

Book List for Algorithms and Data Structures Summer 2008

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1 General Books

- [1] K. Mehlhorn and P. Sanders. *Algorithms and Data Structures: The Basic Toolbox*. Springer Verlag, 2008.
- [2] J. Kleinberg and E. Tardos. *Algorithm Design*. Addison Wesley, 2005.
- [3] R. Sedgwick. *Algorithms in C, C++, Java, Part 1 – 4 (Fundamental Algorithms, Data Structures, Sorting, Searching)*. Addison-Wesley, 200X.
- [4] T. Ottmann and P. Widmayer. *Algorithmen und Datenstrukturen*. Spektrum Akademischer Verlag, 1996.
- [5] A. V. Aho, J. E. Hopcroft, and J. D. Ullman. *Data Structures and Algorithms*. Addison-Wesley, 1983.
- [6] D.C. Kozen. *The Design and Analysis of Algorithms*. Springer Verlag, 1992.
- [7] G.J.E. Rawlins. *Compared to What? An Introduction to the Analysis of Algorithms*. W.H. Freeman, 1992.
- [8] U. Manber. *Introduction to Algorithms*. Addison-Wesley, 1989.
- [9] J. van Leeuwen, editor. *Handbook of Theoretical Computer Science: Volume A (Algorithms and Complexity)*. Elsevier, 1990.

- [10] K. Mehlhorn. *Data Structures and Efficient Algorithms*, volume 1: Sorting and Searching. Springer, 1984. 336 pages.
- [11] K. Mehlhorn. *Data Structures and Efficient Algorithms*, volume 2: Graph Algorithms and NP-Completeness. Springer, 1984. 260 pages.
- [12] K. Mehlhorn. *Data Structures and Efficient Algorithms*, volume 3: Multi-dimensional Searching and Computational Geometry. Springer, 1984. 284 pages.
- [13] D.E. Knuth. *The Art of Computer Programming (Volume I): Fundamental Algorithms*. Addison-Wesley, 1973.
- [14] D.E. Knuth. *The Art of Computer Programming (Volume II): Seminumerical Algorithms*. Addison-Wesley, 1981.
- [15] D.E. Knuth. *The Art of Computer Programming (Volume III): Sorting and Searching*. Addison-Wesley, 1981.

2 Implementations and Software Libraries

- [1] K. Mehlhorn and S. Näher. *The LEDA Platform for Combinatorial and Geometric Computing*. Cambridge University Press, 1999.
- [2] CGAL (Computational Geometry Algorithms Library). www.cgal.org.
- [3] LEDA (Library of Efficient Data Types and Algorithms). www.algorithmic-solutions.com.
- [4] CPLEX. www.cplex.com.

3 Graph Algorithms

- [1] R. Sedgwick. *Algorithms in C++ Part 5: Graph Algorithms*. Addison-Wesley, 2001.
- [2] R.K. Ahuja, T.L. Magnanti, and J.B. Orlin. *Network Flows*. Prentice Hall, 1993.

- [3] R. E. Tarjan. Data structures and network algorithms. In *CBMS-NSF Regional Conference Series in Applied Mathematics*, volume 44, 1983.

4 Algorithms on Strings

- [1] W. Rytter and M. Crochemore. *Jewels of Stringology: Text Algorithms*. World Scientific, 2002.
- [2] M. Crochemore and W. Rytter. *Text Algorithms*. Oxford University Press, 1994.

5 Approximation Algorithms

- [1] K. Jansen and M. Margraf. *Approximative Algorithmen und Nichtapproximierbarkeit*. de Gruyter, 2008.
- [2] V.V. Vazirani. *Approximation Algorithms*. Springer, 2000.

6 Integer and Combinatorial Optimization

- [1] D. Bertsimas and R. Weismantel. *Optimization over Integers*. Dynamic Ideas, 2005.
- [2] A. Schrijver. *Combinatorial Optimization (3 Volumes)*. Springer Verlag, 2003.
- [3] W.J. Cook, W.H. Cunningham, W.R. Pulleyblank, and A. Schrijver. *Combinatorial Optimization*. John Wiley & Sons, Inc, 1998.
- [4] B. Korte and J.Vygen. *Combinatorial Optimization: Theory and Algorithms*. Springer, 2000.
- [5] G.L. Nemhauser and L.A. Wolsey. *Integer and Combinatorial Optimization*. Wiley, 1988.

7 Parallel and Distributed Algorithms

- [1] J. JáJá. *An Introduction to Parallel Algorithms*. Addison-Wesley, 1992.
- [2] T. Leighton and F. Thomson. *Introduction to Parallel Algorithms*. Addison Wesley, 1992.
- [3] N. Lynch. *Distributed Algorithms*. Morgan Kaufmann, 1996.

8 Computational Geometry

- [1] M. de Berg, M. van Kreveld, M. Overmars, and O. Schwarzkopf. *Computational Geometry: Algorithms and Applications*. Springer, 1997.
- [2] R. Klein. *Algorithmische Geometrie*. Addison-Wesley, 1997.
- [3] J.-D. Boissonnat and M. Yvinec. *Algorithmic Geometry*. Cambridge University Press, Cambridge, 1998.

9 Randomized Algorithms

- [1] R. Motwani and P. Raghavan. *Randomized Algorithms*. Cambridge University Press, 1995.

10 Computer Algebra

- [1] C.K. Yap. *Fundamental Problems in Algorithmic Algebra*. Oxford University Press, 1999.
- [2] Joachim Von zur Gathen and Jürgen Gerhard. *Modern Computer Algebra*. Cambridge University Press, New York, NY, USA, 1999.

11 Analysis of Algorithms and Mathematical Foundations

- [1] R. L. Graham, D. E. Knuth, and O. Patashnik. *Concrete Mathematics*. Addison-Wesley, 1994.
- [2] R Sedgewick and P. Flajolet. *An Introduction to the Analysis of Algorithms*. Addison-Wesley, 1996.