Optimizing Advertisement Spacing Across Multiple Agents Using a Genetic Algorithm

Jen-Ya Wang

Department of Information Management, National Taichung University of Science and Technology, Taiwan, R.O.C.

Zheng-De Lin

Department of Information Management, National Taichung University of Science and Technology, Taiwan, R.O.C.

Abstract:

In today's digital age, advertising continues to be a cornerstone of marketing strategies. Traditional advertisement scheduling often follows first-come, first-served or pay-per-slot models, which can result in suboptimal placements, such as airing consecutive ads from competing brands. This study addresses a job scheduling problem involving three agents, with the goal of optimizing advertisement spacing while ensuring zero tardiness. We propose a genetic algorithm that ensures well-spaced advertisements from different agents while eliminating any tardiness. Experimental results demonstrate that the algorithm significantly enhances audience engagement and advertiser satisfaction by optimizing the distribution of ads.

Keywords:

Job Scheduling, Multi-agent scheduling, Genetic Algorithm, Tardiness, Outbreed.