Cheng, Siu-Wing; Jin, Kai; Yan, Lie

Extensions of self-improving sorters. (English) Zbl 1436.68086
Algorithmica 82, No. 1, 88-106 (2020).

Summary: N. Ailon et al. [in: Proceedings of the seventeenth annual ACM-SIAM symposium on discrete algorithms, SODA 2006. New York, NY: Association for Computing Machinery (ACM); Philadelphia, PA: Society for Industrial and Applied Mathematics (SIAM). 261–270 (2006; Zbl 1192.68809)] proposed a self-improving sorter that tunes its performance to an unknown input distribution in a training phase. The input numbers \(x_1, x_2, \ldots, x_n\) come from a product distribution, that is, each \(x_i\) is drawn independently from an arbitrary distribution \(D_i\). We study two relaxations of this requirement. The first extension models hidden classes in the input. We consider the case that numbers in the same class are governed by linear functions of the same hidden random parameter. The second extension considers a hidden mixture of product distributions.

MSC:
68P10 Searching and sorting
68Q87 Probability in computer science (algorithm analysis, random structures, phase transitions, etc.)
68W01 General topics in the theory of algorithms

Software:
ITIP

Full Text: DOI arXiv Link

References:


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