

**Heuristic space diversity control for improved meta-hyper-heuristic performance**

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**Abstract:**

This paper expands on the concept of heuristic space diversity and investigates various strategies for the management of heuristic space diversity within the context of a meta-hyper-heuristic algorithm in search of greater performance benefits. Evaluation of various strategies on a diverse set of floating-point benchmark problems shows that heuristic space diversity has a significant impact on hyper-heuristic performance. An exponentially increasing strategy (EIHH) obtained the best results. The value of a priori information about constituent algorithm performance on the benchmark set in question was also evaluated. Finally, EIHH demonstrated good performance when compared to a popular population based algorithm portfolio algorithm and the best performing constituent algorithm..