Technische Universität München
Fakultät für Informatik
Lehrstuhl für Effiziente Algorithmen
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Proseminar
Algorithmen in der Bioinformatik
Wintersemester 2002/03
14. Juli 2002

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Themenliste

1. Basic Concepts of Molecular Biology

   [1] J. Setubal, J. Meidanis: Introduction to Computational Molecular Biology, PWS 1997; Kapitel 1.

   [2] P. Clote, R. Backofen: Computational Molecular Biology — An Introduction, Wiley 2000; Kapitel 1.

   [3] M. Waterman: Introduction to Computational Biology, Chapman & Hall, 1995; Kapitel 1.

2. String Matching: Knuth-Morris-Pratt

   [4] D. Gusfield: Algorithms on Strings, Trees, and Sequences – Computer Science and Computational Biology, Cambridge University Press, 1997; Kapitel 1-3.

   [5] V. Heun: Grundlegende Algorithmen, Vieweg-Verlag, 2000, Kapitel 6.1, 6.2

3. String Matching: Boyer-Moore

   [4] D. Gusfield: Algorithms on Strings, Trees, and Sequences – Computer Science and Computational Biology, Cambridge University Press, 1997; Kapitel 1-3.

   [6] V. Heun: Grundlegende Algorithmen, Vieweg-Verlag, 2000, Kapitel 6.1, 6.3

4. String Matching: Karp-Rabin

   [7] D. Gusfield: Algorithms on Strings, Trees, and Sequences – Computer Science and Computational Biology, Cambridge University Press, 1997; Kapitel 4.

5. Suffix Trees: Simple Algorithm and Applications

   [8] D. Gusfield: Algorithms on Strings, Trees, and Sequences – Computer Science and Computational Biology, Cambridge University Press, 1997; Kapitel 5, Abschnitt 6.4, Abschnitte 7.1 und 7.3-7.6.

6. Pairwise Sequence Alignment

   [9] J. Setubal, J. Meidanis: Introduction to Computational Molecular Biology, PWS 1997; Kapitel 3.1, 3.2, 3.3.

7. Multiple Sequence Alignment

   [10] J. Setubal, J. Meidanis: Introduction to Computational Molecular Biology, PWS 1997; Kapitel 3.1, 3.4.

8. Biological Data Bases: Resources and Formats

   [11] H.H. Rashidi, L.K. Bühler: Grundriss der Bioinformatik, Kapitel 2, Skektrum Akademischer Verlag, 2001.

   [12] D.W. Mount: Bioinformatics - Sequence and Genome Analysis Kapitel 2, Cold Spring Harbor Laboratory Press, 2001.

   [13] T.K. Attwood, D.J. Parry-Smith: Introduction to Bioinformatics, Kapitel 3,4, Prentice Hall, 1999.

   [14] Eigene WWW-Recherche

9. Biological Data Bases: Searching

   [15] J. Setubal, J. Meidanis: Introduction to Computational Molecular Biology, PWS 1997; Kapitel 3.1, 3.5.

   [16] D. Gusfield: Algorithms on Strings, Trees, and Sequences – Computer Science and Computational Biology, Cambridge University Press, 1997; Kapitel 15.

   [17] D.W. Mount: Bioinformatics - Sequence and Genome Analysis Kapitel 7, Cold Spring Harbor Laboratory Press, 2001.

10. Sequence Assembly

    [18] J. Setubal, J. Meidanis: Introduction to Computational Molecular Biology, PWS 1997; Kapitel 4.1, 4.2, 4.3.

11. Evolutionary Trees: Character Data

    [19] J. Setubal, J. Meidanis: Introduction to Computational Molecular Biology, PWS 1997; Kapitel 6.1, 6.2, 6.4.

12. Evolutionary Trees: Distance Matrices

    [20] J. Setubal, J. Meidanis: Introduction to Computational Molecular Biology, PWS 1997; Kapitel 6.5, 6.6.