



# A Reinforcement Learning Approach for the Report Scheduling Process Under Multiple Constraints

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## Abstract

*Scheduling problems appear on a regular basis in many real life situations, whenever it is necessary to allocate resources to perform tasks, optimizing one or more objective functions. Depending on the problem being solved, these tasks can take different forms, and the objectives can also vary. This research addresses scheduling in manufacturing environments, where the reports requested by the customers have to be scheduled in a set of machines with capacity constraints. Additionally, there is a set of limitations imposed by the company that must be taken into account when a feasible solution is built. To solve this problem, a general algorithm is proposed, which initially distributes the total capacity of the system among the existing resources, taking into account the capacity of each them, after that, each resource decides in which order it will process the reports assigned to it. The experimental study performed shows that the proposed approach allows to obtain feasible solutions for the report scheduling problem, improving the results obtained by other scheduling methods.*

**Keywords:** Reports scheduling, Reinforcement learning, Parallel machines, Dispatching rules

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