankowski, "Stochastic Analyses for Online Combinatorial Optimization Problems", *19th Annual ACM-SIAM Symposium on Discrete Algorithms*, 2008:942-951.
10. N. Garg, A. Kumar and V. Pandit, "Order Scheduling Models: Hardness and Algorithms", *27th International Conference on Foundations of Software Technology and Theoretical Computer Science*, 2007:96-107.
11. N. Garg and A. Kumar, "Minimizing Average Flow-time: Upper and Lower Bounds", *48th Annual IEEE Symposium on Foundations of Computer Science*, 2007:603-613.
12. N. Garg and A. Kumar, "Minimizing average flow time on related machines", *38th Annual ACM Symposium on Theory of Computing*, 2006:730-738.
13. N. Garg and A. Kumar, "Better Algorithms for Minimizing Average Flow-Time on Related Machines", *33rd International Colloquium on Automata, Languages and Programming*, 2006:181-190.
14. N. Devanur, N. Garg, R. Khandekar, V. Pandit, A. Saberi and V. Vazirani, "Price of Anarchy, Locality Gap, and a Network Service Game", *1st Workshop on Internet and Network Economics*, 2005:1046-1055.
15. G. Batra, N. Garg and G. Gupta, "Heuristic improvements for computing max multicommodity flow and min multicut", *13th European Symposium on Algorithms*, 2005:35-46.
16. N. Garg, "Saving an epsilon: A 2-approximation for the k-mst problem in graphs", *37th ACM Symposium on Theory of Computing*, 2005:396-402.
17. N. Garg, R. Khandekar and V. Pandit, "Improved approximation for universal facility location", *16th Annual ACM-SIAM Symposium on Discrete Algorithms*, 2005:959-960.
18. N. Garg and R. Khandekar, "Fractional covering with upper bounds on the variables: Solving LPs with negative entries", *12th European Symposium on Algorithms*, 2004:371-382.

19. G. Even, N. Garg, J. Konemann, R. Ravi and A. Sinha, "Covering graphs using stars and trees", *6th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems*, 2003:24-35.
20. N. Garg, R. Khandekar, K. Kunal and V. Pandit, "Bandwidth maximization in multicasting", *11th European Symposium on Algorithms*, 2003:242-253.
21. F. Eisenbrand, S. Funke, N. Garg and J. Koneman, "A combinatorial algorithm for computing a maximum independent set in a t -perfect graph", *14th Annual ACM-SIAM Symposium on Discrete Algorithms*, 2003:517-522.
22. N. Garg and N. Young, "On-line end-to-end congestion control", *43rd Annual IEEE Symposium on Foundations of Computer Science*, 2002:303-312.
23. N. Garg and R. Khandekar, "Fast approximation algorithms for fractional Steiner forest and related problems", *43rd Annual IEEE Symposium on Foundations of Computer Science*, 2002:500-509.
24. V. Arya, N. Garg, R. Khandekar, K. Munagala, A. Meyerson and V. Pandit, "Local Search Heuristics for k -median and facility location problems", *33rd Annual ACM Symposium on Theory of Computing*, 2001:21-29.
25. N. Garg, R. Khandekar, G. Konjevod, R. Ravi, F.S. Salman and A. Sinha), "On the Integrality Gap of a Natural Formulation of the Single-Sink Buy-at-bulk Network Design Problem", *Integer Programming and Combinatorial Optimization*, 2001:170-184.
26. N. Garg, S. Jain and C. Swamy, "A randomized algorithm for flow-shop scheduling", *19th International Conference on Foundations of Software Technology and Theoretical Computer Science*, 1999:213-218.
27. Y. Dinitz, N. Garg and M.X. Goemans, "On the single-source unsplittable flow problem", *39th Annual IEEE Symposium on Foundations of Computer Science*, 1998:290-299.
28. N. Garg and J. Konemann, "Faster and simpler algorithms for multicommodity flow and other fractional packing problems", *39th Annual IEEE Symposium on Foundations of Computer Science*, 1998:253-259.
29. S. Albers, N. Garg and S. Leonardi, "Minimizing stall time in single and parallel disk systems", *30th Annual ACM Symposium on Theory of Computing*, 1998:454-462.
30. N. Garg and G. Konjevod and R. Ravi, "A polylogarithmic approximation algorithm for the group steiner tree problem", *9th Annual ACM-SIAM Symposium on Discrete Algorithms*, 1998:253-259.
31. N. Garg, M. Papatriantafilou and P. Tsigas, "Distributed List Coloring: How to Dynamically Allocate Frequencies to Mobile Base Stations", *8th IEEE Symposium on Parallel and Distributed Processing*, 1996:18-25.
32. N. Garg, "A 3-approximation algorithm for the minimum tree spanning k vertices", *37th Annual IEEE Symposium on Foundations of Computer Science*, 1996:302-309.
33. N. Garg, H. Saran and V.V. Vazirani, "Finding separator cuts in planar graphs within twice the optimal", *35th Annual IEEE Symposium on Foundations of Computer Science*, 1994:14-23.
34. N. Garg, V.V. Vazirani, and M. Yannakakis, "Multiway cuts in directed and node weighted graphs", *21st International Colloquium on Automata, Languages and Programming*, 1994:487-498.
35. N. Garg and D.S. Hochbaum, "An $O(\log k)$ approximation algorithm for the k minimum spanning tree problem in the plane", *26th Annual ACM Symposium on Theory of Computing*, 1994:432-438.
36. N. Garg and M. Aggarwal, "A scaling technique for better network design", *5th Annual ACM-SIAM Symposium on Discrete Algorithms*, 1994:233-240.

37. N. Garg, V.V. Vazirani, and M. Yannakakis, "Primal-dual approximation algorithms for integral flow and multicut in trees, with applications to matching and set cover", *20th International Colloquium on Automata, Languages and Programming*, 1993:64-75.
38. N. Garg, V.V. Vazirani, and M. Yannakakis, "Approximate max-flow min-(multi)cut theorems and their applications", *25th Annual ACM Symposium on Theory of Computing*, 1993:698-707.
39. N. Garg and V.V. Vazirani, "A polyhedron with all s - t cuts as vertices, and adjacency of cuts. *3rd Integer Programming and Combinatorial Optimization Conference*, 1993:281-289.
40. N. Garg, A. Singla, and V.S. Santosh, "Improved approximation algorithms for bi-connected subgraphs via better lower bounding techniques. *4th Annual ACM-SIAM Symposium on Discrete Algorithms*, 1993:103-111.