# Autonomous tuning for constraint programming via artificial bee colony optimization

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Constraint Programming allows the resolution of complex problems, mainly combinatorial ones. These problems are defined by a set of variables that are subject to a domain of possible values and a set of constraints. The resolution of these problems is carried out by a constraint satisfaction solver which explores a search tree of potential solutions. This exploration is controlled by the enumeration strategy, which is responsible for choosing the order in which variables and values are selected to generate the potential solution. Autonomous Search provides the ability to the solver to self-tune its enumeration strategy in order to select the most appropriate one for each part of the search tree. This self-tuning process is commonly supported by an optimizer which attempts to maximize the quality of the search process, that is, to accelerate the resolution. In this work, we present a new optimizer for self-tuning in constraint programming based on artificial bee colonies. We report encouraging results where our autonomous tuning approach clearly improves the performance of the resolution process. 

Adaptive systems

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Artificial bee colonies

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