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Tracking Extrema in Dynamic Environments Using a Learning Automata-Based Immune Algorithm

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Abstract

In recent years, bio-inspired algorithms have increasingly been used by researchers for solving various optimization problems increasingly. Many real world problems are mostly time varying optimization problems, which require special mechanisms for detecting changes in environment and then responding to them. The present paper has been proposed to combination the learning automata and artificial immune algorithm in order to improve the performance of immune system algorithm in dynamic environments. In the proposed algorithm, the immune cells are equipped with a learning automaton. So they can increase diversity in response the dynamic environments. Learning automata based immune algorithm for dynamic environment has been tested in the moving parabola as a popular standard dynamic environment and compared by several famous algorithms in dynamic environments.

Keywords Artificial Immune Algorithm - Learning Automata - Dynamic Environments - Time Varying Problems

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