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WORKING PAPER

An Artificial Immune System for the Multi-Mode Resource-Constrained Project Scheduling Problem

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Abstract

In this paper, an Artificial Immune System (AIS) for the multi-mode resource-constrained project scheduling problem (MRCPSP), in which multiple execution modes are available for each of the activities of the project, is presented. The AIS algorithm makes use of mechanisms which are inspired on the vertebrate immune system performed on an initial population set. This population set is generated with a controlled search method, based on experimental results which revealed a link between predefined profit values of a mode assignment and its makespan. The impact of the algorithmic parameters and the initial population generation method is observed and detailed comparative computational results for the MRCPSP are presented.