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MADALGO seminar by Jesper Asbjørn Sindahl Nielsen, Aarhus University

Expected Linear Time Sorting for Word Size $\Omega(\log^2 n \log \log n)$

Abstract:

Integer sorting in the RAM model is a fundamental problem and a long standing open problem is whether we can sort in linear time when the word size is $\omega(\log n)$. In this paper we give an algorithm for sorting integers in expected linear time when the word size is $\Omega(\log^2 n \log \log n)$. Our algorithm uses a new packed sorting algorithm with expected running time $O(n/b (\log n + \log^2 b))$, where n is the number of integers and b is the number of integers packed in a word.

Joint work with: Djamel Belazzougui and Gerth Stølting Brodal