A Study on Cutting-Edge Techniques for Large-Scale Production Scheduling

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Abstract*: Production scheduling is complicated and recorded. The sector-neutral starting stream fixes scheduling. The second stream adds realistic features like process overlaps or sequence dependent setup periods to traditional models to work on less generic scheduling algorithms for industrial settings. Different techniques have different limitations and issue sizes. Industry 4.0 has improved data collection for complex models. Industrial use cases may include thousands of operations on several devices, unlike benchmark examples of a few hundred. Identify and prioritize Industry 4.0 scheduling techniques to solve concerns and complications. Application scenarios and real-world scheduling issue literature are collected in this study. The publications found that machine learning, constraint programming, and metaheuristics solve large-scale scheduling problems. We found few contributions that address (extremely) large-scale challenges, requiring future investigation. Finding powerful metaheuristics via genetic algorithms and tabu search is exciting. Constrained programming and issue decomposition are also considered for problem-solving..*

Keywords: Large-Scale Optimization, Complex Constraints

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695