Faster Concurrent Range Queries with Contention Adapting Search Trees Using Immutable Data

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──── **Abstract** ────

The need for scalable concurrent ordered set data structures with linearizable range query support is increasing due to the rise of multicore computers, data processing platforms and in-memory databases. This paper presents a new concurrent ordered set with linearizable range query support. The new data structure is based on the contention adapting search tree and an immutable data structure. Experimental results show that the new data structure is as much as three times faster compared to related data structures. The data structure scales well due to its ability to adapt the sizes of its immutable parts to the contention level and the sizes of the range queries.

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