Bibliography

[1] Milton Abramowitz and Irene A. Stegun, editors. *Handbook of Mathematical Functions*. Dover, 1965.

[2] G. M. Adel'son-Vel'skiĭ and E. M. Landis. An algorithm for the organization of information. *Soviet Mathematics Doklady*, 3(5):1259–1263, 1962.

[3] Alok Aggarwal and Jeffrey Scott Vitter. The input/output complexity of sorting and related problems. *Communications of the ACM*, 31(9):1116–1127, 1988.

[4] Manindra Agrawal, Neeraj Kayal, and Nitin Saxena. PRIMES is in P. *Annals of Mathematics*, 160(2):781–793, 2004.

[5] Alfred V. Aho, John E. Hopcroft, and Jeffrey D. Ullman. *The Design and Analysis of Computer Algorithms*. Addison-Wesley, 1974.

[6] Alfred V. Aho, John E. Hopcroft, and Jeffrey D. Ullman. *Data Structures and Algorithms*. Addison-Wesley, 1983.

[7] Ravindra K. Ahuja, Thomas L. Magnanti, and James B. Orlin. *Network Flows: Theory, Algorithms, and Applications*. Prentice Hall, 1993.

[8] Ravindra K. Ahuja, Kurt Mehlhorn, James B. Orlin, and Robert E. Tarjan. Faster algorithms for the shortest path problem. *Journal of the ACM*, 37(2):213–223, 1990.

[9] Ravindra K. Ahuja and James B. Orlin. A fast and simple algorithm for the maximum flow problem. *Operations Research*, 37(5):748–759, 1989.

[10] Ravindra K. Ahuja, James B. Orlin, and Robert E. Tarjan. Improved time bounds for the maximum flow problem. *SIAM Journal on Computing*, 18(5):939–954, 1989.

[11] Miklós Ajtai, Nimrod Megiddo, and Orli Waarts. Improved algorithms and analysis for secretary problems and generalizations. *SIAM Journal on Discrete Mathematics*, 14(1):1–27, 2001.

[12] Selim G. Akl. *The Design and Analysis of Parallel Algorithms*. Prentice Hall, 1989.

[13] Mohamad Akra and Louay Bazzi. On the solution of linear recurrence equations. *Computational Optimization and Applications*, 10(2):195–210, 1998.

[14] Susanne Albers. Online algorithms: A survey. *Mathematical Programming*, 97(1-2):3–26, 2003.

[15] Noga Alon. Generating pseudo-random permutations and maximum flow algorithms. *Information Processing Letters*, 35:201–204, 1990.

[16] Arne Andersson. Balanced search trees made simple. In *Proceedings of the Third Workshop on Algorithms and Data Structures*, volume 709 of *Lecture Notes in Computer Science*, pages 60–71. Springer, 1993.

[17] Arne Andersson. Faster deterministic sorting and searching in linear space. In *Proceedings of the 37th Annual Symposium on Foundations of Computer Science*, pages 135–141, 1996.

[18] Arne Andersson, Torben Hagerup, Stefan Nilsson, and Rajeev Raman. Sorting in linear time? *Journal of Computer and System Sciences*, 57:74–93, 1998.

[19] Tom M. Apostol. *Calculus*, volume 1. Blaisdell Publishing Company, second edition, 1967.

[20] Nimar S. Arora, Robert D. Blumofe, and C. Greg Plaxton. Thread scheduling for multiprogrammed multiprocessors. *Theory of Computing Systems*, 34(2):115–144, 2001.

[21] Sanjeev Arora. *Probabilistic checking of proofs and the hardness of approximation problems*. PhD thesis, University of California, Berkeley, 1994.

[22] Sanjeev Arora. The approximability of NP-hard problems. In *Proceedings of the 30th Annual ACM Symposium on Theory of Computing*, pages 337–348, 1998.

[23] Sanjeev Arora. Polynomial time approximation schemes for euclidean traveling salesman and other geometric problems. *Journal of the ACM*, 45(5):753–782, 1998.

[24] Sanjeev Arora and Boaz Barak. *Computational Complexity: A Modern Approach*. Cambridge University Press, 2009.

[25] Sanjeev Arora, Elad Hazan, and Satyen Kale. The multiplicative weights update method: A meta-algorithm and applications. *Theory of Computing*, 8(1):121–164, 2012.

[26] Sanjeev Arora and Carsten Lund. Hardness of approximations. In Dorit S. Hochbaum, editor, *Approximation Algorithms for NP-Hard Problems*, pages 399–446. PWS Publishing Company, 1997.

[27] Mikhail J. Atallah and Marina Blanton, editors. *Algorithms and Theory of Computation Handbook*, volume 1. Chapman & Hall/CRC Press, second edition, 2009.

[28] Mikhail J. Atallah and Marina Blanton, editors. *Algorithms and Theory of Computation Handbook*, volume 2. Chapman & Hall/CRC Press, second edition, 2009.

[29] G. Ausiello, P. Crescenzi, G. Gambosi, V. Kann, A. Marchetti-Spaccamela, and M. Protasi. *Complexity and Approximation: Combinatorial Optimization Problems and Their Approximability Properties*. Springer, 1999.

[30] Shai Avidan and Ariel Shamir. Seam carving for content-aware image resizing. *ACM Transactions on Graphics*, 26(3), article 10, 2007.

[31] László Babai, Eugene M. Luks, and Ákos Seress. Fast management of permutation groups I. *SIAM Journal on Computing*, 26(5):1310–1342, 1997.

[32] Eric Bach. Private communication, 1989.

[33] Eric Bach. Number-theoretic algorithms. In *Annual Review of Computer Science*, volume 4, pages 119–172. Annual Reviews, Inc., 1990.

[34] Eric Bach and Jeffrey Shallit. *Algorithmic Number Theory—Volume I: Efficient Algorithms*. The MIT Press, 1996.

[35] Nikhil Bansal and Anupam Gupta. Potential-function proofs for first-order methods. *CoRR*, abs/1712.04581, 2017.

[36] Hannah Bast, Daniel Delling, Andrew V. Goldberg, Matthias Müller-Hannemann, Thomas Pajor, Peter Sanders, Dorothea Wagner, and Renato F. Werneck. Route planning in transportation networks. In *Algorithm Engineering - Selected Results and Surveys*, volume 9220 of *Lecture Notes in Computer Science*, pages 19–80. Springer, 2016.

[37] Surender Baswana, Ramesh Hariharan, and Sandeep Sen. Improved decremental algorithms for maintaining transitive closure and all-pairs shortest paths. *Journal of Algorithms*, 62(2):74–92, 2007.

[38] R. Bayer. Symmetric binary B-trees: Data structure and maintenance algorithms. *Acta Informatica*, 1(4):290–306, 1972.

[39] R. Bayer and E. M. McCreight. Organization and maintenance of large ordered indexes. *Acta Informatica*, 1(3):173–189, 1972.

[40] Pierre Beauchemin, Gilles Brassard, Claude Crépeau, Claude Goutier, and Carl Pomerance. The generation of random numbers that are probably prime. *Journal of Cryptology*, 1(1):53–64, 1988.

[41] L. A. Belady. A study of replacement algorithms for a virtual-storage computer. *IBM Systems Journal*, 5(2):78–101, 1966.

[42] Mihir Bellare, Joe Kilian, and Phillip Rogaway. The security of cipher block chaining message authentication code. *Journal of Computer and System Sciences*, 61(3):362–399, 2000.

[43] Mihir Bellare and Phillip Rogaway. Random oracles are practical: A paradigm for designing efficient protocols. In *CCS '93, Proceedings of the 1st ACM Conference on Computer and Communications Security*, pages 62–73, 1993.

[44] Richard Bellman. *Dynamic Programming*. Princeton University Press, 1957.

[45] Richard Bellman. On a routing problem. *Quarterly of Applied Mathematics*, 16(1):87–90, 1958.

[46] Michael Ben-Or. Lower bounds for algebraic computation trees. In *Proceedings of the Fifteenth Annual ACM Symposium on Theory of Computing*, pages 80–86, 1983.

[47] Michael A. Bender, Erik D. Demaine, and Martin Farach-Colton. Cache-oblivious B-trees. *SIAM Journal on Computing*, 35(2):341–358, 2005.

[48] Samuel W. Bent and John W. John. Finding the median requires $2n$ comparisons. In *Proceedings of the Seventeenth Annual ACM Symposium on Theory of Computing*, pages 213–216, 1985.

[49] Jon L. Bentley. *Writing Efficient Programs*. Prentice Hall, 1982.

[50] Jon L. Bentley. *More Programming Pearls: Confessions of a Coder*. Addison-Wesley, 1988.

[51] Jon L. Bentley. *Programming Pearls*. Addison-Wesley, second edition, 1999.

[52] Jon L. Bentley, Dorothea Haken, and James B. Saxe. A general method for solving divide-and-conquer recurrences. *SIGACT News*, 12(3):36–44, 1980.

[53] Claude Berge. Two theorems in graph theory. *Proceedings of the National Academy of Sciences*, 43(9):842–844, 1957.

[54] Aditya Y. Bhargava. *Grokking Algorithms: An Illustrated Guide For Programmers and Other Curious People*. Manning Publications, 2016.

[55] Daniel Bienstock and Benjamin McClosky. Tightening simplex mixed-integer sets with guaranteed bounds. *Optimization Online*, 2008.

[56] Patrick Billingsley. *Probability and Measure*. John Wiley & Sons, second edition, 1986.

[57] Guy E. Blelloch. *Scan Primitives and Parallel Vector Models*. PhD thesis, Department of Electrical Engineering and Computer Science, MIT, 1989. Available as MIT Laboratory for Computer Science Technical Report MIT/LCS/TR-463.

[58] Guy E. Blelloch. Programming parallel algorithms. *Communications of the ACM*, 39(3):85–97, 1996.

[59] Guy E. Blelloch, Jeremy T. Fineman, Phillip B. Gibbons, and Julian Shun. Internally deterministic parallel algorithms can be fast. In *17th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, pages 181–192, 2012.

[60] Guy E. Blelloch, Jeremy T. Fineman, Yan Gu, and Yihan Sun. Optimal parallel algorithms in the binary-forking model. In *Proceedings of the 32nd Annual ACM Symposium on Parallelism in Algorithms and Architectures*, pages 89–102, 2020.

[61] Guy E. Blelloch, Phillip B. Gibbons, and Yossi Matias. Provably efficient scheduling for languages with fine-grained parallelism. *Journal of the ACM*, 46(2):281–321, 1999.

[62] Manuel Blum, Robert W. Floyd, Vaughan Pratt, Ronald L. Rivest, and Robert E. Tarjan. Time bounds for selection. *Journal of Computer and System Sciences*, 7(4):448–461, 1973.

[63] Robert D. Blumofe and Charles E. Leiserson. Scheduling multithreaded computations by work stealing. *Journal of the ACM*, 46(5):720–748, 1999.

[64] Robert L Bocchino, Jr., Vikram S. Adve, Sarita V. Adve, and Marc Snir. Parallel programming must be deterministic by default. In *Proceedings of the First USENIX Conference on Hot Topics in Parallelism (HotPar)*, 2009.

[65] Béla Bollobás. *Random Graphs*. Academic Press, 1985.

[66] Leonardo Bonacci. *Liber Abaci*, 1202.

[67] J. A. Bondy and U. S. R. Murty. *Graph Theory with Applications*. American Elsevier, 1976.

[68] A. Borodin and R. El-Yaniv. *Online Computation and Competitive Analysis*. Cambridge University Press, 1998.

[69] Stephen P. Boyd and Lieven Vandenberghe. *Convex Optimization*. Cambridge University Press, 2004.

[70] Gilles Brassard and Paul Bratley. *Fundamentals of Algorithmics*. Prentice Hall, 1996.

[71] Richard P. Brent. The parallel evaluation of general arithmetic expressions. *Journal of the ACM*, 21(2):201–206, 1974.

[72] Gerth Stølting Brodal. A survey on priority queues. In Andrej Brodnik, Alejandro López-Ortiz, Venkatesh Raman, and Alfredo Viola, editors, *Space-Efficient Data Structures, Streams, and Algorithms: Papers in Honor of J. Ian Munro on the Occasion of His 66th Birthday*, volume 8066 of *Lecture Notes in Computer Science*, pages 150–163. Springer, 2013.

[73] Gerth Stølting Brodal, George Lagogiannis, and Robert E. Tarjan. Strict Fibonacci heaps. In *Proceedings of the 44th Annual ACM Symposium on Theory of Computing*, pages 1177–1184, 2012.

[74] George W. Brown. Some notes on computation of games solutions. *RAND Corporation Report*, P-78, 1949.

[75] Sébastien Bubeck. Convex optimization: Algorithms and complexity. *Foundations and Trends in Machine Learning*, 8(3-4):231–357, 2015.

[76] Niv Buchbinder and Joseph Naor. The design of competitive online algorithms via a primal-dual approach. *Foundations and Trends in Theoretical Computer Science*, 3(2–3):93–263, 2009.

[77] J. P. Buhler, H. W. Lenstra, Jr., and Carl Pomerance. Factoring integers with the number field sieve. In A. K. Lenstra and H. W. Lenstra, Jr., editors, *The Development of the Number Field Sieve*, volume 1554 of *Lecture Notes in Mathematics*, pages 50–94. Springer, 1993.

[78] M. Burrows and D. J. Wheeler. A block-sorting lossless data compression algorithm. SRC Research Report 124, Digital Equipment Corporation Systems Research Center, May 1994.

[79] Neville Campbell. Recurrences. Unpublished treatise available at https://nevillecampbell.com/Recurrences.pdf, 2020.

[80] J. Lawrence Carter and Mark N. Wegman. Universal classes of hash functions. *Journal of Computer and System Sciences*, 18(2):143–154, 1979.

[81] Barbara Chapman, Gabriele Jost, and Ruud van der Pas. *Using OpenMP: Portable Shared Memory Parallel Programming*. The MIT Press, 2007.

[82] Philippe Charles, Christian Grothoff, Vijay Saraswat, Christopher Donawa, Allan Kielstra, Kemal Ebcioglu, Christoph Von Praun, and Vivek Sarkar. X10: An object-oriented approach to non-uniform cluster computing. In *ACM SIGPLAN Conference on Object-oriented Programming, Systems, Languages, and Applications (OOPSLA)*, pages 519–538, 2005.

[83] Bernard Chazelle. A minimum spanning tree algorithm with inverse-Ackermann type complexity. *Journal of the ACM*, 47(6):1028–1047, 2000.

[84] Ke Chen and Adrian Dumitrescu. Selection algorithms with small groups. *International Journal of Foundations of Computer Science*, 31(3):355–369, 2020.

[85] Guang-Ien Cheng, Mingdong Feng, Charles E. Leiserson, Keith H. Randall, and Andrew F. Stark. Detecting data races in Cilk programs that use locks. In *Proceedings of the 10th Annual ACM Symposium on Parallel Algorithms and Architectures*, pages 298–309, 1998.

[86] Joseph Cheriyan and Torben Hagerup. A randomized maximum-flow algorithm. *SIAM Journal on Computing*, 24(2):203–226, 1995.

[87] Joseph Cheriyan and S. N. Maheshwari. Analysis of preflow push algorithms for maximum network flow. *SIAM Journal on Computing*, 18(6):1057–1086, 1989.

[88] Boris V. Cherkassky and Andrew V. Goldberg. On implementing the push-relabel method for the maximum flow problem. *Algorithmica*, 19(4):390–410, 1997.

[89] Boris V. Cherkassky, Andrew V. Goldberg, and Tomasz Radzik. Shortest paths algorithms: Theory and experimental evaluation. *Mathematical Programming*, 73(2):129–174, 1996.

[90] Boris V. Cherkassky, Andrew V. Goldberg, and Craig Silverstein. Buckets, heaps, lists and monotone priority queues. *SIAM Journal on Computing*, 28(4):1326–1346, 1999.

[91] H. Chernoff. A measure of asymptotic efficiency for tests of a hypothesis based on the sum of observations. *Annals of Mathematical Statistics*, 23(4):493–507, 1952.

[92] Brian Christian and Tom Griffiths. *Algorithms to Live By: The Computer Science of Human Decisions*. Picador, 2017.

[93] Kai Lai Chung. *Elementary Probability Theory with Stochastic Processes*. Springer, 1974.

[94] V. Chvátal. *Linear Programming*. W. H. Freeman and Company, 1983.

[95] V. Chvátal, D. A. Klarner, and D. E. Knuth. Selected combinatorial research problems. Technical Report STAN-CS-72-292, Computer Science Department, Stanford University, 1972.

[96] Alan Cobham. The intrinsic computational difficulty of functions. In *Proceedings of the 1964 Congress for Logic, Methodology, and the Philosophy of Science*, pages 24–30. North-Holland, 1964.

[97] H. Cohen and H. W. Lenstra, Jr. Primality testing and Jacobi sums. *Mathematics of Computation*, 42(165):297–330, 1984.

[98] Michael B. Cohen, Aleksander Madry, Piotr Sankowski, and Adrian Vladu. Negative-weight shortest paths and unit capacity minimum cost flow in $\widetilde{O}(m^{10/7} \log w)$ time (extended abstract). In *Proceedings of the 28th ACM-SIAM Symposium on Discrete Algorithms*, pages 752–771, 2017.

[99] Douglas Comer. The ubiquitous B-tree. *ACM Computing Surveys*, 11(2):121–137, 1979.

[100] Stephen Cook. The complexity of theorem proving procedures. In *Proceedings of the Third Annual ACM Symposium on Theory of Computing*, pages 151–158, 1971.

[101] James W. Cooley and John W. Tukey. An algorithm for the machine calculation of complex Fourier series. *Mathematics of Computation*, 19(90):297–301, 1965.

[102] Don Coppersmith. Modifications to the number field sieve. *Journal of Cryptology*, 6(3):169–180, 1993.

[103] Don Coppersmith and Shmuel Winograd. Matrix multiplication via arithmetic progression. *Journal of Symbolic Computation*, 9(3):251–280, 1990.

[104] Thomas H. Cormen. *Algorithms Unlocked*. The MIT Press, 2013.

[105] Thomas H. Cormen, Thomas Sundquist, and Leonard F. Wisniewski. Asymptotically tight bounds for performing BMMC permutations on parallel disk systems. *SIAM Journal on Computing*, 28(1):105–136, 1998.

[106] Don Dailey and Charles E. Leiserson. Using Cilk to write multiprocessor chess programs. In H. J. van den Herik and B. Monien, editors, *Advances in Computer Games*, volume 9, pages 25–52. University of Maastricht, Netherlands, 2001.

[107] Sanjoy Dasgupta, Christos Papadimitriou, and Umesh Vazirani. *Algorithms*. McGraw-Hill, 2008.

[108] Abraham de Moivre. De fractionibus algebraicis radicalitate immunibus ad fractiones simpliciores reducendis, deque summandis terminis quarundam serierum aequali intervallo a se distantibus. *Philosophical Transactions*, 32(373):162–168, 1722.

[109] Erik D. Demaine, Dion Harmon, John Iacono, and Mihai Pǎtraşcu. Dynamic optimality—almost. *SIAM Journal on Computing*, 37(1):240–251, 2007.

[110] Camil Demetrescu, David Eppstein, Zvi Galik, and Giuseppe F. Italiano. Dynamic graph algorithms. In Mikhail J. Attalah and Marina Blanton, editors, *Algorithms and Theory of Computation Handbook*, chapter 9, pages 9-1–9-28. Chapman & Hall/CRC, second edition, 2009.

[111] Camil Demetrescu and Giuseppe F. Italiano. Fully dynamic all pairs shortest paths with real edge weights. *Journal of Computer and System Sciences*, 72(5):813–837, 2006.

[112] Eric V. Denardo and Bennett L. Fox. Shortest-route methods: 1. Reaching, pruning, and buckets. *Operations Research*, 27(1):161–186, 1979.

[113] Martin Dietzfelbinger, Torben Hagerup, Jyrki Katajainen, and Martti Penttonen. A reliable randomized algorithm for the closest-pair problem. *Journal of Algorithms*, 25(1):19–51, 1997.

[114] Martin Dietzfelbinger, Anna Karlin, Kurt Mehlhorn, Friedhelm Meyer auf der Heide, Hans Rohnert, and Robert E. Tarjan. Dynamic perfect hashing: Upper and lower bounds. *SIAM Journal on Computing*, 23(4):738–761, 1994.

[115] Whitfield Diffie and Martin E. Hellman. New directions in cryptography. *IEEE Transactions on Information Theory*, IT-22(6):644–654, 1976.

[116] Edsger W. Dijkstra. A note on two problems in connexion with graphs. *Numerische Mathematik*, 1(1):269–271, 1959.

[117] Edsger W. Dijkstra. *A Discipline of Programming*. Prentice-Hall, 1976.

[118] Dimitar Dimitrov, Martin Vechev, and Vivek Sarkar. Race detection in two dimensions. *ACM Transactions on Parallel Computing*, 4(4):1–22, 2018.

[119] E. A. Dinic. Algorithm for solution of a problem of maximum flow in a network with power estimation. *Soviet Mathematics Doklady*, 11(5):1277–1280, 1970.

[120] Brandon Dixon, Monika Rauch, and Robert E. Tarjan. Verification and sensitivity analysis of minimum spanning trees in linear time. *SIAM Journal on Computing*, 21(6):1184–1192, 1992.

[121] John D. Dixon. Factorization and primality tests. *The American Mathematical Monthly*, 91(6):333–352, 1984.

[122] Dorit Dor, Johan Håstad, Staffan Ulfberg, and Uri Zwick. On lower bounds for selecting the median. *SIAM Journal on Discrete Mathematics*, 14(3):299–311, 2001.

[123] Dorit Dor and Uri Zwick. Selecting the median. *SIAM Journal on Computing*, 28(5):1722–1758, 1999.

[124] Dorit Dor and Uri Zwick. Median selection requires $(2 + \epsilon)n$ comparisons. *SIAM Journal on Discrete Mathematics*, 14(3):312–325, 2001.

[125] Alvin W. Drake. *Fundamentals of Applied Probability Theory*. McGraw-Hill, 1967.

[126] James R. Driscoll, Neil Sarnak, Daniel D. Sleator, and Robert E. Tarjan. Making data structures persistent. *Journal of Computer and System Sciences*, 38(1):86–124, 1989.

[127] Ran Duan, Seth Pettie, and Hsin-Hao Su. Scaling algorithms for weighted matching in general graphs. *ACM Transactions on Algorithms*, 14(1):8:1–8:35, 2018.

[128] Richard Durstenfeld. Algorithm 235 (RANDOM PERMUTATION). *Communications of the ACM*, 7(7):420, 1964.

[129] Derek L. Eager, John Zahorjan, and Edward D. Lazowska. Speedup versus efficiency in parallel systems. *IEEE Transactions on Computers*, 38(3):408–423, 1989.

[130] Jack Edmonds. Paths, trees, and flowers. *Canadian Journal of Mathematics*, 17:449–467, 1965.

[131] Jack Edmonds. Matroids and the greedy algorithm. *Mathematical Programming*, 1(1):127–136, 1971.

[132] Jack Edmonds and Richard M. Karp. Theoretical improvements in the algorithmic efficiency for network flow problems. *Journal of the ACM*, 19(2):248–264, 1972.

[133] Jeff Edmonds. *How To Think About Algorithms*. Cambridge University Press, 2008.

[134] Mourad Elloumi and Albert Y. Zomaya, editors. *Algorithms in Computational Molecular Biology: Techniques, Approaches and Applications*. John Wiley & Sons, 2011.

[135] Jeff Erickson. *Algorithms*. https://archive.org/details/Algorithms-Jeff-Erickson, 2019.

[136] Martin Erwig. *Once Upon an Algorithm: How Stories Explain Computing*. The MIT Press, 2017.

[137] Shimon Even. *Graph Algorithms*. Computer Science Press, 1979.

[138] Shimon Even and Yossi Shiloach. An on-line edge-deletion problem. *Journal of the ACM*, 28(1):1–4, 1981.

[139] William Feller. *An Introduction to Probability Theory and Its Applications*. John Wiley & Sons, third edition, 1968.

[140] Mingdong Feng and Charles E. Leiserson. Efficient detection of determinacy races in Cilk programs. In *Proceedings of the 9th Annual ACM Symposium on Parallel Algorithms and Architectures*, pages 1–11, 1997.

[141] Amos Fiat, Richard M. Karp, Michael Luby, Lyle A. McGeoch, Daniel Dominic Sleator, and Neal E. Young. Competitive paging algorithms. *Journal of Algorithms*, 12(4):685–699, 1991.

[142] Amos Fiat and Gerhard J. Woeginger, editors. *Online Algorithms, The State of the Art*, volume 1442 of *Lecture Notes in Computer Science*. Springer, 1998.

[143] Sir Ronald A. Fisher and Frank Yates. *Statistical Tables for Biological, Agricultural and Medical Research*. Hafner Publishing Company, fifth edition, 1957.

[144] Robert W. Floyd. Algorithm 97 (SHORTEST PATH). *Communications of the ACM*, 5(6):345, 1962.

[145] Robert W. Floyd. Algorithm 245 (TREESORT). *Communications of the ACM*, 7(12):701, 1964.

[146] Robert W. Floyd. Permuting information in idealized two-level storage. In Raymond E. Miller and James W. Thatcher, editors, *Complexity of Computer Computations*, pages 105–109. Plenum Press, 1972.

[147] Robert W. Floyd and Ronald L. Rivest. Expected time bounds for selection. *Communications of the ACM*, 18(3):165–172, 1975.

[148] L. R. Ford. *Network Flow Theory*. RAND Corporation, Santa Monica, CA, 1956.

[149] Lestor R. Ford, Jr. and D. R. Fulkerson. *Flows in Networks*. Princeton University Press, 1962.

[150] Lestor R. Ford, Jr. and Selmer M. Johnson. A tournament problem. *The American Mathematical Monthly*, 66(5):387–389, 1959.

[151] E. W. Forgy. Cluster analysis of multivariate efficiency versus interpretatbility of classifications. *Biometrics*, 21(3):768–769, 1965.

[152] Lance Fortnow. *The Golden Ticket: P, NP, and the Search for the Impossible*. Princeton University Press, 2013.

[153] Michael L. Fredman. New bounds on the complexity of the shortest path problem. *SIAM Journal on Computing*, 5(1):83–89, 1976.

[154] Michael L. Fredman, János Komlós, and Endre Szemerédi. Storing a sparse table with $O(1)$ worst case access time. *Journal of the ACM*, 31(3):538–544, 1984.

[155] Michael L. Fredman and Michael E. Saks. The cell probe complexity of dynamic data structures. In *Proceedings of the Twenty First Annual ACM Symposium on Theory of Computing*, pages 345–354, 1989.

[156] Michael L. Fredman and Robert E. Tarjan. Fibonacci heaps and their uses in improved network optimization algorithms. *Journal of the ACM*, 34(3):596–615, 1987.

[157] Michael L. Fredman and Dan E. Willard. Surpassing the information theoretic bound with fusion trees. *Journal of Computer and System Sciences*, 47(3):424–436, 1993.

[158] Michael L. Fredman and Dan E. Willard. Trans-dichotomous algorithms for minimum spanning trees and shortest paths. *Journal of Computer and System Sciences*, 48(3):533–551, 1994.

[159] Yoav Freund and Robert E. Schapire. A decision-theoretic generalization of on-line learning and an application to boosting. *Journal of Computer and System Sciences*, 55(1):119–139, 1997.

[160] Matteo Frigo, Pablo Halpern, Charles E. Leiserson, and Stephen Lewin-Berlin. Reducers and other Cilk++ hyperobjects. In *Proceedings of the 21st Annual ACM Symposium on Parallelism in Algorithms and Architectures*, pages 79–90, 2009.

[161] Matteo Frigo and Steven G. Johnson. The design and implementation of FFTW3. *Proceedings of the IEEE*, 93(2):216–231, 2005.

[162] Hannah Fry. *Hello World: Being Human in the Age of Algorithms*. W. W. Norton & Company, 2018.

[163] Harold N. Gabow. Path-based depth-first search for strong and biconnected components. *Information Processing Letters*, 74(3–4):107–114, 2000.

[164] Harold N. Gabow. The weighted matching approach to maximum cardinality matching. *Fundamenta Informaticae*, 154(1-4):109–130, 2017.

[165] Harold N. Gabow, Z. Galil, T. Spencer, and Robert E. Tarjan. Efficient algorithms for finding minimum spanning trees in undirected and directed graphs. *Combinatorica*, 6(2):109–122, 1986.

[166] Harold N. Gabow and Robert E. Tarjan. A linear-time algorithm for a special case of disjoint set union. *Journal of Computer and System Sciences*, 30(2):209–221, 1985.

[167] Harold N. Gabow and Robert E. Tarjan. Faster scaling algorithms for network problems. *SIAM Journal on Computing*, 18(5):1013–1036, 1989.

[168] Harold N. Gabow and Robert Endre Tarjan. Faster scaling algorithms for general graph-matching problems. *Journal of the ACM*, 38(4):815–853, 1991.

[169] D. Gale and L. S. Shapley. College admissions and the stability of marriage. *American Mathematical Monthly*, 69(1):9–15, 1962.

[170] Zvi Galil and Oded Margalit. All pairs shortest distances for graphs with small integer length edges. *Information and Computation*, 134(2):103–139, 1997.

[171] Zvi Galil and Oded Margalit. All pairs shortest paths for graphs with small integer length edges. *Journal of Computer and System Sciences*, 54(2):243–254, 1997.

[172] Zvi Galil and Kunsoo Park. Dynamic programming with convexity, concavity and sparsity. *Theoretical Computer Science*, 92(1):49–76, 1992.

[173] Zvi Galil and Joel Seiferas. Time-space-optimal string matching. *Journal of Computer and System Sciences*, 26(3):280–294, 1983.

[174] Igal Galperin and Ronald L. Rivest. Scapegoat trees. In *Proceedings of the 4th ACM-SIAM Symposium on Discrete Algorithms*, pages 165–174, 1993.

[175] Michael R. Garey, R. L. Graham, and J. D. Ullman. Worst-case analyis of memory allocation algorithms. In *Proceedings of the Fourth Annual ACM Symposium on Theory of Computing*, pages 143–150, 1972.

[176] Michael R. Garey and David S. Johnson. *Computers and Intractability: A Guide to the Theory of NP-Completeness*. W. H. Freeman, 1979.

[177] Naveen Garg and Jochen Könemann. Faster and simpler algorithms for multicommodity flow and other fractional packing problems. *SIAM Journal on Computing*, 37(2):630–652, 2007.

[178] Saul Gass. *Linear Programming: Methods and Applications*. International Thomson Publishing, fourth edition, 1975.

[179] Fănică Gavril. Algorithms for minimum coloring, maximum clique, minimum covering by cliques, and maximum independent set of a chordal graph. *SIAM Journal on Computing*, 1(2):180–187, 1972.

[180] Alan George and Joseph W-H Liu. *Computer Solution of Large Sparse Positive Definite Systems*. Prentice Hall, 1981.

[181] E. N. Gilbert and E. F. Moore. Variable-length binary encodings. *Bell System Technical Journal*, 38(4):933–967, 1959.

[182] Ashish Goel, Sanjeev Khanna, Daniel H. Larkin, and Rober E. Tarjan. Disjoint set union with randomized linking. In *Proceedings of the 25th ACM-SIAM Symposium on Discrete Algorithms*, pages 1005–1017, 2014.

[183] Michel X. Goemans and David P. Williamson. Improved approximation algorithms for maximum cut and satisfiability problems using semidefinite programming. *Journal of the ACM*, 42(6):1115–1145, 1995.

[184] Michel X. Goemans and David P. Williamson. The primal-dual method for approximation algorithms and its application to network design problems. In Dorit S. Hochbaum, editor, *Approximation Algorithms for NP-Hard Problems*, pages 144–191. PWS Publishing Company, 1997.

[185] Andrew V. Goldberg. *Efficient Graph Algorithms for Sequential and Parallel Computers*. PhD thesis, Department of Electrical Engineering and Computer Science, MIT, 1987.

[186] Andrew V. Goldberg. Scaling algorithms for the shortest paths problem. *SIAM Journal on Computing*, 24(3):494–504, 1995.

[187] Andrew V. Goldberg and Satish Rao. Beyond the flow decomposition barrier. *Journal of the ACM*, 45(5):783–797, 1998.

[188] Andrew V. Goldberg and Robert E. Tarjan. A new approach to the maximum flow problem. *Journal of the ACM*, 35(4):921–940, 1988.

[189] D. Goldfarb and M. J. Todd. Linear programming. In G. L. Nemhauser, A. H. G. Rinnooy-Kan, and M. J. Todd, editors, *Handbooks in Operations Research and Management Science, Vol. 1, Optimization*, pages 73–170. Elsevier Science Publishers, 1989.

[190] Shafi Goldwasser and Silvio Micali. Probabilistic encryption. *Journal of Computer and System Sciences*, 28(2):270–299, 1984.

[191] Shafi Goldwasser, Silvio Micali, and Ronald L. Rivest. A digital signature scheme secure against adaptive chosen-message attacks. *SIAM Journal on Computing*, 17(2):281–308, 1988.

[192] Gene H. Golub and Charles F. Van Loan. *Matrix Computations*. The Johns Hopkins University Press, third edition, 1996.

[193] G. H. Gonnet and R. Baeza-Yates. *Handbook of Algorithms and Data Structures in Pascal and C*. Addison-Wesley, second edition, 1991.

[194] Rafael C. Gonzalez and Richard E. Woods. *Digital Image Processing*. Addison-Wesley, 1992.

[195] Michael T. Goodrich and Roberto Tamassia. *Algorithm Design: Foundations, Analysis, and Internet Examples*. John Wiley & Sons, 2001.

[196] Michael T. Goodrich and Roberto Tamassia. *Data Structures and Algorithms in Java*. John Wiley & Sons, sixth edition, 2014.

[197] Ronald L. Graham. Bounds for certain multiprocessor anomalies. *Bell System Technical Journal*, 45(9):1563–1581, 1966.

[198] Ronald L. Graham and Pavol Hell. On the history of the minimum spanning tree problem. *Annals of the History of Computing*, 7(1):43–57, 1985.

[199] Ronald L. Graham, Donald E. Knuth, and Oren Patashnik. *Concrete Mathematics*. Addison-Wesley, second edition, 1994.

[200] David Gries. *The Science of Programming*. Springer, 1981.

[201] M. Grötschel, László Lovász, and Alexander Schrijver. *Geometric Algorithms and Combinatorial Optimization*. Springer, 1988.

[202] Leo J. Guibas and Robert Sedgewick. A dichromatic framework for balanced trees. In *Proceedings of the 19th Annual Symposium on Foundations of Computer Science*, pages 8–21, 1978.

[203] Dan Gusfield and Robert W. Irving. *The Stable Marriage Problem: Structure and Algorithms*. The MIT Press, 1989.

[204] Gregory Gutin and Abraham P. Punnen, editors. *The Traveling Salesman Problem and Its Variations*. Kluwer Academic Publishers, 2002.

[205] Torben Hagerup. Improved shortest paths on the word RAM. In *Procedings of 27th International Colloquium on Automata, Languages and Programming, ICALP 2000*, volume 1853 of *Lecture Notes in Computer Science*, pages 61–72. Springer, 2000.

[206] H. Halberstam and R. E. Ingram, editors. *The Mathematical Papers of Sir William Rowan Hamilton*, volume III (Algebra). Cambridge University Press, 1967.

[207] Yijie Han. Improved fast integer sorting in linear space. *Information and Computation*, 170(1):81–94, 2001.

[208] Frank Harary. *Graph Theory*. Addison-Wesley, 1969.

[209] Gregory C. Harfst and Edward M. Reingold. A potential-based amortized analysis of the union-find data structure. *SIGACT News*, 31(3):86–95, 2000.

[210] J. Hartmanis and R. E. Stearns. On the computational complexity of algorithms. *Transactions of the American Mathematical Society*, 117:285–306, 1965.

[211] Michael T. Heideman, Don H. Johnson, and C. Sidney Burrus. Gauss and the history of the Fast Fourier Transform. *IEEE ASSP Magazine*, 1(4):14–21, 1984.

[212] Monika R. Henzinger and Valerie King. Fully dynamic biconnectivity and transitive closure. In *Proceedings of the 36th Annual Symposium on Foundations of Computer Science*, pages 664–672, 1995.

[213] Monika R. Henzinger and Valerie King. Randomized fully dynamic graph algorithms with polylogarithmic time per operation. *Journal of the ACM*, 46(4):502–516, 1999.

[214] Monika R. Henzinger, Satish Rao, and Harold N. Gabow. Computing vertex connectivity: New bounds from old techniques. *Journal of Algorithms*, 34(2):222–250, 2000.

[215] Nicholas J. Higham. Exploiting fast matrix multiplication within the level 3 BLAS. *ACM Transactions on Mathematical Software*, 16(4):352–368, 1990.

[216] Nicholas J. Higham. *Accuracy and Stability of Numerical Algorithms*. SIAM, second edition, 2002.

[217] W. Daniel Hillis and Jr. Guy L. Steele. Data parallel algorithms. *Communications of the ACM*, 29(12):1170–1183, 1986.

[218] C. A. R. Hoare. Algorithm 63 (PARTITION) and algorithm 65 (FIND). *Communications of the ACM*, 4(7):321–322, 1961.

[219] C. A. R. Hoare. Quicksort. *The Computer Journal*, 5(1):10–15, 1962.

[220] Dorit S. Hochbaum. Efficient bounds for the stable set, vertex cover and set packing problems. *Discrete Applied Mathematics*, 6(3):243–254, 1983.

[221] Dorit S. Hochbaum, editor. *Approximation Algorithms for NP-Hard Problems*. PWS Publishing Company, 1997.

[222] W. Hoeffding. On the distribution of the number of successes in independent trials. *Annals of Mathematical Statistics*, 27(3):713–721, 1956.

[223] Micha Hofri. *Probabilistic Analysis of Algorithms*. Springer, 1987.

[224] John E. Hopcroft and Richard M. Karp. An $n^{5/2}$ algorithm for maximum matchings in bipartite graphs. *SIAM Journal on Computing*, 2(4):225–231, 1973.

[225] John E. Hopcroft, Rajeev Motwani, and Jeffrey D. Ullman. *Introduction to Automata Theory, Languages, and Computation*. Addison Wesley, third edition, 2006.

[226] John E. Hopcroft and Robert E. Tarjan. Efficient algorithms for graph manipulation. *Communications of the ACM*, 16(6):372–378, 1973.

[227] John E. Hopcroft and Jeffrey D. Ullman. Set merging algorithms. *SIAM Journal on Computing*, 2(4):294–303, 1973.

[228] John E. Hopcroft and Jeffrey D. Ullman. *Introduction to Automata Theory, Languages, and Computation*. Addison-Wesley, 1979.

[229] Juraj Hromkovič. *Algorithmics for Hard Problems: Introduction to Combinatorial Optimization, Randomization, Approximation, and Heuristics*. Springer-Verlag, 2001.

[230] T. C. Hu and M. T. Shing. Computation of matrix chain products. Part I. *SIAM Journal on Computing*, 11(2):362–373, 1982.

[231] T. C. Hu and M. T. Shing. Computation of matrix chain products. Part II. *SIAM Journal on Computing*, 13(2):228–251, 1984.

[232] T. C. Hu and A. C. Tucker. Optimal computer search trees and variable-length alphabetic codes. *SIAM Journal on Applied Mathematics*, 21(4):514–532, 1971.

[233] David A. Huffman. A method for the construction of minimum-redundancy codes. *Proceedings of the IRE*, 40(9):1098–1101, 1952.

[234] Oscar H. Ibarra and Chul E. Kim. Fast approximation algorithms for the knapsack and sum of subset problems. *Journal of the ACM*, 22(4):463–468, 1975.

[235] E. J. Isaac and R. C. Singleton. Sorting by address calculation. *Journal of the ACM*, 3(3):169–174, 1956.

[236] David S. Johnson. Approximation algorithms for combinatorial problems. *Journal of Computer and System Sciences*, 9(3):256–278, 1974.

[237] David S. Johnson. The NP-completeness column: An ongoing guide—The tale of the second prover. *Journal of Algorithms*, 13(3):502–524, 1992.

[238] Donald B. Johnson. Efficient algorithms for shortest paths in sparse networks. *Journal of the ACM*, 24(1):1–13, 1977.

[239] Richard Johnsonbaugh and Marcus Schaefer. *Algorithms*. Pearson Prentice Hall, 2004.

[240] Neil C. Jones and Pavel Pevzner. *An Introduction to Bioinformatics Algorithms*. The MIT Press, 2004.

[241] T. Kanungo, D. M. Mount, N. S. Netanyahu, C. D. Piatko, R. Silverman, and A. Y. Wu. A local search approximation algorithm for k-means clustering. *Computational Geometry*, 28:89–112, 2004.

[242] A. Karatsuba and Yu. Ofman. Multiplication of multidigit numbers on automata. *Soviet Physics—Doklady*, 7(7):595–596, 1963. Translation of an article in *Doklady Akademii Nauk SSSR*, 145(2), 1962.

[243] David R. Karger, Philip N. Klein, and Robert E. Tarjan. A randomized linear-time algorithm to find minimum spanning trees. *Journal of the ACM*, 42(2):321–328, 1995.

[244] David R. Karger, Daphne Koller, and Steven J. Phillips. Finding the hidden path: Time bounds for all-pairs shortest paths. *SIAM Journal on Computing*, 22(6):1199–1217, 1993.

[245] Juha Kärkkäinen, Peter Sanders, and Stefan Burkhardt. Linear work suffix array construction. *Journal of the ACM*, 53(6):918–936, 2006.

[246] Howard Karloff. *Linear Programming*. Birkhäuser, 1991.

[247] N. Karmarkar. A new polynomial-time algorithm for linear programming. *Combinatorica*, 4(4):373–395, 1984.

[248] Richard M. Karp. Reducibility among combinatorial problems. In Raymond E. Miller and James W. Thatcher, editors, *Complexity of Computer Computations*, pages 85–103. Plenum Press, 1972.

[249] Richard M. Karp. An introduction to randomized algorithms. *Discrete Applied Mathematics*, 34(1–3):165–201, 1991.

[250] Richard M. Karp and Michael O. Rabin. Efficient randomized pattern-matching algorithms. *IBM Journal of Research and Development*, 31(2):249–260, 1987.

[251] A. V. Karzanov. Determining the maximal flow in a network by the method of preflows. *Soviet Mathematics Doklady*, 15(2):434–437, 1974.

[252] Toru Kasai, Gunho Lee, Hiroki Arimura, Setsuo Arikawa, and Kunsoo Park. Linear-time longest-common-prefix computation in suffix arrays and its applications. In *Proceedings of the 12th Annual Symposium on Combinatorial Pattern Matching*, volume 2089, pages 181–192. Springer-Verlag, 2001.

[253] Jonathan Katz and Yehuda Lindell. *Introduction to Modern Cryptography*. CRC Press, second edition, 2015.

[254] Valerie King. A simpler minimum spanning tree verification algorithm. *Algorithmica*, 18(2):263–270, 1997.

[255] Valerie King, Satish Rao, and Robert E. Tarjan. A faster deterministic maximum flow algorithm. *Journal of Algorithms*, 17(3):447–474, 1994.

[256] Philip N. Klein and Neal E. Young. Approximation algorithms for NP-hard optimization problems. In *CRC Handbook on Algorithms*, pages 34-1–34-19. CRC Press, 1999.

[257] Jon Kleinberg and Éva Tardos. *Algorithm Design*. Addison-Wesley, 2006.

[258] Robert D. Kleinberg. A multiple-choice secretary algorithm with applications to online auctions. In *Proceedings of the 16th ACM-SIAM Symposium on Discrete Algorithms*, pages 630–631, 2005.

[259] Donald E. Knuth. *Fundamental Algorithms*, volume 1 of *The Art of Computer Programming*. Addison-Wesley, third edition, 1997.

[260] Donald E. Knuth. *Seminumerical Algorithms*, volume 2 of *The Art of Computer Programming*. Addison-Wesley, third edition, 1997.

[261] Donald E. Knuth. *Sorting and Searching*, volume 3 of *The Art of Computer Programming*. Addison-Wesley, second edition, 1998.

[262] Donald E. Knuth. *Combinatorial Algorithms*, volume 4A of *The Art of Computer Programming*. Addison-Wesley, 2011.

[263] Donald E. Knuth. *Satisfiability*, volume 4, fascicle 6 of *The Art of Computer Programming*. Addison-Wesley, 2015.

[264] Donald E. Knuth. Optimum binary search trees. *Acta Informatica*, 1(1):14–25, 1971.

[265] Donald E. Knuth. Big omicron and big omega and big theta. *SIGACT News*, 8(2):18–23, 1976.

[266] Donald E. Knuth. *Stable Marriage and Its Relation to Other Combinatorial Problems: An Introduction to the Mathematical Analysis of Algorithms*, volume 10 of *CRM Proceedings and Lecture Notes*. American Mathematical Society, 1997.

[267] Donald E. Knuth, James H. Morris, Jr., and Vaughan R. Pratt. Fast pattern matching in strings. *SIAM Journal on Computing*, 6(2):323–350, 1977.

[268] Mykel J. Kochenderfer and Tim A. Wheeler. *Algorithms for Optimization*. The MIT Press, 2019.

[269] J. Komlós. Linear verification for spanning trees. *Combinatorica*, 5(1):57–65, 1985.

[270] Dexter C. Kozen. *The Design and Analysis of Algorithms*. Springer, 1992.

[271] David W. Krumme, George Cybenko, and K. N. Venkataraman. Gossiping in minimal time. *SIAM Journal on Computing*, 21(1):111–139, 1992.

[272] Joseph B. Kruskal, Jr. On the shortest spanning subtree of a graph and the traveling salesman problem. *Proceedings of the American Mathematical Society*, 7(1):48–50, 1956.

[273] Harold W. Kuhn. The Hungarian method for the assignment problem. *Naval Research Logistics Quarterly*, 2:83–97, 1955.

[274] William Kuszmaul and Charles E. Leiserson. Floors and ceilings in divide-and-conquer recurrences. In *Proceedings of the 3rd SIAM Symposium on Simplicity in Algorithms*, pages 133–141, 2021.

[275] Leslie Lamport. How to make a multiprocessor computer that correctly executes multiprocess programs. *IEEE Transactions on Computers*, C-28(9):690–691, 1979.

[276] Eugene L. Lawler. *Combinatorial Optimization: Networks and Matroids*. Holt, Rinehart, and Winston, 1976.

[277] Eugene L. Lawler, J. K. Lenstra, A. H. G. Rinnooy Kan, and D. B. Shmoys, editors. *The Traveling Salesman Problem*. John Wiley & Sons, 1985.

[278] François Le Gall. Powers of tensors and fast matrix multiplication. In *Proceedings of the 2014 International Symposium on Symbolic and Algebraic Computation, (ISSAC)*, pages 296–303, 2014.

[279] Doug Lea. A Java fork/join framework. In *ACM 2000 Conference on Java Grande*, pages 36–43, 2000.

[280] C. Y. Lee. An algorithm for path connection and its applications. *IRE Transactions on Electronic Computers*, EC-10(3):346–365, 1961.

[281] Edward A. Lee. The problem with threads. *IEEE Computer*, 39(3):33–42, 2006.

[282] I-Ting Angelina Lee, Charles E. Leiserson, Tao B. Schardl, Zhunping Zhang, and Jim Sukha. On-the-fly pipeline parallelism. *ACM Transactions on Parallel Computing*, 2(3):17:1–17:42, 2015.

[283] I-Ting Angelina Lee and Tao B. Schardl. Efficient race detection for reducer hyperobjects. *ACM Transactions on Parallel Computing*, 4(4):1–40, 2018.

[284] Mun-Kyu Lee, Pierre Michaud, Jeong Seop Sim, and Daehun Nyang. A simple proof of optimality for the MIN cache replacement policy. *Information Processing Letters*, 116(2):168–170, 2016.

[285] Yin Tat Lee and Aaron Sidford. Path finding methods for linear programming: Solving linear programs in $\widetilde{O}(\sqrt{rank})$ iterations and faster algorithms for maximum flow. In *Proceedings of the 55th Annual Symposium on Foundations of Computer Science*, pages 424–433, 2014.

[286] Tom Leighton. Tight bounds on the complexity of parallel sorting. *IEEE Transactions on Computers*, C-34(4):344–354, 1985.

[287] Tom Leighton. Notes on better master theorems for divide-and-conquer recurrences. Class notes. Available at http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.39.1636, 1996.

[288] Tom Leighton and Satish Rao. Multicommodity max-flow min-cut theorems and their use in designing approximation algorithms. *Journal of the ACM*, 46(6):787–832, 1999.

[289] Daan Leijen and Judd Hall. Optimize managed code for multi-core machines. *MSDN Magazine*, 2007.

[290] Charles E. Leiserson. The Cilk++ concurrency platform. *Journal of Supercomputing*, 51(3):244–257, March 2010.

[291] Charles E. Leiserson. Cilk. In David Padua, editor, *Encyclopedia of Parallel Computing*, pages 273–288. Springer, 2011.

[292] Charles E. Leiserson, Tao B. Schardl, and Jim Sukha. Deterministic parallel random-number generation for dynamic-multithreading platforms. In *Proceddings of the 17th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP)*, pages 193–204, 2012.

[293] Charles E. Leiserson, Neil C. Thompson, Joel S. Emer, Bradley C. Kuszmaul, Butler W. Lampson, Daniel Sanchez, and Tao B. Schardl. There's plenty of room at the Top: What will drive computer performance after Moore's law? *Science*, 368(6495), 2020.

[294] Debra A. Lelewer and Daniel S. Hirschberg. Data compression. *ACM Computing Surveys*, 19(3):261–296, 1987.

[295] A. K. Lenstra, H. W. Lenstra, Jr., M. S. Manasse, and J. M. Pollard. The number field sieve. In A. K. Lenstra and H. W. Lenstra, Jr., editors, *The Development of the Number Field Sieve*, volume 1554 of *Lecture Notes in Mathematics*, pages 11–42. Springer, 1993.

[296] H. W. Lenstra, Jr. Factoring integers with elliptic curves. *Annals of Mathematics*, 126(3):649–673, 1987.

[297] L. A. Levin. Universal sequential search problems. *Problems of Information Transmission*, 9(3):265–266, 1973. Translated from the original Russian article in *Problemy Peredachi Informatsii* 9(3): 115–116, 1973.

[298] Anany Levitin. *Introduction to the Design & Analysis of Algorithms*. Addison-Wesley, third edition, 2011.

[299] Harry R. Lewis and Christos H. Papadimitriou. *Elements of the Theory of Computation*. Prentice Hall, second edition, 1998.

[300] Nick Littlestone. Learning quickly when irrelevant attributes abound: A new linear-threshold algorithm. *Machine Learning*, 2(4):285–318, 1988.

[301] Nick Littlestone and Manfred K. Warmuth. The weighted majority algorithm. *Information and Computation*, 108(2):212–261, 1994.

[302] C. L. Liu. *Introduction to Combinatorial Mathematics*. McGraw-Hill, 1968.

[303] Yang P. Liu and Aaron Sidford. Faster energy maximization for faster maximum flow. In *Proceedings of the 52nd Annual ACM Symposium on Theory of Computing*, pages 803–814, 2020.

[304] S. P. Lloyd. Least squares quantization in PCM. *IEEE Transactions on Information Theory*, 28(2):129–137, 1982.

[305] Panos Louridas. *Real-World Algorithms: A Beginner's Guide*. The MIT Press, 2017.

[306] László Lovász and Michael D. Plummer. *Matching Theory*, volume 121 of *Annals of Discrete Mathematics*. North Holland, 1986.

[307] John MacCormick. *9 Algorithms That Changed the Future: The Ingenious Ideas That Drive Today's Computers*. Princeton University Press, 2012.

[308] Aleksander Madry. Navigating central path with electrical flows: From flows to matchings, and back. In *Proceedings of the 54th Annual Symposium on Foundations of Computer Science*, pages 253–262, 2013.

[309] Bruce M. Maggs and Serge A. Plotkin. Minimum-cost spanning tree as a path-finding problem. *Information Processing Letters*, 26(6):291–293, 1988.

[310] M. Mahajan, P. Nimbhorkar, and K. Varadarajan. The planar k-means problem is NP-hard. In S. Das and R. Uehara, editors, *WALCOM 2009: Algorithms and Computation*, volume 5431 of *Lecture Notes in Computer Science*, pages 274–285. Springer, 2009.

[311] Michael Main. *Data Structures and Other Objects Using Java*. Addison-Wesley, 1999.

[312] Udi Manber and Gene Myers. Suffix arrays: A new method for on-line string searches. *SIAM Journal on Computing*, 22(5):935–948, 1993.

[313] David F. Manlove. *Algorithmics of Matching Under Preferences*, volume 2 of *Series on Theoretical Computer Science*. World Scientific, 2013.

[314] Giovanni Manzini. An analysis of the Burrows-Wheeler transform. *Journal of the ACM*, 48(3):407–430, 2001.

[315] Mario Andrea Marchisio, editor. *Computational Methods in Synthetic Biology*. Humana Press, 2015.

[316] William J. Masek and Michael S. Paterson. A faster algorithm computing string edit distances. *Journal of Computer and System Sciences*, 20(1):18–31, 1980.

[317] Yu. V. Matiyasevich. Real-time recognition of the inclusion relation. *Journal of Soviet Mathematics*, 1(1):64–70, 1973. Translated from the original Russian article in *Zapiski Nauchnykh Seminarov Leningradskogo Otdeleniya Matematicheskogo Institute im. V. A. Steklova Akademii Nauk SSSR* 20: 104–114, 1971.

[318] H. A. Maurer, Th. Ottmann, and H.-W. Six. Implementing dictionaries using binary trees of very small height. *Information Processing Letters*, 5(1):11–14, 1976.

[319] Ernst W. Mayr, Hans Jürgen Prömel, and Angelika Steger, editors. *Lectures on Proof Verification and Approximation Algorithms*, volume 1367 of *Lecture Notes in Computer Science*. Springer, 1998.

[320] Catherine C. McGeoch. All pairs shortest paths and the essential subgraph. *Algorithmica*, 13(5):426–441, 1995.

[321] Catherine C. McGeoch. *A Guide to Experimental Algorithmics*. Cambridge University Press, 2012.

[322] Andrew McGregor. Graph stream algorithms: A survey. *SIGMOD Record*, 43(1):9–20, 2014.

[323] M. D. McIlroy. A killer adversary for quicksort. *Software—Practice and Experience*, 29(4):341–344, 1999.

[324] Kurt Mehlhorn and Stefan Näher. *LEDA: A Platform for Combinatorial and Geometric Computing*. Cambridge University Press, 1999.

[325] Kurt Mehlhorn and Peter Sanders. *Algorithms and Data Structures: The Basic Toolbox*. Springer, 2008.

[326] Dinesh P. Mehta and Sartaj Sahni. *Handbook of Data Structures and Applications*. Chapman and Hall/CRC, second edition, 2018.

[327] Gary L. Miller. Riemann's hypothesis and tests for primality. *Journal of Computer and System Sciences*, 13(3):300–317, 1976.

[328] Marvin Minsky and Seymore A. Pappert. *Perceptrons*. The MIT Press, 1969.

[329] John C. Mitchell. *Foundations for Programming Languages*. The MIT Press, 1996.

[330] Joseph S. B. Mitchell. Guillotine subdivisions approximate polygonal subdivisions: A simple polynomial-time approximation scheme for geometric TSP, k-MST, and related problems. *SIAM Journal on Computing*, 28(4):1298–1309, 1999.

[331] Michael Mitzenmacher and Eli Upfal. *Probability and Computing*. Cambridge University Press, second edition, 2017.

[332] Louis Monier. *Algorithmes de Factorisation D'Entiers*. PhD thesis, L'Université Paris-Sud, 1980.

[333] Louis Monier. Evaluation and comparison of two efficient probabilistic primality testing algorithms. *Theoretical Computer Science*, 12(1):97–108, 1980.

[334] Edward F. Moore. The shortest path through a maze. In *Proceedings of the International Symposium on the Theory of Switching*, pages 285–292. Harvard University Press, 1959.

[335] Rajeev Motwani, Joseph (Seffi) Naor, and Prabhakar Raghavan. Randomized approximation algorithms in combinatorial optimization. In Dorit Hochbaum, editor, *Approximation Algorithms for NP-Hard Problems*, chapter 11, pages 447–481. PWS Publishing Company, 1997.

[336] Rajeev Motwani and Prabhakar Raghavan. *Randomized Algorithms*. Cambridge University Press, 1995.

[337] James Munkres. Algorithms for the assignment and transportation problems. *Journal of the Society for Industrial and Applied Mathematics*, 5(1):32–38, 1957.

[338] J. I. Munro and V. Raman. Fast stable in-place sorting with $O(n)$ data moves. *Algorithmica*, 16(2):151–160, 1996.

[339] Yoichi Muraoka and David J. Kuck. On the time required for a sequence of matrix products. *Communications of the ACM*, 16(1):22–26, 1973.

[340] Kevin P. Murphy. *Machine Learning: A Probabilistic Perspective*. MIT Press, 2012.

[341] S. Muthukrishnan. Data streams: Algorithms and applications. *Foundations and Trends in Theoretical Computer Science*, 1(2), 2005.

[342] Richard Neapolitan. *Foundations of Algorithms*. Jones & Bartlett Learning, fifth edition, 2014.

[343] Yurii Nesterov. *Introductory Lectures on Convex Optimization: A Basic Course*, volume 87 of *Applied Optimization*. Springer, 2004.

[344] J. Nievergelt and E. M. Reingold. Binary search trees of bounded balance. *SIAM Journal on Computing*, 2(1):33–43, 1973.

[345] Ivan Niven and Herbert S. Zuckerman. *An Introduction to the Theory of Numbers*. John Wiley & Sons, fourth edition, 1980.

[346] National Institute of Standards and Technology. Hash functions. https://csrc.nist.gov/projects/hash-functions, 2019.

[347] Alan V. Oppenheim and Ronald W. Schafer, with John R. Buck. *Discrete-Time Signal Processing*. Prentice Hall, second edition, 1998.

[348] Alan V. Oppenheim and Alan S. Willsky, with S. Hamid Nawab. *Signals and Systems*. Prentice Hall, second edition, 1997.

[349] James B. Orlin. A polynomial time primal network simplex algorithm for minimum cost flows. *Mathematical Programming*, 78(1):109–129, 1997.

[350] James B. Orlin. Max flows in $O(nm)$ time, or better. In *Proceedings of the 45th Annual ACM Symposium on Theory of Computing*, pages 765–774, 2013.

[351] Anna Pagh, Rasmus Pagh, and Milan Ruzic. Linear probing with constant independence. https://arxiv.org/abs/cs/0612055, 2006.

[352] Christos H. Papadimitriou. *Computational Complexity*. Addison-Wesley, 1994.

[353] Christos H. Papadimitriou and Kenneth Steiglitz. *Combinatorial Optimization: Algorithms and Complexity*. Prentice Hall, 1982.

[354] Michael S. Paterson. Progress in selection. In *Proceedings of the Fifth Scandinavian Workshop on Algorithm Theory*, pages 368–379, 1996.

[355] Seth Pettie. A new approach to all-pairs shortest paths on real-weighted graphs. *Theoretical Computer Science*, 312(1):47–74, 2004.

[356] Seth Pettie and Vijaya Ramachandran. An optimal minimum spanning tree algorithm. *Journal of the ACM*, 49(1):16–34, 2002.

[357] Seth Pettie and Vijaya Ramachandran. A shortest path algorithm for real-weighted undirected graphs. *SIAM Journal on Computing*, 34(6):1398–1431, 2005.

[358] Steven Phillips and Jeffery Westbrook. Online load balancing and network flow. *Algorithmica*, 21(3):245–261, 1998.

[359] Serge A. Plotkin, David. B. Shmoys, and Éva Tardos. Fast approximation algorithms for fractional packing and covering problems. *Mathematics of Operations Research*, 20:257–301, 1995.

[360] J. M. Pollard. Factoring with cubic integers. In A. K. Lenstra and H. W. Lenstra, Jr., editors, *The Development of the Number Field Sieve*, volume 1554 of *Lecture Notes in Mathematics*, pages 4–10. Springer, 1993.

[361] Carl Pomerance. On the distribution of pseudoprimes. *Mathematics of Computation*, 37(156):587–593, 1981.

[362] Carl Pomerance, editor. *Proceedings of the AMS Symposia in Applied Mathematics: Computational Number Theory and Cryptography*. American Mathematical Society, 1990.

[363] William K. Pratt. *Digital Image Processing*. John Wiley & Sons, fourth edition, 2007.

[364] Franco P. Preparata and Michael Ian Shamos. *Computational Geometry: An Introduction*. Springer, 1985.

[365] William H. Press, Saul A. Teukolsky, William T. Vetterling, and Brian P. Flannery. *Numerical Recipes in C++: The Art of Scientific Computing*. Cambridge University Press, second edition, 2002.

[366] William H. Press, Saul A. Teukolsky, William T. Vetterling, and Brian P. Flannery. *Numerical Recipes: The Art of Scientific Computing*. Cambridge University Press, third edition, 2007.

[367] R. C. Prim. Shortest connection networks and some generalizations. *Bell System Technical Journal*, 36(6):1389–1401, 1957.

[368] Robert L. Probert. On the additive complexity of matrix multiplication. *SIAM Journal on Computing*, 5(2):187–203, 1976.

[369] William Pugh. Skip lists: A probabilistic alternative to balanced trees. *Communications of the ACM*, 33(6):668–676, 1990.

[370] Simon J. Puglisi, W. F. Smyth, and Andrew H. Turpin. A taxonomy of suffix array construction algorithms. *ACM Computing Surveys*, 39(2), 2007.

[371] Paul W. Purdom, Jr. and Cynthia A. Brown. *The Analysis of Algorithms*. Holt, Rinehart, and Winston, 1985.

[372] Michael O. Rabin. Probabilistic algorithms. In J. F. Traub, editor, *Algorithms and Complexity: New Directions and Recent Results*, pages 21–39. Academic Press, 1976.

[373] Michael O. Rabin. Probabilistic algorithm for testing primality. *Journal of Number Theory*, 12(1):128–138, 1980.

[374] P. Raghavan and C. D. Thompson. Randomized rounding: A technique for provably good algorithms and algorithmic proofs. *Combinatorica*, 7(4):365–374, 1987.

[375] Rajeev Raman. Recent results on the single-source shortest paths problem. *SIGACT News*, 28(2):81–87, 1997.

[376] James Reinders. *Intel Threading Building Blocks: Outfitting C++ for Multi-core Processor Parallelism*. O'Reilly Media, Inc., 2007.

[377] Edward M. Reingold, Kenneth J. Urban, and David Gries. K-M-P string matching revisited. *Information Processing Letters*, 64(5):217–223, 1997.

[378] Hans Riesel. *Prime Numbers and Computer Methods for Factorization*, volume 126 of *Progress in Mathematics*. Birkhäuser, second edition, 1994.

[379] Ronald L. Rivest, M. J. B. Robshaw, R. Sidney, and Y. L. Yin. The RC6 block cipher. In *First Advanced Encryption Standard (AES) Conference*, 1998.

[380] Ronald L. Rivest, Adi Shamir, and Leonard M. Adleman. A method for obtaining digital signatures and public-key cryptosystems. *Communications of the ACM*, 21(2):120–126, 1978. See also U.S. Patent 4,405,829.

[381] Herbert Robbins. A remark on Stirling's formula. *American Mathematical Monthly*, 62(1):26–29, 1955.

[382] Julia Robinson. An iterative method of solving a game. *The Annals of Mathematics*, 54(2):296–301, 1951.

[383] Arch D. Robison and Charles E. Leiserson. Cilk Plus. In Pavan Balaji, editor, *Programming Models for Parallel Computing*, chapter 13, pages 323–352. The MIT Press, 2015.

[384] D. J. Rosenkrantz, R. E. Stearns, and P. M. Lewis. An analysis of several heuristics for the traveling salesman problem. *SIAM Journal on Computing*, 6(3):563–581, 1977.

[385] Tim Roughgarden. *Algorithms Illuminated, Part 1: The Basics*. Soundlikeyourself Publishing, 2017.

[386] Tim Roughgarden. *Algorithms Illuminated, Part 2: Graph Algorithms and Data Structures*. Soundlikeyourself Publishing, 2018.

[387] Tim Roughgarden. *Algorithms Illuminated, Part 3: Greedy Algorithms and Dynamic Programming*. Soundlikeyourself Publishing, 2019.

[388] Tim Roughgarden. *Algorithms Illuminated, Part 4: Algorithms for NP-Hard Problems*. Soundlikeyourself Publishing, 2020.

[389] Salvador Roura. Improved master theorems for divide-and-conquer recurrences. *Journal of the ACM*, 48(2):170–205, 2001.

[390] Y. A. Rozanov. *Probability Theory: A Concise Course*. Dover, 1969.

[391] Stuart Russell and Peter Norvig. *Artificial Intelligence: A Modern Approach*. Pearson, fourth edition, 2020.

[392] S. Sahni and T. Gonzalez. P-complete approximation problems. *Journal of the ACM*, 23(3):555–565, 1976.

[393] Peter Sanders, Kurt Mehlhorn, Martin Dietzfelbinger, and Roman Dementiev. *Sequential and Parallel Algorithms and Data Structures: The Basic Toolkit*. Springer, 2019.

[394] Piotr Sankowski. Shortest paths in matrix multiplication time. In *Proceedings of the 13th Annual European Symposium on Algorithms*, pages 770–778, 2005.

[395] Russel Schaffer and Robert Sedgewick. The analysis of heapsort. *Journal of Algorithms*, 15(1):76–100, 1993.

[396] Tao B. Schardl, I-Ting Angelina Lee, and Charles E. Leiserson. Brief announcement: Open Cilk. In *Proceedings of the 30th Annual ACM Symposium on Parallelism in Algorithms and Architectures*, pages 351–353, 2018.

[397] A. Schönhage, M. Paterson, and N. Pippenger. Finding the median. *Journal of Computer and System Sciences*, 13(2):184–199, 1976.

[398] Alexander Schrijver. *Theory of Linear and Integer Programming*. John Wiley & Sons, 1986.

[399] Alexander Schrijver. Paths and flows—A historical survey. *CWI Quarterly*, 6(3):169–183, 1993.

[400] Alexander Schrijver. On the history of the shortest paths problem. *Documenta Mathematica*, 17(1):155–167, 2012.

[401] Robert Sedgewick. Implementing quicksort programs. *Communications of the ACM*, 21(10):847–857, 1978.

[402] Robert Sedgewick and Kevin Wayne. *Algorithms*. Addison-Wesley, fourth edition, 2011.

[403] Raimund Seidel. On the all-pairs-shortest-path problem in unweighted undirected graphs. *Journal of Computer and System Sciences*, 51(3):400–403, 1995.

[404] Raimund Seidel and C. R. Aragon. Randomized search trees. *Algorithmica*, 16(4–5):464–497, 1996.

[405] João Setubal and João Meidanis. *Introduction to Computational Molecular Biology*. PWS Publishing Company, 1997.

[406] Clifford A. Shaffer. *A Practical Introduction to Data Structures and Algorithm Analysis*. Prentice Hall, second edition, 2001.

[407] Jeffrey Shallit. Origins of the analysis of the Euclidean algorithm. *Historia Mathematica*, 21(4):401–419, 1994.

[408] M. Sharir. A strong-connectivity algorithm and its applications in data flow analysis. *Computers and Mathematics with Applications*, 7(1):67–72, 1981.

[409] David B. Shmoys. Computing near-optimal solutions to combinatorial optimization problems. In William Cook, László Lovász, and Paul Seymour, editors, *Combinatorial Optimization*, volume 20 of *DIMACS Series in Discrete Mathematics and Theoretical Computer Science*. American Mathematical Society, 1995.

[410] Avi Shoshan and Uri Zwick. All pairs shortest paths in undirected graphs with integer weights. In *Proceedings of the 40th Annual Symposium on Foundations of Computer Science*, pages 605–614, 1999.

[411] Victor Shoup. *A Computational Introduction to Number Theory and Algebra*. Cambridge University Press, second edition, 2009.

[412] Julian Shun. *Shared-Memory Parallelism Can Be Simple, Fast, and Scalable*. Association for Computing Machinery and Morgan & Claypool, 2017.

[413] Michael Sipser. *Introduction to the Theory of Computation*. Cengage Learning, third edition, 2013.

[414] Steven S. Skiena. *The Algorithm Design Manual*. Springer, second edition, corrected printing, 2012.

[415] Daniel D. Sleator and Robert E. Tarjan. A data structure for dynamic trees. *Journal of Computer and System Sciences*, 26(3):362–391, 1983.

[416] Daniel D. Sleator and Robert E. Tarjan. Amortized efficiency of list update rules. In *Proceedings of the Sixteenth Annual ACM Symposium on Theory of Computing*, pages 488–492, 1984.

[417] Daniel D. Sleator and Robert E. Tarjan. Amortized efficiency of list update and paging rules. *Communications of the ACM*, 28(2):202–208, 1985.

[418] Daniel D. Sleator and Robert E. Tarjan. Self-adjusting binary search trees. *Journal of the ACM*, 32(3):652–686, 1985.

[419] Michael Soltys-Kulinicz. *An Introduction to the Analysis of Algorithms*. World Scientific, third edition, 2018.

[420] Joel Spencer. *Ten Lectures on the Probabilistic Method*, volume 64 of *CBMS-NSF Regional Conference Series in Applied Mathematics*. Society for Industrial and Applied Mathematics, 1993.

[421] Daniel A. Spielman and Shang-Hua Teng. Smoothed analysis of algorithms: Why the simplex algorithm usually takes polynomial time. *Journal of the ACM*, 51(3):385–463, 2004.

[422] Gilbert Strang. *Introduction to Applied Mathematics*. Wellesley-Cambridge Press, 1986.

[423] Gilbert Strang. *Linear Algebra and Its Applications*. Thomson Brooks/Cole, fourth edition, 2006.

[424] Volker Strassen. Gaussian elimination is not optimal. *Numerische Mathematik*, 14(3):354–356, 1969.

[425] T. G. Szymanski. A special case of the maximal common subsequence problem. Technical Report TR-170, Computer Science Laboratory, Princeton University, 1975.

[426] Robert E. Tarjan. Depth first search and linear graph algorithms. *SIAM Journal on Computing*, 1(2):146–160, 1972.

[427] Robert E. Tarjan. Efficiency of a good but not linear set union algorithm. *Journal of the ACM*, 22(2):215–225, 1975.

[428] Robert E. Tarjan. A class of algorithms which require nonlinear time to maintain disjoint sets. *Journal of Computer and System Sciences*, 18(2):110–127, 1979.

[429] Robert E. Tarjan. *Data Structures and Network Algorithms*. Society for Industrial and Applied Mathematics, 1983.

[430] Robert E. Tarjan. Amortized computational complexity. *SIAM Journal on Algebraic and Discrete Methods*, 6(2):306–318, 1985.

[431] Robert E. Tarjan. Class notes: Disjoint set union. COS 423, Princeton University, 1999. Available at https://www.cs.princeton.edu/courses/archive/spr00/cs423/handout3.pdf.

[432] Robert E. Tarjan and Jan van Leeuwen. Worst-case analysis of set union algorithms. *Journal of the ACM*, 31(2):245–281, 1984.

[433] George B. Thomas, Jr., Maurice D. Weir, Joel Hass, and Frank R. Giordano. *Thomas' Calculus*. Addison-Wesley, eleventh edition, 2005.

[434] Mikkel Thorup. Faster deterministic sorting and priority queues in linear space. In *Proceedings of the 9th ACM-SIAM Symposium on Discrete Algorithms*, pages 550–555, 1998.

[435] Mikkel Thorup. Undirected single-source shortest paths with positive integer weights in linear time. *Journal of the ACM*, 46(3):362–394, 1999.

[436] Mikkel Thorup. On RAM priority queues. *SIAM Journal on Computing*, 30(1):86–109, 2000.

[437] Mikkel Thorup. High speed hashing for integers and strings. http://arxiv.org/abs/1504.06804, 2015.

[438] Mikkel Thorup. Linear probing with 5-independent hashing. http://arxiv.org/abs/1509.04549, 2015.

[439] Richard Tolimieri, Myoung An, and Chao Lu. *Mathematics of Multidimensional Fourier Transform Algorithms*. Springer, second edition, 1997.

[440] P. van Emde Boas. Preserving order in a forest in less than logarithmic time and linear space. *Information Processing Letters*, 6(3):80–82, 1977.

[441] P. van Emde Boas, R. Kaas, and E. Zijlstra. Design and implementation of an efficient priority queue. *Mathematical Systems Theory*, 10(1):99–127, 1976.

[442] Charles Van Loan. *Computational Frameworks for the Fast Fourier Transform*. Society for Industrial and Applied Mathematics, 1992.

[443] Benjamin Van Roy. A short proof of optimality for the MIN cache replacement algorithm. *Information Processing Letters*, 102(2–3):72–73, 2007.

[444] Robert J. Vanderbei. *Linear Programming: Foundations and Extensions*. Kluwer Academic Publishers, 1996.

[445] Virginia Vassilevska Williams. Multiplying matrices faster than Coppersmith-Winograd. In *Proceedings of the 44th Annual ACM Symposium on Theory of Computing*, pages 887–898, 2012.

[446] Vijay V. Vazirani. *Approximation Algorithms*. Springer, 2001.

[447] Rakesh M. Verma. General techniques for analyzing recursive algorithms with applications. *SIAM Journal on Computing*, 26(2):568–581, 1997.

[448] Berthold Vöcking, Helmut Alt, Martin Dietzfelbinger, Rüdiger Reischuk, Christian Scheideler, Heribert Vollmer, and Dorothea Wager, editors. *Algorithms Unplugged*. Springer, 2011.

[449] Antony F. Ware. Fast approximate Fourier transforms for irregularly spaced data. *SIAM Review*, 40(4):838–856, 1998.

[450] Stephen Warshall. A theorem on boolean matrices. *Journal of the ACM*, 9(1):11–12, 1962.

[451] Mark Allen Weiss. *Data Structures and Problem Solving Using C++*. Addison-Wesley, second edition, 2000.

[452] Mark Allen Weiss. *Data Structures and Problem Solving Using Java*. Addison-Wesley, third edition, 2006.

[453] Mark Allen Weiss. *Data Structures and Algorithm Analysis in C++*. Addison-Wesley, third edition, 2007.

[454] Mark Allen Weiss. *Data Structures and Algorithm Analysis in Java*. Addison-Wesley, second edition, 2007.

[455] Herbert S. Wilf. *Algorithms and Complexity*. A K Peters, second edition, 2002.

[456] J. W. J. Williams. Algorithm 232 (HEAPSORT). *Communications of the ACM*, 7(6):347–348, 1964.

[457] Ryan Williams. Faster all-pairs shortest paths via circuit complexity. *SIAM Journal on Computing*, 47(5):1965–1985, 2018.

[458] David P. Williamson. *Network Flow Algorithms*. Cambridge University Press, 2019.

[459] David P. Williamson and David B. Shmoys. *The Design of Approximation Algorithms*. Cambridge University Press, 2011.

[460] Shmuel Winograd. On the algebraic complexity of functions. In *Actes du Congrès International des Mathématiciens*, volume 3, pages 283–288, 1970.

[461] Yifan Xu, I-Ting Angelina Lee, and Kunal Agrawal. Efficient parallel determinacy race detection for two-dimensional dags. In *Proceedings of the 23rd ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP)*, pages 368–380, 2018.

[462] Chee Yap. A real elementary approach to the master recurrence and generalizations. In M. Ogihara and J. Tarui, editors, *Theory and Applications of Models of Computation. TAMC 2011*, volume 6648 of *Lecture Notes in Computer Science*, pages 14–26. Springer, 2011.

[463] Yinyu Ye. *Interior Point Algorithms: Theory and Analysis*. John Wiley & Sons, 1997.

[464] Neal E. Young. Online paging and caching. In *Encyclopedia of Algorithms*, pages 1457–1461. Springer, 2016.

[465] Raphael Yuster and Uri Zwick. Answering distance queries in directed graphs using fast matrix multiplication. In *Proceedings of the 46th Annual Symposium on Foundations of Computer Science*, pages 389–396, 2005.

[466] Jisheng Zhao and Vivek Sarkar. The design and implementation of the Habanero-Java parallel programming language. In *Symposium on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA)*, pages 185–186, 2011.

[467] Uri Zwick. All pairs shortest paths using bridging sets and rectangular matrix multiplication. *Journal of the ACM*, 49(3):289–317, 2002.

[468] Daniel Zwillinger, editor. *CRC Standard Mathematical Tables and Formulae*. Chapman & Hall/CRC Press, 31st edition, 2003.

Index

This index uses the following conventions. Numbers are alphabetized as if spelled out; for example, "2-3-4 tree" is indexed as if it were "two-three-four tree." When an entry refers to a place other than the main text, the page number is followed by a tag: ex. for exercise, pr. for problem, fig. for figure, and n. for footnote. A tagged page number often indicates the first page of an exercise or problem, which is not necessarily the page on which the reference actually appears.