

Exhibit A

Eli Upfal

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<http://www.cs.brown.edu/people/eli/>

Professional appointments:

1998 - present

Professor of Computer Science, Brown University.

2007 - 2008

Sabbatical at Dipartimento di Ingegneria dell'Informazione, Universita degli Studi di Padova.

2002 - 2007

Chair of the Computer Science Department, Brown University.

1996 - 1997

Manager, Foundations of Computer Science Group, IBM Research Division, Almaden Center.

1995 - 1997

Professor, The Weizmann Institute of Science (on leave from IBM).

1989 - 1995

Associate Professor, The Weizmann Institute of Science (on leave from IBM).

1985 - 1996

Research Staff Member, IBM Research Division, Almaden Center.

1984 - 1985

Post-Doctoral Research Fellow, Stanford University.

1983 - 1984

Research Fellow, University of California, Berkeley.

Education:

July, 1983

Ph.D. in Computer Science. The Hebrew University, Jerusalem, Israel. Dissertation Topic - "Distributed Probabilistic Algorithms for Problems in Graph Theory, Communication, Synchronization, and Scheduling".

September, 1980

M.Sc. in Computer Science. The Feinberg Graduate School of the Weizmann Institute of Science, Rehovot, Israel.

June, 1978

B.Sc. Cum Laude, in Mathematics and Statistics. The Hebrew University, Jerusalem, Israel.

Editorial boards:

- Journal of Discrete Algorithms (Editor in Chief) (2003 -).
- Journal of the ACM (2007 -).
- SIAM J. on Computing (2001-2004).
- SIAM J. on Discrete Algorithms (1999-2003).
- Web Intelligence and Agent Systems (2002-2004).
- Journal on Interconnection Networks (2000 -).
- Computational Complexity (1990-2004).
- Random Structures & Algorithms (2002 -).
- IEEE Transactions on Parallel and Distributed Computing (1998-2000).

Post-Doctorate and Graduate students at Brown University (1998 – present):

- Post-Doctorate students:
 - Fabio Vandin (2009-present)
 - Milos Hauskrecht (1998-2000)
 - Irit Katriel (2007-2008)
 - Alex Slivkin (2007 - 2008)
- Ph.D. Students:
 - Gopal Pandurangan (1998 - 2002)
 - Aris Anagnostopoulos (2000 - 2006)
 - Matteo Riondato (2009 -)
- M.Sc. Students:
 - Harsh Kumar (1999 - 2001)
 - Jasminka Hasic (1999 - 2001)
 - Adi Ganz (2001 -2002)
 - William Sheffler (2002-2004)

Honors:

- ACM Fellow, 2005.
- IBM Faculty Award 2003, 2005.
- IEEE Fellow, 2002.
- IBM Research Division Award, 1997.
- The Levinson Prize in Mathematical Sciences, 1994.
- IBM Outstanding Innovation Award, 1993
- The Norman D. Cohen Professorial Chair of Computer Science at the Weizmann Institute, 1992 – 1997.
- Revson Career Development Award, 1988-1990.
- Bat-Sheva Fellow - Bat-Sheva de Rothschild Award for Young Outstanding Researchers, 1988.
- The Swig-Weiler Career Development Chair, 1987.
- IBM Outstanding Innovation Award, 1986.
- Weizmann Post-Doctoral Fellowship, 1983 – 1985.
- G. Y. Yashinsky memorial fund award for an outstanding Ph.D. thesis, 1982.

Funding at Brown University (1998 – present):

- NSF-CCR-9731477: Design and Analysis of Dynamic Processes: A Stochastic Approach, 7/98-6/02.
- Goldman, Sachs & Co.: Computation Problems in Valuation and Management of Inventory, 9/98-9/00.
- NSF-DBI-9983081: Applying Universal Bases to Achieving the Full Potential of SBH, 7/99-6/02.
- DARPA/Air Force F30602-00-2-0599: Stochastic Models for Web Agents and the Web Environment, 7/00 - 9/02.
- NSF-CCR-0121154: ITR/SY Algorithmic Issues in Large Scale Dynamic Networks, 9/01-9/06.
- NSF-DMI-0121495: ITR/SY Stochastic Combinatorial Optimization, 9/01-8/05.
- NSF-IIS 0325838: ITR Collaborative Proposal: Aurora - Enabling Stream-Based Monitoring Applications, 10/03-10/07.
- NSF DMI-0600384: “*Online Stochastic Combinatorial Optimization*”, 7/06-7/09.

- ONR DEPSCOR Award N000140610607, “*Adaptive and Robust Resource Allocation and Scheduling*”, 7/06-7/09.
- Yahoo! Research Alliance Gift - 2006, 2008.
- NSF IIS-0905553: ”III: Medium: Longview: Querying the Future Now”, 8/09-7/12
- NSF IIS-1016648 ”III Small: Algorithmic Approaches for Pathway and Gene Group Analysis in Genetic Studies”, 8/10-7/13
- NSF IIS 1247581- BIGDATA: Mid-Scale: DA: Analytical Approaches to Massive Data Computation, 9/12 - 9/16.

Consulting and Business Collaborations:

Consulting and research collaborations with a number of companies including IBM, Goldman Sachs, Yahoo!, eHarmony and more.

Currently:

- Consultant and member of the Scientific Advisory Board – Nabsys Inc.
- Consultant – Huawei Technologies Co., Ltd.
- Occasionally I do legal technical consulting, such as prior art searches and providing expert opinion.

List of Publications

1 Book:

- A1. M. Mitzenmacher and E. Upfal. *Probability and Computing: Randomized Algorithms and Probabilistic Analysis*. Cambridge University Press, 2005. Translations: Chinese - 2007, Japanese, Polish - 2009.

2 Papers in Journals

- B1. F. Vandin, E. Upfal and B. Raphael. Algorithms for Detecting Significantly Mutated Pathways in Cancer. *Journal of Computational Biology*. March 2011, 18(3): 507-522.
- B2. A. Anagnostopoulos, R. Kumar, M. Mahdian, E. Upfal: Sorting and selection on dynamic data. *Theor. Comput. Sci.* 412(24): 2564-2576 (2011)
- B3. Roberto Grossi, Andrea Pietracaprina, Nadia Pisanti, Geppino Pucci, Eli Upfal, and Fabio Vandin. MADMX: A Strategy for Maximal Dense Motif Extraction. *Journal of Computational Biology*. April 2011, 18(4): 535-545
- B4. A. Pietracaprina, M. Riondato, E. Upfal and F. Vandin: Mining top-K frequent itemsets through progressive sampling. *Data Min. Knowl. Discov.* 21(2): 310-326 (2010)
- B5. M. Akdere, U. Cetintemel and E. Upfal: Database-support for Continuous Prediction Queries over Streaming Data. *PVLDB* 3(1): 1291-1301 (2010)
- B6. A.Z. Broder, A. Kirsch, R. Kumar, M. Mitzenmacher, E. Upfal and S. Vassilvitskii. "The Hiring Problem and Lake Wobegon Strategies." *SIAM Journal on Computing*, 39(4): 1233-1255, 2009.
- B7. I. Katriel, C. Kenyon-Mathieu and E. Upfal. "Commitment under uncertainty: Two-stage stochastic matching problems". *Theor. Comput. Sci.* 408(2-3): 213-223, 2008.
- B8. G. Pandurangan and E. Upfal. "Entropy-Based Bounds for Online Algorithms" *ACM Transactions on Algorithms*, Vol. 3:1, 2007.
- B9. G. Pandurangan, P. Raghavan, and E. Upfal. "Using PageRank to Characterize Web Structure", *Internet Mathematics*, Vol. 3:1 2006, pp. 120.
- B10. A. Anagnostopoulos, I. Kontoyiannis and E. Upfal. Steady state analysis of balanced-allocation routing. *Random Structures & Algorithms*, Volume 26, 2005, pp. 446-467.
- B11. A. Anagnostopoulos, A. Kirsch and E. Upfal. Stability and Efficiency of a Random Local Load Balancing Protocol. *SIAM Journal on Computing*, Vol. 34, 2005, pp. 616-639.
- B12. A. Anagnostopoulos, R. Bent, E. Upfal and P. van Hentenryck. A simple and deterministic competitive algorithm for online facility locations. *Information and Computation*, Vol. 194, 2004, pp. 175-202.

- B13. A. Flaxman, Alan Frieze and E. Upfal. “Efficient Communication in an Ad-hoc Network”. *Journal of Algorithms*, Vol. 52, pp. 1-7, 2004.
- B14. F. Preparata, S.A. Heath and E. Upfal. “Sequence Construction from nucleic-acid microarray data”. in *Analytical Techniques in DNA Sequencing*, eds. B. Nunnally. Marcel Dekker Inc, 2004.
- B15. C. McDiarmid, M. Luzak and E. Upfal. “On-line routing of random calls”. *Probability Theory and Related Fields*, Vol. 125, 2003, pp. 457–482.
- B16. G. Pandurangan, P. Raghavan and E. Upfal. “Building Low-Diameter Peer-to-Peer Networks”. *IEEE Journal on Selected Areas in Communication*, Vol. 21, 995–1002, 2003.
- B17. N. Shavit, E. Upfal and A. Zemach. A Wait-Free Sorting Algorithm. *Theory of Computer Systems*, Vol. 34, 2001, pp. 519-544.
- B18. A.Z. Broder, A.M. Frieze, and E. Upfal. “A general approach to dynamic packet routing with bounded buffers.” *J. of the ACM*, Vol. 48, 2001, pp. 324–349.
- B19. M. Hauskrecht, L. Ortiz, I. Tsochantaridis, and E. Upfal. “Efficient Methods for Computing Investment Strategies for Multi-Market Commodity Trading.” *Applied Artificial Intelligence*, Vol. 15, 2001, pp. 429–452.
- B20. Y. Azar, A. Broder, A. Karlin, and E. Upfal. “Balanced allocations”. *SIAM J. on Computing*, Vol. 29, 2000, pp. 180–200.
- B21. F. P. Preparata and E. Upfal. “Sequencing-by-hybridization at the information-theory bound: an optimal algorithm”. *Journal of Computational Biology*, Vol. 7, 2000, pp. 621–630.
- B22. G. Pandurangan and E. Upfal. Static and Dynamic Evaluation of QoS Properties. *Journal of Interconnection Networks*, Vol. 1, 2000, pp. 135–150.
- B23. A.Z. Broder, A.M. Frieze, and E. Upfal. “Static and dynamic path selection on expander graphs: a random walk approach”. *Random Structure & Algorithms*, Vol. 14, 1999, pp. 87–109.
- B24. A.M. Frieze, F.P. Preparata, E. Upfal. “Optimal reconstruction of a sequence from its probes”. *Journal of Computational Biology*, Vol. 6, 1999, pp. 361-368.
- B25. A.L. N. Reddy and E. Upfal. “Real-Time Communication Scheduling in a Multicomputer Video Server”. *Journal of Parallel and Distributed Computing*, Vol. 58, 1999, pp. 425–445.
- B26. P. Raghavan and E. Upfal. “Stochastic contention resolution with short delays”. *SIAM J. on Computing*, Vol. 28, 1998, pp. 709–719.
- B27. A.Z. Broder, A.M. Frieze, S. Suen, and E. Upfal. “Optimal construction of edge-disjoint paths in random graphs.” *SIAM J. on Computing*, Vol. 28, 1998, pp. 541–573.
- B28. N. Shavit, E. Upfal, and A. Zemach. “A steady state analysis of diffracting trees”. Special issue of *Theory of Computing Systems*, Vol 31, 1998, pp. 403-423.
- B29. A. Pelc and E. Upfal. “Reliable fault diagnosis with few tests”. *Combinatorics, Probability and Computing*, Vol. 7, 1998, pp. 323–333.

- B30. A. Borodin, P. Raghavan, B. Schieber, and E. Upfal. “How much can hardware help routing?” *J. of the ACM*, Vol. 44, 1997, pp. 726–741.
- B31. J. Bruck, C.-T. Ho, S. Kipnis, E. Upfal, and D. Weathersby. “Efficient algorithms for all-to-all communication in multiport message-passing systems”. *IEEE Trans. on Parallel and Distributed Computing*, Vol. 8, 1997, pp 1143–1156.
- B32. E. Upfal, S. Felperin, and M. Snir. “Randomized routing with shorter paths”. *IEEE Transactions on Parallel and Distributed Computing*, Vol. 7, 1996, pp. 356–362.
- B33. S. Felperin, P. Raghavan, and E. Upfal, “A theory of wormhole routing in parallel computers”. *IEEE Transactions on Computing*, Vol. 45, 1996, pp. 704–713.
- B34. Andrei Z. Broder, Martin E. Dyer, Alan M. Frieze, Prabhakar Raghavan, and Eli Upfal. “The worst-case running time of the random simplex algorithm is exponential in the height”. *Information Processing Letters*, Vol. 56, 1995, pp. 79–81.
- B35. A. Broder, A. Karlin, P. Raghavan and E. Upfal, “Trading space for time in undirected $s - t$ connectivity”. *SIAM J. on Computing*, Vol. 23, 1994, pp. 324–334.
- B36. A. Broder, A. Frieze, E. Shamir, and E. Upfal, “Near-perfect token distribution”. *Random Structure & Algorithms*, Vol. 5, 1994, pp. 559–572.
- B37. U. Feige, D. Peleg, P. Raghavan and E. Upfal, “Computing with noisy information”. *SIAM J. on Computing*, Vol. 23, 1994, pp. 1001–1018.
- B38. A. Broder, A. Frieze, and E. Upfal, “The existence and construction of edge disjoint paths on expander graphs”. *SIAM J. on Computing*, Vol. 23, 1994, pp. 976–989.
- B39. E. Upfal, “Tolerating linear number of faults in networks of bounded degree”. *Journal of Information and Computation*, Vol. 114, 1994, pp. 312–320.
- B40. E. Upfal, “An $O(\log N)$ deterministic packet routing algorithm”. *J. of the ACM*, Vol. 39, 1992, pp. 55-70.
- B41. S. Assaf and E. Upfal, “Fault tolerant sorting network”. *SIAM J. on Discrete Mathematics*, Vol. 4, 1991, pp. 472-480.
- B42. P. Peleg and E. Upfal, “A time-randomness tradeoff for oblivious routing”. *SIAM J. on Computing*, Vol. 19, 1990, pp. 256-266.
- B43. U. Feige, D. Peleg, P. Raghavan, and E. Upfal, “Randomized broadcast in networks”. *Random Structures & Algorithms*, Vol. 1, 1990, pp. 447-460.
- B44. D. Peleg and E. Upfal, “Constructing disjoint paths on expander graphs”. *Combinatorica*, Vol. 9, 1989, pp. 289-313.
- B45. D. Peleg and E. Upfal, “The token distribution problem”. *SIAM J. on Computing*, Vol. 18, 1989, pp. 229-243.
- B46. D. Peleg and E. Upfal, “A tradeoff between space and efficiency for routing tables”. *J. the of ACM*, Vol. 36, 1989, pp. 510-530.

- B47. R.M. Karp, E. Upfal and A. Wigderson, “The complexity of parallel search”. In Special Issue of *J. of Computer and System Sciences*, Vol. 36, 1988, pp. 225-253.
- B48. C. Dwork, D. Peleg, N. Pippenger and E. Upfal, “Fault tolerance in network of bounded degree”. *SIAM J. on Computing*, Vol. 17, 1988, pp. 975-988.
- B49. A. Borodin, F. Fich, F. Meyer auf der Heide, E. Upfal and A. Wigderson, “A tradeoff between search and update time for the implicit dictionary problem”. *Theoretical Computer Science*, Vol. 58, 1988, pp. 57-68.
- B50. A. Karlin and E. Upfal, “Parallel Hashing - an efficient implementation of shared memory”. *J. of the ACM*, Vol 35, 1988, pp. 876-892.
- B51. A. Borodin, F. Fich, F. Meyer auf der Heide, E. Upfal and A. Wigderson, “Time space tradeoff for element distinctness”. *SIAM J. on Computing*, Vol. 16, 1987, pp. 97-99.
- B52. E. Upfal and A. Wigderson, “How to share memory in a distributed system”. *J. of the ACM*, Vol. 34, 1987, pp. 116-127.
- B53. E. Shamir and E. Upfal, “A probabilistic approach to the load-sharing problem”. *Journal of Parallel and Distributed Computing*, Vol. 4, 1987, pp. 521-530.
- B54. D. Peleg and E. Upfal, “The generalized packet routing problem”. *Theoretical Computer Science*, Vol. 53, 1987, pp. 281-293.
- B55. D. Dolev, E. Upfal and M. Warmuth, “The parallel complexity of scheduling with precedence constraints”. *Journal of Parallel and Distributed Computing*, Vol. 3, 1986, pp. 553-576.
- B56. R.M. Karp, E. Upfal and A. Wigderson, “Constructing a perfect matching is in Random NC”. *Combinatorica*, Vol. 6, 1986, pp. 35-48.
- B57. J. Schmidt-Pruzan, E. Shamir and E. Upfal, “Random hypergraph coloring algorithms and the weak chromatic number”. *Journal of Graph Theory*, Vol. 8. 1985, pp. 347-362.
- B58. E. Shamir and E. Upfal, “A fast parallel construction of disjoint paths in networks”. In *Topics in the Theory of Computing*, M. Karpinski and J. van Leeuwen ed. *Annals of Discrete Mathematics*, Vol 24, 1985, pp. 141-154.
- B59. E. Upfal, “Efficient schemes for parallel communication”. *J. of the ACM*, Vol. 31, 1984, pp. 507-517.
- B60. E. Shamir and E. Upfal, “Large regular factors in random graphs”. *Annals of Discrete Math*, Vol. 20, 1984, pp. 271-282.
- B61. E. Shamir and E. Upfal, “Sequential and distributed graph coloring algorithms with performance analyses in random graphs spaces”. *Journal of Algorithms*, Vol. 5, 1982, pp. 488-501.
- B62. E. Upfal, “Formal correctness proofs of a nondeterministic program”. *Information Processing Letters*, Vol. 14, 1982, pp. 86-92.
- B63. E. Shamir and E. Upfal, “One-factor in random graphs based on vertex choice”. *Discrete Math*. Vol. 41, 1982, pp. 281-286.
- B64. E. Shamir and E. Upfal, “One factor in random graphs”. *Israel Journal of Math*. Vol. 39, 1981, pp. 296-302.

3 Papers in Refereed Conferences:

- C1. M. Akdere, U. Cetintemel, M. Riondato, E. Upfal, S. B. Zdonik: The Case for Predictive Database Systems: Opportunities and Challenges. *CIDR 2011*: 167-174
- C2. M. Riondato, M. Akdere, U. Cetintemel, S. B. Zdonik, E. Upfal: The VC-Dimension of SQL Queries and Selectivity Estimation through Sampling. *ECML/PKDD (2) 2011*: 661-676
- C3. A. Pettarin, A. Pietracaprina, G. Pucci, E. Upfal: Tight bounds on information dissemination in sparse mobile networks. *PODC 2011*: 355-362
- C4. F. Vandin, E. Upfal, B. J. Raphael: De Novo Discovery of Mutated Driver Pathways in Cancer. *RECOMB 2011*: 499-500
- C5. J. Duggan, U. Cetintemel, O. Papaemmanouil, E. Upfal: Performance prediction for concurrent database workloads. *SIGMOD Conference 2011*: 337-348
- C6. F. Vandin, E. Upfal, B. J. Raphael: Finding Driver Pathways in Cancer: Models and Algorithms. *WABI 2011*: 314-325
- C7. A. Anagnostopoulos, C. Dombry, N. Guillotin-Plantard, I. Kontoyiannis, and E. Upfal. Stochastic Analysis of the k-Server Problem on the Circle. *Proc. 21st International Meeting on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA 2010)*, Vienna, Austria, June-July 2010.
- C8. M. Akdere, U. Cetintemel and E. Upfal: Database-support for Continuous Prediction Queries over Streaming Data. *VLDB 3(1)*: 1291-1301 (2010)
- C9. F. Vandin, E. Upfal and B. Raphael. Algorithms for Detecting Significantly Mutated Pathways in Cancer. *RECOMB 2010*, 506-521.
- C10. A. Anagnostopoulos, R. Kumar, M. Mahdian and E. Upfal. "Sort Me If You Can: How to Sort Dynamic Data". *36th International Colloquium on Automata, Languages and Programming (ICALP'09) (2)* 2009: 339-350, 2009.
- C11. A. Kirsch, M. Mitzenmacher, A. Pietracaprina, G. Pucci, E. Upfal, F. Vandin. "An efficient rigorous approach for identifying statistically significant frequent itemsets". *ACM PODS'09*, 117-126, 2009.
- C12. R. Grossi, A. Pietracaprina, N. Pisanti, G. Pucci, E. Upfal, F. Vandin. "MADMX: A Novel Strategy for Maximal Dense Motif Extraction". *9th Workshop on Algorithms in Bioinformatics (WABI'09)*: 362-374, 2009.
- C13. A. Slivkins and Eli Upfal. "Adapting to a Changing Environment: the Brownian Restless Bandits" *Proceedings of the 21st Annual Conference on Learning Theory (COLT)*, 2008, 343-354.
- C14. F. Radlinski, D. Chakrabarti, R. Kumar, E. Upfal. "Mortal Multi-Armed Bandits". *Proceedings of the 22nd Annual Conference on Neural Information Processing Systems (NIPS 2008)*.
- C15. R. Kleinberg, A. Slivkins and Eli Upfal. "Multi-armed bandits in metric spaces." *Proceedings of the 40th ACM Symposium on Theory of Computing (STOC 2008)*, pp. 681-690.

- C16. A. Z. Broder, A. Kirsch, R. Kumar, M. Mitzenmacher, E. Upfal and S. Vassilvitskii. "The hiring problem and Lake Wobegon strategies". *SODA '08: Proceedings of the nineteenth annual ACM-SIAM symposium on Discrete algorithms*, 2008, pp. 1184–1193.
- C17. I. Katriel, M. Sellmann, E. Upfal, and P. Van Hentenryck. "Propagating Knapsack Constraints in Sublinear Time. *Proceedings of the Twenty-Second Conference on Artificial Intelligence, (AAAI07)*, Vancouver, Canada.
- C18. I. Katriel, C. Kenyon and E. Upfal. "Commitment Under Uncertainty: Two-Stage Stochastic Matching Problems". *Proceedings of the 34th International Colloquium on Automata, Languages and Programming (ICALP)*, Wrocaw, Poland. July, 2007.
- C19. F. Chierichetti, A. Panconesi, P. Raghavan, M. Sozio, A. Tiberi and E. Upfal. "Finding Near Neighbors Through Cluster Pruning". *Proceedings of the 26th ACM SIGMOD-SIGACT-SIGART Symposium on Principles of Database Systems (PODS)*, Beijing, China. June 10-15, 2007.
- C20. Will Sheffler, Eli Upfal, John Sedivy and William Stafford Noble. "A learned comparative expression measure for Affymetrix GeneChip DNA microarrays." *Proceedings of the Computational Systems Bioinformatics Conference*, August 8-11, 2005, Stanford, CA. pp. 144-154.
- C21. A. Anagnostopoulos, A. Kirsch and Eli Upfal. "Stability and Efficiency of a Random Local Load Balancing Protocol." *28th Annual Symposium on Foundations of Computer Science (FOCS)*, Boston, MA, November 2003.
- C22. A. Anagnostopoulos, I. Kontoyiannis and E. Upfal. "The Advantage of Balanced-Allocation Routing for ATM Networks". *2003 IEEE International Symposium on Information Theory (ISIT-2003)*, Yokohama, Japan, June 2003.
- C23. G. Pandurangan, P. Raghavan, and E. Upfal. "Using PageRank to Characterize Web Structure", *Proceedings of the 8th Annual International Conference on Combinatorics and Computing (COCOON)*, Singapore, 2002, LNCS 2387, Springer-Verlag , pages 330-339.
- C24. Gopal Pandurangan, Prabhakar Raghavan and Eli Upfal. "Building Low-diameter P2P Networks". *42nd Annual Symposium on Foundations of Computer Science*, Las Vegas, Nevada, 2001, pp. 492–499.
- C25. M. Hauskrecht and E. Upfal. "A Clustering Approach to Solving Large Stochastic Planning Problems". *17th Conference on Uncertainty in Artificial Intelligence (UAI-2001)*, August 2001.
- C26. G. Pandurangan and E. Upfal. "Can Entropy Characterize Performance of Online Algorithms?" *12th ACM-SIAM Symposium on Discrete Algorithms*, January 2001.
- C27. R. Kumar, P. Raghavan, S. Rajagopalan, D. Sivakumar, A. Tomkins, and Eli Upfal. "Stochastic models for the Web graph." *Proceedings of the 41st IEEE Symp. on Foundations of Computer Science*. November 2000, pp. 57–65.
- C28. F.P. Preparata and E. Upfal. "Sequencing-by-hybridization at the information-theory bound: an optimal algorithm." *Fourth Annual International Conference on Computational Molecular Biology*. April 2000.

- C29. M. Hauskrecht, L. Ortiz, I. Tsochantaridis, and E. Upfal. “Computing Global Strategies for Multi-Market Commodity Trading.” *The Fifth International Conference on Artificial Intelligence Planning & Scheduling (AIPS2000)*, April 2000, pp. 159–166.
- C30. G. Pandurangan and E. Upfal. Static and Dynamic Evaluation of QoS Properties. *Proceedings of the 31st ACM Symp. on Theory of Computing*. 1999, Atlanta, Georgia, pp. 566–573.
- C31. M. L. Luczak and E. Upfal. “Reducing Network Congestion and Blocking Probability Through Balanced Allocation”. *Proceedings of the 40th IEEE Symp. on Foundations of Computer Science*. 1999, New York, NY, pp. 587-595.
- C32. M. Hauskrecht, G. Pandurangan, and E. Upfal. Computing Near Optimal Strategies for Stochastic Investment Planning Problems. *Proceedings of the 16th International Joint Conference on Artificial Intelligence*, pp. 1310–1315, July 1999.
- C33. F.P. Preparata, A.M. Frieze, E. Upfal. On the Power of Universal Bases in Sequencing by Hybridization. *Third Annual International Conference on Computational Molecular Biology*. April 11 - 14, 1999, Lyon, France, pp. 295–301.
- C34. R. Cole, A. Frieze, B.M. Maggs, M. Mitzenmacher, A. W. Richa, R.K. Sitaraman, Eli Upfal. On Balls and Bins with Deletions. *Randomization and Approximation Techniques in Computer Science, 2nd Intl. Workshop, Random 98*, Barcelona, Spain, 1998. In LNCS 1518, pp. 145-158
- C35. A. Broder, A. Frieze, and E. Upfal. “Dynamic packet routing on arrays with bounded buffers”. *Third Latin American Symposium on Theoretical Informatics - LATIN '98* Campinas, Brazil. April 1998. In *Springer-Verlag Lecture Notes in Computer Science 1380*, pp 273–281, 1998.
- C36. A.Z. Broder, A.M. Frieze, and E. Upfal. “Static and dynamic path selection on expander graphs: a random walk approach”. *Proceedings of the 29th ACM Symp. on Theory of Computing*. El Paso, 1997, pp. 531–539.
- C37. N. Shavit, E. Upfal, and A. Zernich. “A Wait-Free Sorting Algorithm”. *SIGACT - SIGOPS Symp. on Principles of Distributed Computing*. Santa Barbara, 1997, pp. 121–128.
- C38. A.Z. Broder and E. Upfal. “Dynamic deflection routing on arrays.” *Proceedings of the 28th ACM Symp. on Theory of Computing*. Philadelphia, 1996, pp. 348–355.
- C39. A.Z. Broder, A.M. Frieze, S. Suen, and E. Upfal. “An Efficient Algorithm for the Vertex-Disjoint Paths Problem in Random Graphs.” *Proceedings of the 7th Annual ACM-SIAM Symposium on Discrete Algorithms*. Atlanta, 1996, pp 261–268.
- C40. N. Shavit, E. Upfal, and A. Zernich. “A steady state analysis of diffraction trees” *Proceedings of the Eighth Annual ACM Symp. on Parallel Algorithms and Architectures*. Padua, 1996, pp. 33–41.
- C41. A.Z. Broder, A.M. Frieze, and E. Upfal. “A general approach to dynamic packet routing with bounded buffers.” *Proceedings of the 37th IEEE Symp. on Foundations of Computer Science*. Burlington, 1996, pp. 390–399.

- C42. S. Preminger and E. Upfal. “Safe and efficient traffic laws for mobile robots”. *Scandinavian Workshop on Algorithm Theory*, Reykjavik, July 1996. In *Springer-Verlag Lecture Notes in Computer Science 1097*, pp 357–367, 1996.
- C43. P. Raghavan and E. Upfal. “Stochastic contention resolution with short delays”. *Proceedings of the 27th ACM Symp. on Theory of Computing*. Las-Vegas, 1995, pp. 229–237.
- C44. P. Raghavan and E. Upfal. “Efficient routing in all-optical networks”. *Proceedings of the 26th ACM Symp. on Theory of Computing*. Montreal, 1994, pp. 134–143.
- C45. Y. Azar, A. Broder, A. Karlin, and E. Upfal. “Balanced Allocations”. *Proceedings of the 26th ACM Symp. on Theory of Computing*. Montreal, 1994, pp. 593–602.
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4 Invited Papers:

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- D2. S.R. Kumar, P. Raghavan, S. Rajagopalan, D. Sivakumar, A. Tomkins, E. Upfal. The Web as a graph. *Proceedings of the 19th ACM Symposium on Principles of Database Systems*, pp. 1-10, 2000.
- D3. E. Upfal. "Design and Analysis of Dynamic Processes: A Stochastic Approach. *Algorithm - 6th Annual European Symposium*, Venice, Italy, August 1998, pp. 26-34.
- D4. E. Upfal. "Stochastic Analysis of Dynamic Processes". *11th International Symposium on Fundamentals of Computation Theory*, Krakow, Poland, September 1997, pp 85-92.
- D5. E. Upfal. "On the theory of interconnection networks for parallel computers". *21st International Colloquium on Automata, Languages and Programming*. In *Lecture Notes in Computer Science*, Springer-Verlag, July 1994, pp. 473-486.
- D6. S. Felperin, P. Raghavan, and E. Upfal. "An Experimental Study of Wormhole Routing in Parallel Computers." *Parallel Architectures and Their Efficient Use - First Heinz Nixdorf Symposium*, Paderborn, Germany, 1992, pp. 156-165.

5 Patents:

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- E2. J. Oliver, F.P. Preparata and E. Upfal. “Systems and methods for sequencing by hybridization III” U.S. patent 7,071,324, July 4, 2006.
- E3. F.P. Preparata and E. Upfal. “Systems and Methods for Sequencing by Hybridization II”. U.S. patent 7,034,143, April 24, 2006.
- E4. J. Palmer, R. Strong, and E. Upfal. “Method and Apparatus for Accessing Shared Resources with Asymmetric Safety in Multiprocessing System”. U.S. Patent 6,748,438, June 8, 2004.
- E5. F.P. Preparata and E. Upfal. “Systems and Methods for Sequencing by Hybridization I”. U.S. patent 6,689,563, February 10, 2004.
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