

Edith Cohen

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Personal

Born on May 21, 1966.
Married+4.
Citizen of the United States and Israel.

Education

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|------|---|----------------------------|
| 1991 | Ph.D. in Computer Science Thesis Advisor: Andrew Goldberg | <i>Stanford University</i> |
| 1986 | M.Sc. in Computer Science Thesis Advisor: Michael Tarsi <i>summa cum laude</i> | <i>Tel Aviv University</i> |
| 1985 | B.Sc. in Computer Science and Mathematics | <i>Tel Aviv University</i> |

Employment

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|----------------|---|
| 11/2013– | <i>Microsoft Research - SVC: Principal Researcher</i> |
| 10/2012– | <i>Tel Aviv University Computer Science Department: Visiting Full Professor</i> |
| 8/2012–8/2013 | <i>Microsoft Research - SVC: Visiting Faculty</i> |
| 9/1991–4/2012 | <i>AT&T Labs-Research (until 1997 AT&T Bell Labs): Research Scientist</i> |
| 1/2003– 9/2012 | <i>Tel Aviv University Computer Science Department: Visiting Principal Research Associate</i> |
| 1/1997–7/1997 | <i>U.C. Berkeley Computer Science Department : Visiting Professor</i> |
| 5/1987–8/1991 | <i>IBM Almaden Research Center: Student Research Associate</i> |

Teaching

"Leveraging Big Data," (graduate and advanced undergraduate) Tel Aviv University, Fall 2013.
"Combinatorial algorithms and data structures," (graduate class) U.C. Berkeley, 1997.

Prizes and Grants

2014 ISF Research Grant
2007 IEEE Communications Society William R. Bennett prize
1997 National Science Foundation Research Grant

Professional service

Editorial boards:

Area editor for Journal of Computer and System Sciences (JCSS)
Editorial board member for Algorithmica
Area editor for Computer Networks Journal (2004-2007)
Special issue guest editor (selected papers from FOCS 2002) for JCSS
Area editor for the Encyclopedia of Algorithms (Elsevier)

Technical Program Committees:

STOC 2015, PODS 2015, ICDT 2015, ESA 2014, STACS 2014, SODA 2014, PODC 2012, ICDT 2012, ICALP 2011, PODC 2011, SIGMETRICS 2011, ICDT 2011, SODA 2011, SIGMETRICS 2010, CSR 2010, ALENEX 2010, ICDT 2010, VLDB 2009, SIGMETRICS 2009, VLDB 2008, IPDPS 2008, VLDB 2007, SIGMETRICS 2007, AAA-IDEA 2006, AAA-IDEA 2005, AAIM2005, CAAN2004, SIGMOD 2004, PODC2004, WWW2004, ICDCS 2004, ESA 2003, WWW 2003, ALENEX 2003, FOCS 2002, WWW2002, SODA 2000, FOCS 1998, ISTCS 1996, FOCS 1995

Patents

1. Method and Apparatus for Estimating Transitive Closure and Reachability. (Issued May 12, 1998 US005752241).
2. Detecting the Sub-Rate of A Punctured Data Packet for a Multi-Rate Transmission Scheme. Joint with H.-L. Lou. (Issued August 29, 2000 US06111912)
3. Improved Retrieval System and Method. Joint with David D. Lewis. (Issued September 7, 1999 US05950189)
4. Method and Apparatus for Improving End to End Performance of a Data Network. Joint with B. Krishnamurthy and J.L. Rexford. (Issued December 11, 2001 US6330561)
5. Method for Preconnecting to a Server on a Network. Joint with H. Kaplan and U. Zwick. (Issued August 12, 2003 US6606645)
6. Method and Apparatus for Improving End to End Performance of a Data Network. Joint with B. Krishnamurthy and J.L. Rexford. (Issued June 15, 2004 US7388842)
7. Method and Apparatus for Efficient Routing of Variable Traffic. Joint with D. Applegate. (Issued June 17, 2008, US7388842)
8. Method and Apparatus for Improving End to End Performance of a Data Network. Joint with B. Krishnamurthy and J. Rexford (Issued February 2, 2010 US7657553)
9. Algorithms and Estimators for Accurate Summarizations of Unaggregated Data Streams. Joint with N. Duffield, H. Kaplan, C. Lund, and M. Thorup. (Issued June 29, 2010 US7746808)
10. Algorithms and Estimators for Summarizations of Unaggregated Data Streams. Joint with N. Duffield, H. Kaplan, C. Lund, and M. Thorup. (Issued July 27, 2010 US7764625)
11. Sampling and Analyzing Packets in a Network. Joint with C. Lund, N. Duffield, A. Gerber, A. Hersh, A. Spatscheck, M. Thorup, and F. True. (Issued December 14, 2010 US7852785)

12. Methods and Apparatus to Bound Network Traffic Estimation Error for Multistage Measurement Sampling and Aggregation. Joint with C. Lund, N. Duffield, and M. Thorup. (Issued August 3, 2011 US7990982)
13. Variance-Optimal Sampling-Based Estimation of Subset Sums. Joint with N. Duffield, H. Kaplan, C. Lund, and M. Thorup. (Issued August 23, 2011 US8005949)
14. Method And Apparatus For Efficient Routing Of Variable Traffic. Joint with D. Applegate. (Issued October 4, 2011 US8031635)
15. Method and Apparatus for Improving End to End Performance of a Data Network. Joint with B. Krishnamurthy and J. Rexford. (Issued November 29, 2011 US8069150)
16. Systems, Devices, and/or Methods for Determining Dataset Estimators. Joint with H. Kaplan. (Issued March 20, 2012 US8140539)
17. Systems, Devices, and/or Methods for Managing Data. Joint with H. Kaplan. (Issued April 24, 2012 US8166047)
18. Method for summarizing data in unaggregated data streams. Joint with N. Duffield, H. Kaplan, C. Lund, M. Thorup. (Issued June 5, 2012: USSo8195710)
19. Cache validation using smart source selection in a data network. (Issued February 11, 2014 US8650266 B2)
20. Method and apparatus for processing of top-k queries from samples. Joint with H. Kaplan and Nadav Grossaug. (Issued April 22, 2014 US8706737)
21. Method and systems to estimate query responses based on data set sketches. Joint with H. Kaplan. (Issued May 27, 2014 US8738618)

Research

My research is motivated by challenges in managing and mining massive data sets, networks, and information systems. I apply my expertise in algorithms design, statistics, and optimization to find models and solutions which enhance performance, functionality, and value.

Publications

Proceedings

1. E. Cohen, D. Delling, T. Pajor, and R. F. Werneck. "Sketch-based Influence Maximization and Computation: Scaling up with Guarantees." ACM CIKM 2014.
2. E. Cohen, D. Delling, T. Pajor, and R. F. Werneck "Computing Classic Closeness Centrality, at Scale." ACM COSN 2014.
3. E. Cohen, A. Hassidim, H. Kaplan, Y. Mansour, D. Raz, and Y. Tzur. "Probe Scheduling for Efficient Detection of Silent Failures." Performance 2014.
4. E. Cohen. "Distance Queries from Sampled Data: Accurate and Efficient." ACM KDD 2014.
5. E. Cohen, "Estimation for Monotone Sampling: Competitiveness and Customization." ACM PODC 2014.

6. E. Cohen. "All-Distances Sketches, Revisited: HIP Estimators for Massive Graphs Analysis." ACM SIGMOD-PODS 2014.
7. E. Cohen, D. Delling, F. Fuchs, A. V. Goldberg, M. Goldszmidt, R. F. Werneck. "Scalable Similarity Estimation in Social Networks: Closeness, Node Labels, and Random Edge Lengths". ACM COSN 2013
8. E. Cohen, H. Kaplan. "What you can do with coordinated samples". Random-Approx 2013
9. E. Cohen, H. Kaplan, Y. Mansour. "Scheduling subset tests: one-time, continuous, and how they relate". Random-Approx 2013
10. E. Cohen, G. Cormode, N. G. Duffield. "Don't let the negatives bring you down: Sampling from streams of signed updates." SIGMETRICS 2012
11. E. Cohen, H. Kaplan. "Get the most out of your sample: Optimal unbiased estimators using partial information." PODS 2011: 13-24
12. E. Cohen, G. Cormode, N. G. Duffield. "Structure-aware sampling on data streams." SIGMETRICS 2011: 197-208
13. E. Cohen, M. Feldman, A. Fiat, H. Kaplan, S. Olonetsky. "Truth, envy, and truthful market clearing bundle pricing." WINE 2011: 97-108
14. E. Cohen, G. Cormode, N. G. Duffield. "Structure-aware sampling: Flexible and accurate summarization." PVLDB 4(11): 819-830 (2011)
15. E. Cohen, M. Feldman, A. Fiat, H. Kaplan, S. Olonetsky. "Envy-free makespan approximation." EC 2010: 159-166. 2010.
16. E. Cohen, N. Duffield, H. Kaplan, C. Lund, M. Thorup. "Composable, scalable, and accurate weight summarization of unaggregated data sets." PVLDB 2(1): 431-442 (2009)
17. E. Cohen, H. Kaplan, S. Sen. "Coordinated weighted sampling for estimating aggregates over multiple weight assignments." PVLDB 2(1): 646-657 (2009)
18. E. Cohen, H. Kaplan. "Leveraging discarded samples for tighter estimation of multiple-set aggregates." SIGMETRICS 2009: 251-262. 2009.
19. E. Cohen, N. G. Duffield, H. Kaplan, C. Lund, M. Thorup. "Stream sampling for variance-optimal estimation of subset sums." SODA 2009: 1255-1264. 2009.
20. E. Cohen, H. Kaplan. "Estimating Aggregates over Multiple Sets." ICDM 2008: 761-766. 2008.
21. E. Cohen, N. G. Duffield, C. Lund, M. Thorup. "Confident estimation for multistage measurement sampling and aggregation." SIGMETRICS 2008: 109-120. 2008.
22. E. Cohen, H. Kaplan. "Tighter estimation using bottom k sketches." VLDB 2008. 2008.
23. E. Cohen, N. Duffield, H. Kaplan, C. Lund and M. Thorup. "Algorithms and estimators for accurate summarization of Internet traffic." In Proceedings of the 2007 ACM/SIGCOMM Internet Measurement Conference (IMC 2007). 2007.
24. E. Cohen and H. Kaplan. "Summarizing data using bottom-k sketches." In Proceedings Twenty-Sixth Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC 2007). 2007.

25. E. Cohen, N. Duffield, H. Kaplan, C. Lund and M. Thorup. "Sketching unaggregated data streams for subpopulation-size queries." In Proceedings 26th ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS 2007). 2007.
26. E. Cohen and H. Kaplan. "Bottom-k sketches: better and more efficient estimation of aggregates." In Proceedings of the ACM Sigmetrics/Performance Joint International Conference on Measurements and Modeling of Computer Systems (poster). 2007.
27. E. Cohen, N. Grossaug, and H. Kaplan. "Processing Top-k Queries from samples." In Proceedings of the 2nd conference on Future Networking Technologies (CoNext). 2006.
28. E. Cohen and C. Lund. "Packet classification in large ISPs: Design and evaluation of decision tree classifiers." In Proceedings of the ACM Sigmetrics/Performance Joint International Conference on Measurements and Modeling of Computer Systems. 2005.
29. E. Cohen and H. Kaplan. "Spatially-decaying aggregation over a network: Model and algorithms." In Proceedings of the ACM SIGMOD International Conference on Management of Data. 2004.
30. D. Applegate, L. Breslau, and E. Cohen. "Coping with network failures: Routing strategies for optimal demand oblivious restoration." In Proceedings of the ACM Sigmetrics/Performance Joint International Conference on Measurements and Modeling of Computer Systems. 2004.
31. E. Cohen and H. Kaplan. "Efficient estimation algorithms for neighborhood variance and other moments." In Proceedings of the ACM-SIAM SODA'04 Conference. 2004.
32. D. Applegate and E. Cohen. "Making intra-domain routing robust to changing and uncertain traffic demands: Understanding fundamental tradeoffs." In Proceedings of the ACM SIGCOMM'03 Conference . 2003.
33. E. Cohen and M. Strauss. "Maintaining time-decaying stream aggregates." In Proc. 22nd ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS). 2003.
34. Y. Azar, E. Cohen, A. Fiat, H. Kaplan, and H. RÅd'cke. "Optimal oblivious routing in polynomial time." In Proc. 35th Annual ACM Symposium on Theory of Computing. ACM, 2003.
35. E. Cohen, A. Fiat, and H. Kaplan. "Associative search in peer to peer networks: Harnessing latent semantics." In Proceedings of the IEEE INFOCOM'03 Conference. 2003.
36. E. Cohen, A. Fiat, and H. Kaplan. "Efficient sequences of trials." In Proceedings of the ACM-SIAM SODA'03 Conference. 2003.
37. E. Cohen, A. Fiat, and H. Kaplan, "A case for associative peer to peer overlays." In Proceedings of HotNets-I. 2002.
38. E. Cohen and S. Shenker. "Replication strategies in unstructured Peer-to-Peer networks." In Proceedings of the ACM SIGCOMM'02 Conference. 2002.
39. A. Bremler-Barr, E. Cohen, H. Kaplan, and Y. Mansour. "Predicting and bypassing end-to-end Internet service degradations." In Proceedings of the 2nd Sigcomm Internet Measurements Workshop, ACM 2002.
40. E. Cohen and H. Kaplan, "Balanced-replication algorithms for distribution trees." In: *Proceedings of the 10th European Symposium on Algorithms*, 2002.
41. E. Cohen and S. Shenker, "Replication strategies in unstructured Peer-to-Peer networks." In: *Proceedings of the ACM SIGCOMM'02 Conference*. 2002.

42. Q. Lv, P. Cao, E. Cohen, K. Li, and S. Shenker, "Search and replication in unstructured peer-to-peer networks." In: *Proceedings of the 16th annual ACM International Conference on supercomputing (ICS) 2002*; In: *Proc. 2002 ACM SIGMETRICS conference (2-page poster)*. 2002.
43. E. Cohen, H. Kaplan, and T. Milo, "Labeling dynamic XML trees." In: *Proc. 21st ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS)*. 2002.
44. E. Cohen, E. Halperin, H. Kaplan, and U. Zwick, "Reachability and distance queries via 2-hop labels." In: *Proc. 13th ACM-SIAM Symposium on Discrete Algorithms*. ACM-SIAM, 2002.
45. E. Cohen, and H. Kaplan, "Aging through cascaded caches: performance issues in the distribution of Web content." In: *Proceedings of the ACM SIGCOMM'01 Conference*. 2001.
46. E. Cohen, H. Kaplan, and U. Zwick, "Competitive analysis of the LRFU paging algorithm." In: *Proceedings of the 7th International Workshop on Algorithms and Data Structures*. 2001.
47. E. Cohen, E. Halperin, and H. Kaplan, "Performance aspects of distributed caches using TTL-based consistency." In: *Proceedings of the ICALP'01 conference, Springer-Verlag, LNCS*. 2001.
48. A. Bremner-Barr, Y. Afek, E. Cohen, H. Kaplan and M. Merritt, "Restoration by Path Concatenation: Fast Recovery of MPLS Paths." In: *Proceedings of the ACM PODC '01 conference*; In *Proceedings of the ACM SIGMETRICS '01 conference (2-page Poster)*. 2001.
49. E. Cohen and H. Kaplan, "Refreshment policies for Web content caches." In: *Proceedings of the IEEE INFOCOM'01 Conference*. 2001.
50. E. Cohen and H. Kaplan, "The age penalty and its effect on cache performance." In: *Proceedings of the 3rd USENIX Symposium on Internet Technologies and Systems*. 2001.
51. E. Cohen and H. Kaplan, "Proactive caching of DNS records: Addressing a performance bottleneck." In: *Proceedings of the 2001 Symposium on Applications and the Internet (SAINT)*. IEEE, 2001.
52. E. Cohen, H. Kaplan, and U. Zwick, "Connection caching under various models of communication." In: *Proceedings 12th Annual ACM Symposium on Parallel Algorithms and Architectures*. ACM, 2000.
53. E. Cohen and H. Kaplan, "Prefetching the means for document transfer: A new approach for reducing Web latency," in: *Proceedings of the IEEE INFOCOM'00 Conference*. 2000.
54. R. Motwani, E. Cohen. M. Datar, S. Fujiware, A. Gionis, P. Indyk, J. Ullman, and C. Yang, "Finding interesting associations without support pruning," in: *Proc. of the 16th International conference on Data engineering, IEEE*, 2000.
55. E. Cohen, H. Kaplan, and J. D. Oldham, "Policies for managing TCP connections under Persistent HTTP," in: *Proc. of the 8th World Wide Web conference*. 1999.
56. E. Cohen, H. Kaplan, and U. Zwick, "Connection caching," in: *Proc. 31st Annual ACM Symposium on Theory of Computing*. ACM, 1999.
57. E. Cohen and H. Kaplan, "Exploiting regularities in Web traffic patterns for cache replacement," in: *Proc. 31st Annual ACM Symposium on Theory of Computing*. ACM, 1999.
58. E. Cohen, B. Krishnamurthy, and J. Rexford, "Efficient algorithms for predicting requests to Web servers," in: *Proceedings of the IEEE INFOCOM'99 Conference*. 1999.
59. E. Cohen and H. Kaplan, "LP-based analysis of Greedy-Dual-Size," in: *Proc. 10th ACM-SIAM Symposium on Discrete Algorithms*. ACM-SIAM, 1999.

60. E. Cohen, B. Krishnamurthy, and J. Rexford, "Evaluating server-assisted cache replacement in the Web," in: *Proceedings of the 6th European Symposium on Algorithms*. LNCS vol.1461, 1998.
61. E. Cohen, B. Krishnamurthy, and J. Rexford, "Improving end-to-end performance of the Web using server volumes and proxy filters," in: *Proceedings of the ACM SIGCOMM'98 Conference*, 1998.
62. E. Cohen. "Learning noisy perceptrons by a perceptron in polynomial time," in: *Proc. 38th IEEE Annual Symposium on Foundations of Computer Science*. IEEE, 1997.
63. E. Cohen and U. Zwick, "All pairs small stretch paths," in *Proc. 8th ACM-SIAM Symposium on Discrete Algorithms*. ACM-SIAM, pages 93–102, 1997.
64. E. Cohen and D.D. Lewis, "Approximating matrix multiplication for pattern recognition tasks," in *Proc. 8th ACM-SIAM Symposium on Discrete Algorithms*. ACM-SIAM, pages 682–691, 1997.
65. E. Cohen, "Optimizing multiplications of sparse matrices," in W. H. Cunningham, S. T. McCormick, and M. Queyranne, editors, *Proc. of the 5th International Conference on Integer Programming and Combinatorial Optimization*, pages 219–233. Springer-Verlag, Lecture Notes in Computer Science Vol. 1084, 1996.
66. E. Cohen and H.-L. Lou. "Multi-rate detection for the IS-95A CDMA forward traffic channel using the 13kbs speech coder," in: *Proc. IEEE International Communications Conference*. IEEE, 1996.
67. E. Cohen, Y.-M. Wang, and G. Suri, "When Piecewise determinism is almost true," in: *Proc. Pacific Rim International Symposium on Fault-Tolerant Systems*, 1995.
68. E. Cohen and H.-L. Lou, "Muti-Rate Detection for the IS-95 CDMA forward traffic channels," in: *Proc. IEEE Global Telecommunications Conference*, IEEE, 1995.
69. N.S. Barghouti, E. Koutsofios, and E. Cohen, "Improvise: Interactive Multimedia Process Visualization Environment," in: *Proc. 5th European Software Engineering Conference*, 1995.
70. E. Cohen, "Estimating the size of the transitive closure in linear time" in: *Proc. 35th IEEE Annual Symposium on Foundations of Computer Science*, pages 190–200. IEEE, 1994.
71. E. Cohen, "Polylog-time and near-linear work approximation scheme for undirected shortest-paths," in: *Proc. 26th Annual ACM Symposium on Theory of Computing*, pages 16–26. ACM, 1994.
72. E. Cohen, "Fast algorithms for t -spanners and stretch- t paths," in: *Proc. 34th IEEE Annual Symposium on Foundations of Computer Science*, pages 648–658. IEEE, 1993.
73. E. Cohen, "Efficient parallel shortest-paths in digraphs with a separator decomposition," in: *Proc. 5th annual ACM Symposium on Parallel Algorithms and Architectures*, pages 57–67. ACM, 1993.
74. E. Cohen, "Using selective path-doubling for parallel shortest-path computations," in: *Proc. 2nd Israeli Symposium on the Theory of Computing and Systems*, pages 78–87. IEEE, 1993.
75. E. Cohen, "Approximate max-flow on small depth networks," in: *Proc. 33rd IEEE Annual Symposium on Foundations of Computer Science*, pages 648–658. IEEE, 1992.
76. E. Cohen and N. Megiddo, "New algorithms for generalized network flows," in: *Proc. of the 1st Israeli Symposium on the Theory of Computing and Systems*, D. Dolev, Z. Galil, and M. Rodeh, editors, Lecture Notes in Computer Science, pages 103–114, Springer-Verlag, 1992.
77. E. Cohen and N. Megiddo, "Improved algorithms for linear inequalities with two variables per inequality," in: *Proc. 23rd Annual ACM Symposium on Theory of Computing*, pages 145–155. ACM, 1991.

78. E. Cohen and N. Megiddo, "Complexity analysis and algorithms for some flow problems," in: *Proc. 2nd ACM-SIAM Symposium on Discrete Algorithms*, pages 120–130. ACM-SIAM, 1991.
79. E. Cohen and N. Megiddo, "Strongly polynomial and NC algorithms for detecting cycles in dynamic graphs," in: *Proc. 21st Annual ACM Symposium on Theory of Computing*, pages 523–534. ACM, 1989.

Book chapters, etc.

1. E. Cohen. "Decay Models." *Encyclopedia of Database Systems 2009*: 757-761
2. E. Cohen and H. Kaplan. "The Time-to-Live based consistency mechanism." *Web Content Delivery*, Tang, X. and Xu, J. and Chanson, S. T., (Eds.), Springer, New York, 2005.
3. E. Cohen. "Shortest Paths." *Handbook of applied optimization*, P.M. Pardalos and M.G.C. Resende, Editors, Oxford University Press, 2001.
4. **PhD thesis**: E. Cohen. "Combinatorial algorithms for optimization problems," Technical Report STAN-CS-91-1366, Stanford University, 1991. Ph.D. thesis.

Journals and collections

1. E. Cohen, N. Duffield, H. Kaplan, C. Lund, M. Thorup. "Algorithms and estimators for summarization of unaggregated data streams." *J. of Computer and System Sciences*. (2014)
2. E. Cohen, M. Feldman, A. Fiat, H. Kaplan, S. Olonetsky. "Envy-Free Makespan Approximation." *SIAM J. Comput.* 41(1): 12-25 (2012)
3. E. Cohen, G. Cormode, N. G. Duffield. "Structure-Aware Sampling: Flexible and Accurate Summarization." *PVLDB* 4(11): 819-830 (2011)
4. E. Cohen, N. G. Duffield, H. Kaplan, C. Lund, M. Thorup. "Efficient Stream Sampling for Variance-Optimal Estimation of Subset Sums." *SIAM J. Comput.* 40(5): 1402-1431 (2011)
5. E. Cohen, H. Kaplan, T. Milo. "Labeling Dynamic XML Trees." *SIAM J. Comput.* 39(5): 2048-2074 (2010)
6. E. Cohen, N. Duffield, H. Kaplan, C. Lund, M. Thorup. "Composable, Scalable, and Accurate Weight Summarization of Unaggregated Data Sets." *PVLDB* 2(1): 431-442 (2009)
7. E. Cohen, H. Kaplan, S. Sen. "Coordinated Weighted Sampling for Estimating Aggregates Over Multiple Weight Assignments." *PVLDB* 2(1): 646-657 (2009)
8. E. Cohen, N. Grossaug, H. Kaplan, "Processing top-k queries from samples." *Computer Networks*. 52(14):2605-2622, 2008.
9. E. Cohen, H. Kaplan, "Tighter estimation using bottom k sketches." *PVLDB*. 1(1):213-229, 2008.
10. E. Cohen, A. Fiat, and H. Kaplan. "Associative Search in Peer to Peer Networks: Harnessing Latent Semantics." *Computer Networks* 51(8):1861–1881, 2007.
11. E. Cohen and H. Kaplan, "Spatially-Decaying Aggregation over a Network." *JCSS*. 73(3):265-288, 2007.

12. D. Applegate and E. Cohen. "Making Routing Robust to Changing Traffic Demands: Algorithms and Evaluation." *IEEE/ACM Transactions on Networking*. 14(6):1193-1206, 2006.
13. E. Cohen and B. Krishnamurthy. "A Short Walk in The Blogistan." *Computer Networks*. 50(5):615-630 2006.
14. E. Cohen and M. Strauss. "Maintaining Time-Decaying Stream Aggregates." *J. Algorithms*, 59(1):19-36, 2006.
15. Y. Azar, E. Cohen, A. Fiat, H. Kaplan, and H. Racke. "Optimal oblivious routing in polynomial time." *JCSS*, 69(3):383-394 2004 (Special issue of selected STOC 2003 papers).
16. E. Cohen, E. Halperin, and H. Kaplan. "Performance Aspects of Distributed Caches Using TTL-based Consistency." *Theoretical Computer Science*. (Special issue of selected ICALP 2001 papers.) 331(1):73-96, 2005.
17. D. Applegate and E. Cohen. "Making Intra-Domain Routing Robust to Changing and Uncertain Traffic Demands: Understanding Fundamental Tradeoffs." *Computer Communication Review*. 33(4), 2003.
18. E. Cohen and H. Kaplan. "Balanced-replication algorithms for distribution trees." *SIAM J. Comput.* 34(1):227-247, 2005.
19. E. Cohen, E. Halperin, H. Kaplan, and U. Zwick. "Reachability and distance queries via 2-hop labels." *SIAM J. Comput.* 32(5):1338-1355, 2003.
20. A. Bremler-Barr, E. Cohen, H. Kaplan and Y. Mansour. "Predicting and bypassing end-to-end Internet service degradations." *IEEE J. on Selected Areas in Communication* (JSAC special issue in Internet and WWW Measurement, Mapping, and Modeling). 21(6):961-978, 2003.
21. E. Cohen and H. Kaplan. "Proactive caching of DNS records: Addressing a performance bottleneck." *Computer Networks*. 41(6):707-726, 2003.
22. E. Cohen, H. Kaplan, and U. Zwick. "Connection caching: model and algorithms." *J. Comput. System Sci.* 67(1):92-126, 2003.
23. E. Cohen, H. Kaplan, and A. Fiat. "A Case for Associative Peer to Peer Overlays." *Computer Communication Review*. 33(1):95-100, 2003.
24. E. Cohen and S. Shenker. "Replication strategies in unstructured Peer-to-Peer networks." *Computer Communication Review*. 32(4):177-190, 2002.
25. A. Bremler-Barr, Y. Afek, E. Cohen, H. Kaplan, M. Merritt. "Restoration by Path Concatenation: Fast recovery of MPLS paths." *Distributed Computing*. (Special issue of selected PODC '01 papers) 15:273-283. 2002.
26. E. Cohen, H. Kaplan, and U. Zwick. "Competitive Analysis of the LRFU Paging Algorithm." *Algorithmica*. 33:511-516, 2002.
27. E. Cohen and H. Kaplan. "Exploiting Regularities in Web Traffic Patterns for Cache Replacement." *Algorithmica*. (dedicated issue on Internet Algorithmics), 33(3):300-334, 2002.
28. E. Cohen and H. Kaplan. "Prefetching the means for document transfer: a new approach for reducing Web latency." *Computer Networks*. 39(4): 437-455, 2002.
29. E. Cohen and H. Kaplan, "Caching documents with varying sizes and fetching costs: an LP-based approach." *Algorithmica*, 32(3):459-466, 2002.

30. E. Cohen and H. Kaplan, "Refreshment policies for Web content caches." *Computer Networks*, 38(6):795–808, 2002.
31. E. Cohen and H. Kaplan. "Aging through cascaded caches: performance issues in the distribution of Web content." *Computer Communication Review*. 31(4):41-54, 2001.
32. E. Cohen. M. Datar, S. Fujiware, A. Gionis, P. Indyk, R. Motwani, J. Ullman, and C. Yang, "Finding Interesting Associations without Support Pruning," *IEEE Transactions on Knowledge and Data Engineering* (special issue), 13:64-78 , 2001.
33. E. Cohen and U. Zwick. "All pairs small stretch paths." *J. Algorithms*, 38:335-353. 2001.
34. E. Cohen, "Polylog-time and near-linear work approximation scheme for undirected shortest-paths," *J. Assoc. Comput. Mach.*, 47:132-166, 2000.
35. E. Cohen, H. Kaplan, and J. D. Oldham, "Managing TCP Connections under Persistent HTTP," *Computer Networks*. 31:1709–1723, 1999.
36. E. Cohen, "Fast algorithms for t-spanners and stretch-t paths," *SIAM J. Comput.*, 28:210–236, 1999.
37. E. Cohen. "Structure prediction and computation of sparse matrix products." *J. Combinatorial Optimization*, 2:307-332, 1999.
38. E. Cohen and D.D. Lewis, "Approximating matrix multiplication for pattern recognition tasks," *J. Alg.* (special issue of selected papers from SODA'97), 30:211-252, 1999.
39. E. Cohen, B. Krishnamurthy, and J. Rexford, "Improving end-to-end performance of the Web using server volumes and proxy filters." *Computer Communication Review*, 28(4):241-253. 1998.
40. E. Cohen, "Size-estimation framework with applications to transitive closure and reachability," *J. Comput. System Sci.* (special issue of selected papers from STOC'94), 55:441–453, 1997.
41. E. Cohen, "Using selective path-doubling for parallel shortest-path computations," *J. Alg.*, 22:30–56, 1997.
42. E. Cohen, "Efficient parallel shortest-paths in digraphs with a separator decomposition," *J. of Algorithms*, 21:331–357, 1996.
43. E. Cohen, "Approximate max-flow on small depth networks," *SIAM J. Comput.*, 24:579–597, 1995.
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