An algorithm portfolio for nurse rostering

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Abstract

Based on the success of algorithm portfolio’s in other domains, we have applied these ideas in a real world setting. Last year, our research group co-organised the First International Nurse Rostering Competition 2010. This is an ideal testbed for the creation and validation of an algorithm portfolio for this real-world problem. The goal of this research is building a super-algorithm composed of the set of submitted competitive algorithms. The performance of each algorithm is learned based on characteristics of the instances. When presented with a new, unseen instance, the performance of each algorithm is predicted and the ‘best’ algorithm is selected. Doing so, the portfolio is expected to outperform any of its individual components.