

Hauptseminar

Algorithm Engineering

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1 Themenliste

1. External Memory Algorithms
Inhalt: Einführung External-Memory-Modelle, Breitensuche mit sublinearem I/O
Literatur: [Vit01], [MM02]
2. External Memory Graph Algorithms
Inhalt: Überblick, SSSP, MST
Literatur: [KM02], [MZ03]
3. Cache-Aware and Cache-Oblivious Algorithms
Inhalt: Cache-sensitive Algorithmen, vergleichende Studie von Cache-Aware und Cache-Oblivious Suchbäumen
Literatur: [Kum02], [LFN00]
4. Engineering Priority Queues
Inhalt: Priority Queues in der Praxis
Literatur: [San99], [DKMS04]
5. Distributed Algorithm Engineering
Inhalt: Verteilte Algorithmen, Beispiel Sortieren
Literatur: [SZ00], [CC05]
6. Engineering Sorting Algorithms
Inhalt: Cache-Effizientes und Externes Sortieren
Literatur: [SW04]
7. Engineering String Algorithms
Inhalt: Suffix Arrays, Linearzeitkonstruktion von Suffix Arrays, Indizierung von DNA Sequenzen
Literatur: [KS03], [HLS⁺04]
8. Experimental Analysis of Algorithms
Inhalt: Design, Auswertung und Aufbereitung von experimentellen Algorithmenanalysen
Literatur: [Joh02] [San00]
9. Dynamic Graph Algorithms
Inhalt: Dynamische Graph-Algorithmen, Implementierungen und Evaluation
Literatur: [Zar00], [ACI97]
10. Shortest Path Computations in Road Networks
Inhalt: Varianten von Shortest-Path-Problemen mit praktischer Relevanz, Design, Analyse und experimentelle Evaluation
Literatur: [GW05], [Shi99]
11. Parameterized Complexity
Inhalt: Parameterisierte Komplexitätsanalyse und praktische Aspekte
Literatur: [Fel02]
12. Smoothed Analysis of Algorithms
Inhalt: Einführung in die Smoothed Analysis
Literatur: [ST02]

Literatur

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- [CC05] Geeta Chaudhry and Thomas H. Cormen. Oblivious vs. distribution-based sorting: An experimental evaluation. In *ESA*, pages 317–328, 2005.
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