

# OnlineMin: A Fast Strongly Competitive Randomized Paging Algorithm

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## Abstract

In the field of online algorithms paging is one of the most studied problems. For randomized paging algorithms a tight bound of  $H_k$  on the competitive ratio has been known for decades, yet existing algorithms matching this bound have high running times. We present the first randomized paging approach that both has optimal competitiveness and selects victim pages in subquadratic time. In fact, if  $k$  pages fit in internal memory the best previous solution required  $O(k^2)$  time per request and  $O(k)$  space, whereas our approach takes also  $O(k)$  space, but only  $O(\log k)$  time in the worst case per page request.