

## **BARUCH M. SCHIEBER**

Professor, Department of Computer Science

Director, Institute for Future technologies

New Jersey Institute of Technology

University Heights Newark, NJ 07102, USA

[baruch.m.schieber@njit.edu](mailto:baruch.m.schieber@njit.edu) (973) 596-5497

- Vast experience in transforming data into insight for better business decisions
- Extensive research portfolio in algorithms, optimization and business analytics
- More than 150 publications in leading scientific journals and conferences
- 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:**

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*, Wrocław, 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.
75. K.K. Sarpatwar, B. Schieber, and H. Shachnai, "The Preemptive Resource Allocation Problem". *Journal of Scheduling*, 27(1) (2024), pp. 103-118.
76. B. Schieber, B. Samineni, and S. Vahidi, "Interweaving Real-Time Jobs with Energy Harvesting to Maximize Throughput". *Algorithmica* (2025), <https://doi.org/10.1007/s00453-025-01331-x>.



### **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.
32. A. Bar-Noy, R. Canetti, S. Kutten, Y. Mansour, and B. Schieber, "Bandwidth allocation with preemption". Proc. 27th ACM Symp. On Theory of Computing (STOC) (1995), pp. 616-625.
33. G. Even, J. Naor, B. Schieber, and M. Sudan, "Approximating minimum feedback sets and multi-cuts in directed graphs". Proc. 4th MPS Conf. on Integer Prog. and Combinatorial Optimization (IPCO) (1995), pp. 14-28.
34. G. Even, J. Naor, S. Rao, and B. Schieber, "Divide-and-conquer approximation algorithms via spreading metrics". Proc. 36th Symp. on Foundations of Computer Science (FOCS) (1995), pp. 62-71.
35. G. Even, J. Naor, B. Schieber, and L. Zosin, "Approximating minimum subset feedback sets in undirected graphs with applications to multicuts". Proc. 4th Israeli Symp. on Theory of Computing and Systems (ISTCS) (1996), pp. 78-88.
36. A. Aggarwal, D. Coppersmith, S. Khanna, R. Motwani, and B. Schieber, "The angular-metric traveling salesman problem". Proc. 8th ACM-SIAM Symp. on Discrete Algorithms (SODA) (1997), pp. 221-229.
37. G. Even, J. Naor, S. Rao, and B. Schieber, "Fast spreading metric based approximate graph partitioning algorithms". Proc. 8th ACM-SIAM Symp. on Discrete Algorithms (SODA) (1997), pp. 639-648.
38. A. Bar-Noy, R. Bhatia, J. Naor, and B. Schieber, "Minimizing service and operation costs of periodic scheduling". Proc. 9th ACM-SIAM Symp. on Discrete Algorithms (SODA) (1998), pp. 11-20.
39. A. Bar-Noy, S. Guha, J. Naor, and B. Schieber, "Multicasting in heterogeneous networks". Proc. 30th ACM Symp. on Theory of Computing (STOC) (1998), pp. 448-453.
40. A. Bar-Noy, Y. Mansour, and B. Schieber, "Competitive dynamic bandwidth allocation". Proc. 17th ACM SIGACT-SIGOPS Symp. on Principles of Distributed Computing (PODC) (1998), pp. 31-39.
41. S. Guha, A. Moss, J. Naor, and B. Schieber, "Efficient recovery from power outage" Proc. 31st ACM Symp. on Theory of Computing (STOC) (1999), pp. 574-582.
42. A. Bar-Noy, S. Guha, J. Naor, and B. Schieber, "Approximating the throughput of multiple machines under real-time scheduling". Proc. 31st ACM Symp. on Theory of Computing (STOC) (1999), pp. 622-631.
43. M. Charikar, J. Naor, and B. Schieber, "Resource optimization in QoS multicast routing of real-time multimedia". Proc. IEEE Int. Conf. on Computer Communications (INFOCOM) (2000), pp. 1518-1527.
44. G. Even, S. Guha, and B. Schieber, "Improved approximations of crossings in graph drawings". Proc. 32nd ACM Symp. on Theory of Computing (STOC) (2000), pp. 296-305.
45. A. Bar-Noy, R. Bar-Yehuda, A. Freund, J. Naor, and B. Schieber, "A unified approach to approximating resource allocation and scheduling". Proc. 32nd ACM Symp. on Theory of Computing (STOC) (2000), pp. 735-744.

46. A. Bar-Noy, J. Naor, and B. Schieber, "Pushing dependent data in clients-providers-servers systems". Proc. 6th Int. Conf. on Mobile Computing and Networking (MOBICOM) (2000).
47. T.S. Jayram, T. Kimbrel, R. Krauthgamer, B. Schieber, and M. Sviridenko, "Online server allocation in a server farm via benefit task systems". Proc. 33rd ACM Symp. on Theory of Computing (STOC) (2001), pp. 540-549.
48. A. Kesselman, Z. Lotker, Y. Mansour, B. Patt-Shamir, B. Schieber, and M. Sviridenko, "Buffer overflow management in QoS switches". Proc. 33rd ACM Symp. on Theory of Computing (STOC) (2001), pp. 520-529.
49. A. Bar-Noy, S. Guha, Y. Katz, J. Naor, B. Schieber, and H. Shachnai, "Throughput maximization of real-time scheduling with batching". Proc. 13th ACM-SIAM Symp. on Discrete Algorithms (SODA) (2002).
50. P. Baptiste and B. Schieber, "Scheduling tall/small microprocessor tasks with unit processing time to minimize maximum tardiness". Proc. 8th Int. Workshop on Project Management and Scheduling (2002), pp. 55-58.
51. G.M. Landau, B. Schieber, and M. Ziv-Ukelson, "Sparse LCS Common Substring Alignment". Proc. 14th Annual Symposium on Combinatorial Pattern Matching (CPM), (2003), pp. 225-236.
52. T. Kimbrel, B. Schieber, and M. Sviridenko, "Minimizing migrations in fair multiprocessor scheduling of persistent tasks". Proc. 15th ACM-SIAM Symp. On Discrete Algorithms (SODA) (2004).
53. N. Bansal, L. Fleischer, T. Kimbrel, M. Mahdian, B. Schieber, and M. Sviridenko, "Further Improvements in Competitive Guarantees for QoS Buffering". Proc. 31st Int. Colloq. on Automata Lang. and Prog. (ICALP) (2004).
54. R. Bahtia, N. Immorlica, T. Kimbrel, V. Mirrokni, J. Naor, and B. Schieber, "Traffic Engineering of Data Networks for Management Data". Proc. 17th ACM Symp. on Parallelism in Algorithms and Architectures (SPAA) (2005), pp. 289-298.
55. N. Bansal, A. Chakrabarti, A. Epstein, and B. Schieber, "A Quasi-PTAS for Unsplittable Flow on Line Graphs". Proc. 38th ACM Symp. on Theory of Computing (STOC) (2006), pp. 721-729.
56. N. Bansal, D. Coppersmith, and B. Schieber, "Minimizing Setup and Beam-On Times in Radiation Therapy". Proc. 9th Int. Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) (2006).
57. N. Bansal, N. Chen, N. Cherniavsky, A. Rudra, B. Schieber, and M. Sviridenko, "Dynamic Pricing for Impatient Bidders". Proc. 18th ACM-SIAM Symp. on Discrete Algorithms (SODA) (2007).
58. N. Bansal, H-L. Chan, R. Khandekar, K. Pruhs, B. Schieber, and C. Stein, "Non-Preemptive Min-Sum Scheduling with Resource Augmentation". Proc. 48th Symp. on Foundations of Computer Science (FOCS) (2007).
59. R. Khandekar, B. Schieber, H. Shachnai, and T. Tamir, "Minimizing Busy Time in Multiple Machine Real-time Scheduling". Proc. 30th Conf. on Foundations of Software Technology and Theoretical Computer Science (FSTTCS) (2010).
60. R. Adany, M. Feldman, E. Haramaty, R. Khandekar, B. Schieber, R. Schwartz, H. Shachnai, and T. Tamir, "All-or-Nothing Generalized Assignment with Application to Scheduling

- Advertising Campaigns”. Proc. 16th Conf. on Integer Prog. and Combinatorial Optimization (IPCO) (2013).
61. V. Nagarajan, B. Schieber, and H. Shachnai, “The Euclidean  $k$ -Supplier Problem”. Proc. 16th Conf. on Integer Prog. and Combinatorial Optimization (IPCO) (2013).
  62. A. Gupta, S. Kale, V. Nagarajan, R. Saket, and B. Schieber, “The Approximability of the Binary Paintshop Problem”. Proc. 16th Int. Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) (2013).
  63. V. Nagarajan, K.K. Sarpatwar, B. Schieber, H. Shachnai, and J.L. Wolf, “The Container Selection Problem”. Proc. 18th Int. Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) (2015).
  64. B. Schieber, S. Albagli-Kim, H. Shachnai, and T. Tamir, “Real-Time  $k$ -Bounded Preemptive Scheduling”. Proc. 18th Workshop on Algorithm Engineering and Experimentation (ALENEX) (2016).
  65. V.T. Chakaravarthy, M. Kapralov, P. Murali, F. Petrini, X. Que, Y. Sabharwal, and B. Schieber, “Subgraph Counting: Color Coding Beyond Trees”. Proc. 30th IEEE International Parallel and Distributed Processing Symposium (IPDPS) (2016).
  66. S. Toubaline, C. D'Ambrosio, L. Liberti, P-L. Poirion, B. Schieber, and H. Shachnai, “Complexité du Power Edge Set Problem”. Proc. 17th Congress of the French Operations Research and Decision-Aid Society (ROADEF) (2016).
  67. D. Katz, B. Schieber, and H. Shachnai, “Brief Announcement: Flexible Resource Allocation for Clouds and All-Optical Networks”. Proc. 28th ACM Symp. on Parallelism in Algorithms and Architectures (SPAA) (2016), pp. 225-226.
  68. V. Austel, S. Dash, O. Gunluk, L. Horesh, L. Liberti, G. Nannicini, and B. Schieber, “Globally Optimal Symbolic Regression”. Interpretable ML Symposium, NIPS 2017.
  69. S. Assadi, K. Onak, B. Schieber, and S. Solomon, “Fully Dynamic Maximal Independent Set with Sublinear Update Time”. Proc. 50th ACM Symp. on Theory of Computing (STOC) (2018), pp. 815-826.
  70. K.K. Sarpatwar, B. Schieber, and H. Shachnai, “Brief Announcement: Approximation Algorithms for Preemptive Resource Allocation”. Proc. 30th ACM Symp. on Parallelism in Algorithms and Architectures (SPAA) (2018), pp. 343-345.
  71. K. Onak, B. Schieber, S. Solomon, and N. Wein, “Fully Dynamic MIS in Uniformly Sparse Graphs”. Proc. 45th Int. Colloq. on Automata Lang. and Prog. (ICALP) (2018), pp. 92:1-92:14.
  72. K.K. Sarpatwar, B. Schieber, and H. Shachnai, “Generalized Assignment of Time-Sensitive Item Groups”. Proc. 21st Int. Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) (2018), pp. 24:1-24:18.
  73. S. Assadi, K. Onak, B. Schieber, and S. Solomon, “Fully Dynamic Maximal Independent Set with Sublinear in  $n$  Update Time”. Proc. 30th ACM-SIAM Symp. on Discrete Algorithms (SODA) (2019), pp. 1919-1936.
  74. A. Backurs, P. Indyk, K. Onak, B. Schieber, A. Vakilian, and T. Wagner, “Scalable Fair Clustering”. Proc. 36th Int. Conf. on Machine Learning (ICML) (2019), pp. 405-413.
  75. A. Kulik, K.K. Sarpatwar, B. Schieber, and H. Shachnai, “Generalized Assignment via Submodular Optimization with Reserved Capacity”. Proc. 27th European Symp. on Algorithms (ESA) (2019), pp. 69:1–69:15.

76. K.K. Sarpatwar, B. Schieber, and H. Shachnai, "The Preemptive Resource Allocation Problem". Proc. 39th Conf. on Foundations of Software Technology and Theoretical Computer Science (FSTTCS) (2019), pp. 26:1-26:15.
77. L. Ben Yamin, J. Li, K.K. Sarpatwar, B. Schieber, and H. Shachnai, "Maximizing Throughput in Flow Shop Real-Time Scheduling". Proc. 23rd Int. Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX) (2020), pp. 48:1-48:18.
78. D. Wei, M.M. Islam, B. Schieber, and S. Basu Roy, "Rank Aggregation with Proportionate Fairness". Proc. International Conference on Management of Data (SIGMOD) (2022), pp. 262-275.
79. M.M. Islam, D. Wei, B. Schieber, and S. Basu Roy, "Satisfying Complex Top- $k$  Fairness Constraints by Preference Substitutions". Proc. VLDB Endowment (2022), 16(2): 317-329.
80. B. Schieber, B. Samineni, and S. Vahidi, "Interweaving Real-Time Jobs with Energy Harvesting to Maximize Throughput". Proc. 17th Int. Conference and Workshops on Algorithms and Computation (WALCOM) (2023), pp. 305-316.
81. B. Schieber and P. Sitaraman, "Quick Minimization of Tardy Processing Time on a Single Machine". Proc. 18th Algorithms and Data Structures Symposium (WADS) (2023), pp. 637-643.
82. B. Schieber and S. Vahidi, "Approximating Connected Maximum Cuts via Local Search". Proc. European Symposium on Algorithms (ESA) (2023), pp. 93:1-93:17.
83. S. Vahidi, B. Schieber, Z. Du, and David A. Bader, "Parallel Longest Common SubSequence Analysis in Chapel". Proc. IEEE High Performance Extreme Computing Conference (HPEC) (2023), pp. 1-6.
84. I. Doron-Arad, G. Kortsarz, J. Naor, B. Schieber, and H. Shachnai, "Approximations and Hardness of Packing Partially Ordered Items". Proc. 50th Int. Workshop on Graph-Theoretic Concepts in Computer Science (WG) (2024), Lecture Notes in Computer Science 14760, Springer Nature Switzerland (2024), pp. 166-180.
85. M.M. Islam, S. Vahidi, B. Schieber, and S. Basu Roy, "Promoting Fairness and Priority in Selecting  $k$ -Winners Using IRV". Proc. 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) (2024), pp. 1199-1210.
86. Y. Dinitz, S. Dolev, M. Kumar, and B. Schieber, "Partially Disjoint Shortest Paths and Near-Shortest Paths Trees". Proc. Stabilization, Safety, and Security of Distributed Systems (SSS), Lecture Notes in Computer Science 14931, Springer Nature Switzerland (2024), pp. 240-254.
87. B. Schieber, "Brief Announcement: Towards Proportionate Fair Assignment". Proc. Stabilization, Safety, and Security of Distributed Systems (SSS), Lecture Notes in Computer Science 14931, Springer Nature Switzerland (2024), pp. 255-259.
88. S. Dolev, K. Kumari, S. Mehrotra, B. Schieber, and S. Sharma, "Brief Announcement: Make Master Private-Keys Secure by Keeping It Public". Proc. Stabilization, Safety, and Security of Distributed Systems (SSS), Lecture Notes in Computer Science 14931, Springer Nature Switzerland (2024), pp. 338-343.
89. S. Dolev, K. Kumari, S. Mehrotra, B. Schieber, and S. Sharma, "Reminisce for Securing Private-Keys in Public". Proc. Int. Symp. on Cyber Security, Cryptology, and Machine Learning (CSCML), Lecture Notes in Computer Science 15349, Springer Nature Switzerland (2024), pp. 168-177.

**Personal:**

Married + 2 daughters.

Private residence in White Plains, NY

Graduated from Zeitlin High School 1976

**Awards:**

- Israel Defense Prize for major technological contributions to Israeli defense systems (1984)
- Eight IBM technical achievement awards for various projects while at IBM Research