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MADALGO seminar by Allan Grønlund Jørgensen, Aarhus University

Data Structures for Range Median Queries

Abstract:

In this talk we design data structures supporting **range median** queries, i.e. report the median element in a sub-range of an array. We consider static and dynamic data structures and batched queries. Our data structures support **range selection** queries, which are more general, and dominance queries (**range rank**). In the static case our data structure uses linear space and queries are supported in $O(\log n / \log \log n)$ time. Our dynamic data structure uses $O(n \log n / \log \log n)$ space and supports queries and updates in $O((\log n / \log \log n)^2)$ time.

Joint work with: Gerth Stølting Brodal