

Seminar

Succincte Datenstrukturen in der Bioinformatik

Wintersemester 2016/17
Prof. Dr. V. Heun

Themenliste

1. Suffix Arrays: Grundlagen

- [1] U. Manber and E. W. Myers: Suffix Arrays: A New Method for On-Line String Searches. *SIAM J. Comput.* 22(5):935–948 (1993)
- [2] V. Mäkinen and G. Navarro: Compressed Full-Text Indexes. *ACM Comput. Surv.* 39(1):2 (2007)

2. Suffix Arrays: Algorithmus von Kärkkäinen, Sanders und Burkhardt

- [3] J. Kärkkäinen, P. Sanders, S. Burkhardt: Linear Work Suffix Array Construction. *J. ACM* 53(6):918–936 (2006)
- [2] V. Mäkinen and G. Navarro: Compressed Full-Text Indexes. *ACM Comput. Surv.* 39(1):2 (2007)

3. Suffix Arrays: Algorithmus von Ko und Aluru

- [4] P. Ko, S. Aluru: Space Efficient Linear Time Construction of Suffix Arrays. *J. Disc. Algor.* 3(2–4):143–156 (2005)
- [2] V. Mäkinen and G. Navarro: Compressed Full-Text Indexes. *ACM Comput. Surv.* 39(1):2 (2007)

4. Suffix Arrays: SAIS-Algorithmus

- [5] G. Nong, S. Zhang, W.H. Chan: Two Efficient Algorithms for Linear Time Suffix Array Construction. *IEEE Trans. Comput.* 60(10):1471–1484 (2011)
- [2] V. Mäkinen and G. Navarro: Compressed Full-Text Indexes. *ACM Comput. Surv.* 39(1):2 (2007)

5. Platzsparende Datenstrukturen für Bitvektoren

- [6] R. Raman, V. Raman, and S. Rao: Succinct Indexable Dictionaries with Applications to Encoding k -ary Trees and Multisets. *ACM Trans. Algorithm.* 3(4):43 (2007)

- [7] V. Mäkinen and G. Navarro: Compressed Full-Text Indexes. *ACM Comput. Surv.* 39(1):2, Chapter 6 (2007)
6. Platzsparende Datenstrukturen: Range Minimum Queries
- [8] J. Fischer, V. Heun: Space-Efficient Preprocessing Schemes for Range Minimum Queries on Static Arrays. *SIAM J. Comput.* 40:465–492 (2011)
7. Platzsparende Datenstrukturen: Longest Common Prefixes und Extended Suffix Arrays
- [9] T. Kasai, G. Lee, H. Arimura, S. Arikawa, and K. Park: Linear-Time Longest-Common-Prefix Computation in Suffix Arrays and Its Applications. *Proceeding of the Conference on Combinatorial Pattern Matching. LNCS Vol. 2089*, 181–192 (2001)
- [10] G. Manzini: Two Space Saving Tricks for Linear Time LCP Array Computation. *Proceedings of the Scandinavian Workshop on Algorithm Theory, LNCS Vol. 3111*, 372–383 (2004)
- [11] K. Sadakane: Compressed Suffix Trees with Full Functionality. *Theory Comput. Syst.* 41(4):589–607 (2007).
- [12] J. Fischer, V. Heun: A New Succinct Representation of RMQ-Information and Improvements in the Enhanced Suffix Array. *Proceedings of the International Symposium on Combinatorics, Algorithms, Probabilistic and Experimental Methodologies, LNCS Vol. 4614*, 459–470 (2007)
8. Kompression: Burrows-Wheeler-Transformation und Entropie von Texten
- [13] M. Burrows and D. Wheeler: A Block-Sorting Lossless Data Compression Algorithm. TR 124, Digital Equipment Corporation (1994)
- [14] H. Kaplan, S. Landau, and E. Verbin: A Simpler Analysis of Burrows-Wheeler Based Compression. *Theor. Comput. Sci.* 387(3):220–235 (2007)
- [2] V. Mäkinen and G. Navarro: Compressed Full-Text Indexes. *ACM Comput. Surv.* 39(1):2 (2007)
9. Indizierung ohne Text: Der FM-Index
- [15] P. Ferragina and G. Manzini: Indexing Compressed Texts. *J. ACM* 52(4):552–581 (2005)
- [2] V. Mäkinen and G. Navarro: Compressed Full-Text Indexes. *ACM Comput. Surv.* 39(1):2 (2007)
10. Affix Arrays
- [16] D. Strothmann: The Affix Array Data Structure and Its Applications to RNA Secondary Structure Analysis. *Theor. Comput. Sci.* 389(1-2):278–294 (2007)