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# A Hybrid Hopfield Neural Network for Dynamic Flexible Job Shop Scheduling Problems

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**Abstract :** In this paper, a new hybrid Hopfield neural network is proposed for the dynamic, flexible job shop scheduling problem. A new heuristic based and easy to implement energy function is designed for the Hopfield neural network, which penalizes the constraints violation and decreases makespan. Moreover, for enhancing the performance, several heuristics are integrated to it that achieve active, and non-delay schedules also, prevent early convergence of the neural network. The suggested algorithm that is designed as a generalization of the previous studies for the flexible and dynamic scheduling problems can be used for solving real scheduling problems. Comparison of the presented hybrid method results with the previous studies results proves its efficiency.

**Keywords :** dynamic flexible job shop scheduling, neural network, heuristics, constrained optimization
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