# BARUCH M. SCHIEBER

Professor, Department of Computer Science
Director, Institute for Future technologies
New Jersey Institute of Technology
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- Enhancing the synergy between commercial business analytics and theoretical research in algorithms
- Vast experience in transforming data into insight for better business decisions
- Extensive research portfolio in algorithms, optimization and business analytics
- Managed a high-performance team of researchers that is well known for its basic research, and for spearheading business transformation for IBM and its customers

**Employment:**

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| 2022 - | Professor, Department of Computer Science, and Director, Institute for Future technologies, New Jersey Institute of Technology |
| 2018 - 2022 | Professor and Chair, Department of Computer Science, New Jersey Institute of Technology |
| 2017 - 2018 | Manager, Mathematics of AI, IBM Research AI, IBM T.J. Watson Research Center, Yorktown Heights, NY |
| 2015 - 2017 | Manager, Center for Optimization, Mathematics, and Algorithms, IBM T.J. Watson Research Center, Yorktown Heights, NY |
| 2001 - 2015 | Manager, Optimization Center, Business Analytics and Mathematical Sciences Dept., IBM T.J. Watson Research Center, Yorktown Heights, NY |
| 1995 - 2001 | Manager, Theory of Computation, Mathematical Sciences Dept., IBM T.J. Watson Research Center, Yorktown Heights, NY |
| 1989 - 1995 | Research Staff Member, Theory of Computation, Mathematical Sciences Dept., IBM T.J. Watson Research Center, Yorktown Heights, NY |
| 1987 - 1989 | Postdoctoral Fellow, Theory of Computation, Mathematical Sciences Dept., IBM T.J. Watson Research Center, Yorktown Heights, NY |

## Education:

Ph.D., Computer Science, Tel-Aviv University

M.Sc., Computer Science, Technion - Israel Institute of Technology

B.Sc., Computer Science (summa cum laude), Technion - Israel Institute of Technology


## Service to the Academic Community and ACM:

- Editor, ACM Transactions on Algorithms
- Guest Editor, IBM Journal of Research and Development special issue on Business Optimization
- Editor (ret.), Journal of Algorithms
- Member, Executive Board, Center for Discrete Mathematics and Theoretical Computer Science (DIMACS) until 2018
- Council Member, Center for Discrete Mathematics and Theoretical Computer Science (DIMACS)
- Program Committee Chair, The 5th Israeli Symp. on Theory of Computing and Systems (ISTCS)
- Program Committee Member:
  - The 5th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)
  - The 4th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)
  - The 3rd International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)
  - The 7th Scandinavian Workshop on Algorithm Theory (SWAT)
  - The 2nd Int. Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIALM).
  - The 10th ACM SIGACT-SIGOPS Symp. on Principles of Distributed Computing (PODC)
  - The 18th Int. Symp. on Algorithms and Computation (ISAAC)
  - The 1st Mediterranean Conference on Algorithms (MedAlg)
  - The 3rd ACM-SIAM Symp. on Discrete Algorithms (SODA)
  - The 5th ACM Symp. on Parallel Algorithms and Architectures (SPAA)
  - The 26th ACM Symp. on Theory of Computing (STOC)
  - The 37th IEEE Symp. on Foundations of Computer Science (FOCS)
  - The 18th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)
  - The 14th Meeting on Algorithm Engineering and Experiments (ALENEX17)
  - The 18th Workshop on Approximation and Online Algorithms (WAOA 2020)
  - The 33rd ACM-SIAM Symp. on Discrete Algorithms (SODA22)

**Project participation:**

Significant contributions to groundbreaking business analytics projects for over two decades (valued over $100M). Among these projects:
- Continual fleet optimization project for Boston Coach that was featured in IBM Annual Report as well as in *NY Times, Business Week, Fast Company* and *Forbes* and resulted in more than 10% increase in sales
- IBM spare parts logistics optimizer that resulted in close to $50M savings
- Transportation optimization system (TOPS) for the US Postal Service that operates the world's largest transportation network
- Integrated data analytics, simulation, and optimization of airport security resource allocation for US Transportation Security Administration (TSA)
- DARPA funded research on inventory allocation and transportation scheduling for logistics of network-centric military operations
- DoD funded research on architectures for high performance computing
- Vessel network optimization for a major container shipper liner
- Crop spread model and optimization for an agriculture industry leader
- Integrated data analytics and optimization of power restoration for an electric power utility that serves about 16M customers

**Patents:**

- "Method and apparatus for scheduling mobile agents utilizing rapid two-way communication", US6484036
- "Dynamic Resource Allocation Using Known Future Benefits", US7765301
- "Dynamic Resource Allocation Using Known Projected Benefits", US7308415

**Postdocs mentored (partial list):**

- Phillipe Baptiste currently Chief of Staff, Ministry of Research, Higher Education and Innovation, France, previously SVP Scientific Development at Total, previously Professor, Computer Science Ecole Polytechnique
- Hamsa Bastani currently Assistant Professor, Wharton School, University of Pennsylvania
- Michael Kapralov currently Assistant Professor, School of Computer and Communication Sciences, EPFL
- Retsef Levi currently Professor, Sloan School of Management, MIT
- Moshe Lewenstein currently Professor, Department of Computer Science, Bar Ilan University
- Shay Solomon currently Assistant Professor, School of Electrical Engineering, Tel Aviv University

## Press and Media:

- Wasting Your Time: the companies that don't care and those that do, *Forbes*, October 2000. An article featuring our call center scheduling project
- Always-on People, *The Economist*, January 2002. An article featuring our field service scheduling project
- Web Smart 50, *Business Week*, November 2003. Our BostonCoach project chosen as one of Web Smart 50
- Follow That Customer! *InformationWeek*, December 2003. An article featuring our BostonCoach project
- Brains for Sale, *Fast Company*, January 2004. An article featuring our BostonCoach project
- Academia Dissects the Service Sector, but Is It a Science? *The New York Times*, April 2006. An article featuring our BostonCoach project
- Don Knuth's 13th Annual Christmas Tree Lecture, December 3, 2007 https://www.youtube.com/watch?v=Xv-7xkMLaAw&t=2765s (starting at time 39:20) Description of the nearest common ancestor algorithm by Schieber and Vishkin
- Sztuczna Inteligencja – teoria czy otaczająca nas rzeczywistość, Keynote Address, *Kongress Regionów,* Wroclaw, Poland, June 2019
- Inteligencja Rozszerzona, Nie Sztuczna. Interview, *Newsweek Polska* no. 24, June 2019

## Publications:

### Book Chapters

"Parallel lowest common ancestor computation." A Synthesis of Parallel Algorithms, John Reif Ed., Morgan Kaufmann Publishers, CA, pp. 259-273.

### Journal Publications

1. Y. Maon, B. Schieber and U. Vishkin, "Parallel Ear Decomposition Search (EDS) and *st*-numbering in graphs". Theoretical Computer Science, 47 (1986), pp. 277-298.
2. A. Apostolico, C. Iliopoulos, G.M. Landau, B. Schieber and U. Vishkin, "Parallel construction of a suffix tree with applications". Algorithmica, 3 (1988), pp. 347-365.
3. Z. Galil and B. Schieber, "On finding most uniform trees (a note)". Discrete Applied Mathematics, 20 (1988), pp. 173-175.
4. B. Schieber and U. Vishkin, "On finding lowest common ancestors: simplification and parallelization". SIAM Journal on Computing, 17 (1988), pp. 1253-1262.
5. B. Schieber and S. Moran, "Parallel algorithms for maximum bipartite matchings and maximum 0-1 flows". Journal of Parallel and Distributed Computing, 6 (1989), pp. 20-38.

6. Y. Mansour and B. Schieber, "Finding the edge connectivity of directed graphs". Journal of Algorithms, 10 (1989) pp. 76-85.

7. Y. Afek, G.M. Landau, B. Schieber and M. Yung, "The power of multimedia: combining point-to-point and multiaccess networks". Information and Computation, 84 (1990), pp. 97-118.

8. B. Schieber and U. Vishkin, "Finding all nearest neighbors for convex polygons in parallel: a new lower bound technique and a matching algorithm". Discrete Applied Mathematics, 29 (1990), pp. 97-111.

9. Y. Mansour, B. Schieber and P. Tiwari, "Lower bounds for computations with the floor operation". SIAM Journal on Computing, 20 (1991), pp. 315-327.

10. S. Khuller and B. Schieber, "Efficient parallel algorithms for testing connectivity and finding disjoint s-t paths in graphs". SIAM Journal on Computing, 20 (1991), pp. 352-375.

11. P.K. Agarwal, A. Aggarwal, B. Aronov, S.R. Kosaraju, B. Schieber and S. Suri, "Computing external farthest neighbors for a simple polygon". Discrete Applied Mathematics, 31 (1991), pp. 97-111.

12. Y. Mansour, B. Schieber and P. Tiwari, "A lower bound for integer greatest common divisor computations". Journal of the ACM, 38 (1991), pp. 453-471.

13. L.L. Larmore and B. Schieber, "On-line dynamic programming with applications to the prediction of RNA secondary structure". Journal of Algorithms, 12 (1991), pp. 490-515.

14. D. Gusfield, G.M. Landau and B. Schieber, "An efficient algorithm for the all pairs Suffix-Prefix problem". Information Processing Letters, 41 (1992), pp. 181-185.

15. S. Khuller and B. Schieber, "On independent spanning trees". Information Processing Letters, 42 (1992), pp. 321-323.

16. Y. Mansour and B. Schieber, "The intractability of bounded protocols for non-FIFO channels". Journal of the ACM, 39 (1992), pp. 783-799.

17. M.W. Bern, H.J. Karloff, P. Raghavan and B. Schieber, "Fast approximation techniques and geometric embedding problems". Theoretical Computer Science, 106 (1992), pp. 265-281.

18. N.H. Bshouty, Y. Mansour, B. Schieber and P. Tiwari, "Fast exponentiation using the truncation operation". Computational Complexity, 2 (1992), pp. 244-255.

19. O. Berkman, B. Schieber and U. Vishkin, "Optimal doubly logarithmic parallel algorithms based on finding all nearest smaller values". Journal of Algorithms, 14 (1993), pp. 344-370.

20. Y. Mansour, J.K. Park, B. Schieber and S. Sen, "Improved selection in totally monotone arrays". International Journal of Computational Geometry and Applications, 3 (1993), pp. 115-132.

21. A. Bar-Noy, S. Kipnis and B. Schieber, "An optimal algorithm for computing census functions in message-passing systems". Parallel Processing Letters, 3 (1993), pp. 19-23.

22. A. Fiat, Y. Rabani, Y. Ravid and B. Schieber, "A deterministic O($k^3$) competitive $k$-server algorithm for the circle". Algorithmica, 11 (1994), pp. 572-578.

23. B. Schieber and M. Snir, "Calling names on nameless networks". Information and Computation, 113 (1994), pp. 80-101.

24. A. Aggarwal, B. Schieber and T. Tokuyama, "Finding a minimum weight $K$-link path in graphs with Monge property and applications". Journal of Discrete and Computational Geometry, 12 (1994), pp. 263-280.

25. A. Borodin, S. Irani, P. Raghavan and B. Schieber, "Competitive paging with locality of reference". Journal of Computer and System Sciences, 50 (1995), pp. 244-258.

26. A. Aggarwal, A. Bar-Noy, D. Kravets, S. Khuller and B. Schieber, "Efficient minimum cost matching using the quadrangle inequality". Journal of Algorithms, 19 (1995), pp. 116-143.

27. A. Bar-Noy, J. Bruck, C-T. Ho, S. Kipnis and B. Schieber, "Computing global combine operations in the Multi-Port Postal Model". IEEE Trans. on Parallel and Distributed Systems, 6 (1995), pp. 896-900.

28. A. Bar-Noy, S. Kipnis and B. Schieber, "Optimal computation of census functions in the Postal Model". Discrete Applied Mathematics, 58 (1995), pp. 213-222.

29. O. Berkman, B. Schieber and U. Vishkin, "A fast parallel algorithm for finding the convex hull of a sorted point set". International Journal of Computational Geometry and Applications, 6 (1996), pp. 231-241.

30. A. Aggarwal, A. Bar-Noy, D. Coppersmith, R. Ramaswami, B. Schieber and M. Sudan, "Efficient routing in optical networks". Journal of the ACM, 43(6) (1996), pp. 973-1001.

31. L. Cai and B. Schieber, "A linear-time algorithm for computing the intersection of all odd cycles in a graph". Discrete Applied Mathematics, 73(1) (1997), pp. 27-34.

32. A. Blum, P. Raghavan and B. Schieber, "Navigating in unfamiliar geometric terrain". SIAM Journal on Computing, 26(1) (1997), pp. 110-137.

33. A. Borodin, Y. Rabani and B. Schieber, "Deterministic many-to-many hot potato routing". IEEE Trans. on Parallel and Distributed Systems, 8(6) (1997), pp. 587-596.

34. N. Bshouty, Y. Mansour, B. Schieber and P. Tiwari, "A tight bound for approximating the square root". Information Processing Letters, 63 (1997), pp. 211-213.

35. A. Borodin, P. Raghavan, B. Schieber and E. Upfal, "How much can hardware help routing?" Journal of the ACM, 44(5) (1997), pp. 726-741.

36. G. Even, J. Naor, B. Schieber and M. Sudan, "Approximating minimum feedback sets and multi-cuts in directed graphs". Algorithmica, 20 (1998), pp. 151-174.

37. G. Barnes, J. Buss, W.L. Ruzzo and B. Schieber, "A sub-linear space, polynomial time algorithm for directed s-t connectivity". SIAM Journal on Computing, 27 (1998), pp. 1273-1282.

38. A. Bar-Noy, A. Mayer, B. Schieber and M. Sudan, "Guaranteeing fair service to persistent dependent tasks". SIAM Journal on Computing, 24 (1998), pp. 1168-1189.

39. B. Schieber, "Computing a minimum weight K-link path in graphs with the concave Monge property". Journal of Algorithms, 29 (1998), pp. 204-222 (Special Issue SODA 1995 papers).

40. D. Coppersmith and B. Schieber, "Lower bounds on the depth of monotone arithmetic computations". Journal of Complexity, 15 (1999), pp. 17-29.

41. A. Bar-Noy, R. Canetti, S. Kutten, Y. Mansour and B. Schieber, "Bandwidth allocation with preemption". SIAM Journal on Computing, 28 (1999), pp. 1806-1828.

42. G. Even, J. Naor, S. Rao and B. Schieber, "Approximate Graph Partitioning Algorithms". SIAM Journal on Computing, 28 (1999), pp. 2187-2214.

43. A. Aggarwal, D. Coppersmith, S. Khanna, R. Motwani and B. Schieber, "The angular-metric traveling salesman problem". SIAM Journal on Computing, 29 (1999), pp. 697-711.

44. G. Even, J. Naor, B. Schieber and L. Zosin, "Approximating minimum subset feedback sets in undirected graphs with applications". SIAM Journal on Discrete Mathematics, 13 (2000), pp. 255-267.

45. G. Even, J. Naor, S. Rao and B. Schieber, "Divide-and-conquer approximation algorithms via spreading metrics". Journal of the ACM, 47 (2000), pp. 585-616.

46. A. Bar-Noy, S. Kipnis and B. Schieber, "Optimal Multiple Message Broadcasting in Telephone-Like Communication Systems". Discrete Applied Mathematics, 100 (2000), pp. 1-15.

47. A. Bar-Noy, S. Guha, J. Naor and B. Schieber, "Message multicasting in heterogeneous networks". SIAM Journal on Computing, 30 (2000), pp. 347-358.

48. A.J. Hoffman and B. Schieber, "The edge versus path incidence matrix of series parallel graphs and greedy packing". Discrete Mathematics, 113 (2001), pp. 275-284.

49. A. Bar-Noy, S. Guha, J. Naor and B. Schieber, "Approximating the throughput of multiple machines in real-time scheduling". SIAM Journal on Computing, 31 (2001), pp. 331-352.

50. A. Bar-Noy, R. Bar-Yehuda, A. Freund, J. Naor and B. Schieber, "A unified approach to approximating resource allocation and scheduling". Journal of the ACM, 48 (2001), pp. 1069-1090.

51. A. Bar-Noy, R. Bhatia, J. Naor and B. Schieber, "Minimizing service and operation costs of periodic scheduling". Mathematics of Operations Research, 27 (2002), pp. 518-544.

52. P. Batiste and B. Schieber, "Scheduling tall/small multiprocessor tasks with unit processing time to minimize maximum tardiness". Journal of Scheduling, 6 (2003), pp. 295-404.

53. A. Bar-Noy, J. Naor and B. Schieber, "Publishing dependent data in clients-providers-servers systems". Wireless Networks, 9 (2003), pp. 421-430.

54. G. Even, S. Guha and B. Schieber, "Improved approximations of crossings in graph drawings". SIAM Journal on Computing, 32 (2003), pp. 231-252.

55. G.M. Landau, B. Schieber and M. Ziv-Ukelson, "Sparse LCS Common Substring Alignment". Information Processing Letters, 88 (2003), pp. 259-270.

56. M. Charikar, J. Naor and B. Schieber, "Resource optimization in QoS multicast routing of real-time multimedia". IEEE/ACM Transactions on Networking, 12 (2004), pp. 340-348.

57. A. Kesselman, Z. Lotker, Y. Mansour, B. Patt-Shamir, B. Schieber and M. Sviridenko, "Buffer Overflow management in QoS Switches". SIAM Journal on Computing, 33 (2004), pp 563-583.

58. B. Schieber, D. Geist and A. Zaks, "Computing the minimum DNF representation of Boolean functions defined by intervals". Discrete Applied Mathematics, 149 (2005), pp. 154-173.

59. T. Kimbrel, B. Schieber and M. Sviridenko, "Minimizing Migrations in Fair Multiprocessor Scheduling of Persistent Tasks". Journal of Scheduling, 9 (2006), pp. 365-379.

60. O. Gunluk, T. Kimbrel, L. Ladanyi, B. Schieber and G. Sorkin, "Vehicle routing and staffing for sedan service". Transportation Science, 40 (2006), pp. 313-326.

61. F. Barahona, P. Chowdhary, M. Ettl, P. Huang, T. Kimbrel, L. Ladanyi, Y. M. Lee, B. Schieber, K. Sourirajan, M. I. Sviridenko and G. M. Swirszcz, "Inventory allocation and transportation scheduling for logistics of network-centric military operations". IBM Journal of Research and Development, 51 (2007), pp. 391-408.

62. G. Even, R. Levi, D. Rawitz, B. Schieber, S. Shahar and M. Sviridenko, "Algorithms for Capacitated Rectangle Stabbing and Lot Sizing with Joint Set-Up Costs". ACM Transactions on Algorithms, 4 (2008), pp. 34:1-34:17.

63. R. Bahtia, N. Immorlica, T. Kimbrel, V. Mirrokni, J. Naor and B. Schieber, "Traffic Engineering of Management Flow by Link Augmentations on Confluent Trees". Theory of Computing Systems, 42(1) (2008) pp. 2-26.

64. A. Bar-Noy, S. Guha, Y. Katz, J. Naor, B. Schieber and H. Shachnai, "Throughput Maximization of Real-Time Scheduling with Batching". ACM Transactions on Algorithms, 5 (2009), pp. 18:1-18:17.

65. N. Bansal, N. Chen, N. Cherniavsky, A. Rudra, B. Schieber and M. Sviridenko, "Dynamic Pricing for Impatient Bidders". ACM Transactions on Algorithms, 6 (2010), pp. 35:1-35:21.

66. N. Bansal, D. Z. Chen, D. Coppersmith, X. S. Hu, S. Luan, E. Misiolek, B. Schieber and C. Wang, "Shape Rectangularization Problems in Intensity-Modulated Radiation Therapy". Algorithmica, 60 (2011), pp. 421-450.

67. R. Khandekar, B. Schieber, H. Shachnai and T. Tamir, "Real-time Scheduling to Minimize Machine Busy Times". Journal of Scheduling, 18 (2015), pp. 561-573.

68. R. Adany, M. Feldman, E. Haramaty, R. Khandekar, B. Schieber, R. Schwartz, H. Shachnai and T. Tamir, "All-or-Nothing Generalized Assignment with Applications to Scheduling Advertising Campaigns". ACM Transactions on Algorithms, 12 (2016), pp. 38:1-38:25.

69. B. Schieber, H. Shachnai, G. Tamir and T. Tamir, "A Theory and Algorithms for Combinatorial Reoptimization". Algorithmica 80 (2018), pp. 576-607.

70. S. Toubaline, C. D'Ambrosio, L. Liberti, P-L. Poirion, B. Schieber and H. Shachnai, "Complexity and inapproximability results for the Power Edge Set problem". Journal of Combinatorial Optimization 35 (2018), pp. 895-905.

71. K.K. Sarpatwar, B. Schieber and H. Shachnai, "Constrained Submodular Maximization via Greedy Local Search". Operations Research Letters, 47 (2019), pp. 1-6.

72. D. Katz, B. Schieber and H. Shachnai, "Flexible Resource Allocation to Interval Jobs". Algorithmica 81 (2019), pp. 3217-3244.

73. K. Onak, B. Schieber, S. Solomon and N. Wein, "Fully Dynamic MIS in Uniformly Sparse Graphs". ACM Transactions on Algorithms 16 (2020), pp. 26:1-26:19.

74. V. Nagarajan, B. Schieber and H. Shachnai, "The Euclidean $k$-Supplier Problem". Mathematics of Operations Research 45 (2020), pp. 1-14.

## Refereed Conferences Publications

1. B. Schieber and S. Moran, "Slowing sequential algorithms for obtaining fast distributed and parallel algorithms: maximum matchings". Proc. 5th ACM SIGACT-SIGOPS Symp. on Principles of Distributed Computing (PODC) (1986), pp. 282-292.

2. Y. Maon, B. Schieber and U. Vishkin, "Parallel Ear Decomposition Search (EDS) and $st$-numbering in graphs". Proc. 2nd Aegean Workshop on Computing (AWOC), Lecture Notes in Computer Science 227, Springer-Verlag (1986), pp. 34-45.

3. G.M. Landau, B. Schieber and U. Vishkin, "Parallel construction of a suffix tree". Proc. 14th Int. Colloq. on Automata Lang. and Prog. (ICALP), Lecture Notes in Computer Science 267, Springer-Verlag (1987), pp. 314-325.

4.   B. Schieber and U. Vishkin, "On finding lowest common ancestors: simplification and parallelization". Proc. 3rd Aegean Workshop on Computing (AWOC), Lecture Notes in Computer Science 319, Springer-Verlag (1988), pp. 111-123.

5.   Y. Afek, G.M. Landau, B. Schieber and M. Yung, "The power of multimedia: combining point-to-point and multiaccess networks". Proc. 7th ACM SIGACT-SIGOPS Symp. on Principles of Distributed Computing (PODC) (1988), pp. 90-104.

6.   Y. Mansour, B. Schieber and P. Tiwari, "Lower bounds for integer greatest common divisor computations". Proc. 29th Symp. on Foundations of Computer Science (FOCS) (1988), pp. 54-63.

7.   O. Berkman, D. Breslauer, Z. Galil, B. Schieber and U. Vishkin, "Highly parallelizable problems". Proc. 21st ACM Symp. on Theory of Computing (STOC) (1989), pp. 301-319.

8.   Y. Mansour and B. Schieber, "The intractability of bounded protocols for non-FIFO channels". Proc. 8th ACM SIGACT-SIGOPS Symp. on Principles of Distributed Computing (PODC) (1989), pp. 59-72.

9.   B. Schieber and M. Snir, "Calling names on nameless networks". Proc. 8th ACM SIGACT-SIGOPS Symp. on Principles of Distributed Computing (PODC) (1989), pp. 319-328.

10.  P.K. Agarwal, A. Aggarwal, B. Aronov, S.R. Kosaraju, B. Schieber and S. Suri, "Computing external-furthest neighbors for a simple polygon". Proc. 1st Canadian Conf. on Computational Geometry, 1989.

11.  Y. Mansour, B. Schieber and P. Tiwari, "Lower bounds for computations with the floor operation". Proc. 16th Int. Colloq. on Automata Lang. and Prog. (ICALP) (1989), pp. 559-573.

12.  M.W. Bern, H.J. Karloff, P. Raghavan and B. Schieber, "Fast approximation techniques and geometric embedding problems". Proc. 5th ACM Symp. on Computational Geometry (1989), pp. 292-301.

13.  S. Khuller and B. Schieber, "Efficient parallel algorithms for testing connectivity and finding disjoint s-t paths in graphs". Proc. 30th Symp. on Foundations of Computer Science (FOCS) (1989), pp. 288-293.

14.  Y. Mansour, B. Schieber and P. Tiwari, "The complexity of approximating the square root". Proc. 30th Symp. on Foundations of Computer Science (FOCS) (1989), pp. 325-330.

15.  L.L. Larmore and B. Schieber, "On-line dynamic programming with  applications to the prediction of RNA secondary structure". Proc. 1st ACM-SIAM Symp. on Discrete Algorithms (SODA) (1990), pp. 503-512.

16.  A. Bar-Noy and B. Schieber, "The Canadian traveler problem". Proc. 2nd ACM-SIAM Symp. on Discrete Algorithms (SODA) (1991), pp. 261-270.

17.  A. Blum, P. Raghavan and B. Schieber, "Navigating in unfamiliar geometric terrain". Proc. 23rd ACM Symp. on Theory of Computing (STOC) (1991), pp. 494-504.

18.  A. Borodin, S. Irani, P. Raghavan and B. Schieber, "Competitive paging with locality of reference". Proc. 23rd ACM Symp. on Theory of Computing (STOC) (1991), pp. 249-259.

19.  Y. Mansour, J.K. Park, B. Schieber and S. Sen, "Improved selection in totally monotone arrays". Proc. 11th Conf. on Foundations of Software Technology and Theoretical Computer

Science (FSTCS), S. Biswas and K.V. Nori (Eds), Lecture Notes in Computer Science 590, Springer-Verlag (1991), pp. 347-359.

20. D. Gusfield, G.M. Landau and B. Schieber, "An efficient algorithm for Suffix-Prefix matching". Proc. Sequences II: Methods in Communication, Security, and Computer Science, R.M. Capocelli, A. De-Santis and U. Vaccaro (Eds), Springer-Verlag (1991), pp. 218-224.

21. G. Barnes, J. Buss, W.L. Ruzzo and B. Schieber, "A sub-linear space, polynomial time algorithm for directed s-t connectivity". Proc. 7th Symp. on Structure in Complexity Theory (1992), pp. 27-33.

22. A. Aggarwal, A. Bar-Noy, D. Kravets, S. Khuller and B. Schieber, "Efficient minimum cost matching using quadrangle inequality". Proc. 33rd Symp. on Foundations of Computer Science (FOCS) (1992), pp. 583-592.

23. D. Coppersmith and B. Schieber, "Lower bounds on the depth of monotone arithmetic computations". Proc. 33rd Symp. on Foundations of Computer Science (FOCS) (1992), pp. 288-295.

24. A. Aggarwal, B. Schieber and T. Tokuyama, "Finding a minimum weight K-link path in graphs with Monge property and applications". Proc. 9th ACM Symp. on Computational Geometry (1993), pp. 189-197.

25. A. Borodin, P. Raghavan, B. Schieber and E. Upfal, "How much can hardware help routing?" Proc. 25th ACM Symp. on Theory of Computing (STOC) (1993), pp. 573-582.

26. A. Bar-Noy, P. Raghavan, B. Schieber and H. Tamaki, "Fast deflection routing for packets and worms". Proc. 12th ACM SIGACT-SIGOPS Symp. on Principles of Distributed Computing (PODC) (1993), pp. 75-86.

27. A. Aggarwal, A. Bar-Noy, D. Coppersmith, R. Ramaswami, B. Schieber and M. Sudan, "Efficient routing and scheduling algorithms for optical networks". Proc. 5th ACM-SIAM Symp. on Discrete Algorithms (SODA) (1994), pp. 412-423.

28. A. Bar-Noy, J. Bruck, C-T. Ho, S. Kipnis and B. Schieber, "Computing global combine operations in the Multi-Port Postal Model". Proc. 5th IEEE Symp. on Parallel and Distributed Processing (SPDP) (1993), pp. 336-343.

29. A. Bar-Noy, S. Kipnis and B. Schieber, "Optimal multiple message broadcasting in telephone-like communication systems". Proc. 6th IEEE Symp. on Parallel and Distributed Processing (SPDP) (1994), pp. 216-223.

30. B. Schieber, "Finding a minimum weight K-link path in graphs with the concave Monge property". Proc. 6th ACM-SIAM Symp. on Discrete Algorithms (SODA) (1995), pp. 405-411.

31. A. Bar-Noy, A. Mayer, B. Schieber and M. Sudan, "Guaranteeing fair service to persistent dependent tasks". Proc. 6th ACM-SIAM Symp. on Discrete Algorithms (SODA) (1995), pp. 243-252.

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