Design and Analysis of a Class-aware Recursive Loop Scheduler
for Class-based Scheduling

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Abstract: In this paper, we consider the problem of devising a loop scheduler that allocates slots to users according to their relative weights as smoothly as possible. Instead of the existing notion of smoothness based on balancedness, we propose a variance-based metric which is more intuitive and easier to compute. We propose a recursive loop scheduler for a class-based scheduling scenario based on an optimal Weighted Round Robin scheduler. We show that it achieves very good allocation smoothness with almost no degradation in intra-class fairness. In addition, we also demonstrate the equivalence between our proposed metric and the balancedness-based metric.

Keywords: Loop Scheduler, Smoothness, Recursive, Class-aware scheduling

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