# A novel population-based local search for nurse rostering problem

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Population-based approaches regularly are better than single based (local search) approaches in exploring the search space. However, the drawback of population-based approaches is in exploiting the search space. Several hybrid approaches have proven their efficiency through different domains of optimization problems by incorporating and integrating the strength of population and local search approaches. Meanwhile, hybrid methods have a drawback of increasing the parameter tuning. Recently, population-based local search was proposed for a university course-timetabling problem with fewer parameters than existing approaches, the proposed approach proves its effectiveness. The proposed approach employs two operators to intensify and diversify the search space. The first operator is applied to a single solution, while the second is applied for all solutions. This paper aims to investigate the performance of population-based local search for the nurse rostering problem. The INRC2010 database with a dataset composed of 69 instances is used to test the performance of PB-LS. A comparison was made between the performance of PB-LS and other existing approaches in the literature. Results show good performances of proposed approach compared to other approaches, where population-based local search provided best results in 55 cases over 69 instances used in experiments.

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