

Abstract

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A Fuzzy-Immune Algorithm for Autonomous Robot Navigation

Autonomous robot navigation can support humans in many applications. Autonomous navigation is a difficult problem due to the variability of the surrounding world. Fuzzy logic system (F.S.) has features that make it an adequate tool for addressing this problem. The fuzzy rules are collected according to the given application. In this paper, the parameters of the control rules are evolved using artificial immune system (A.I.S.) paradigm. The optimized model is used as an immune system to prevent the robot from illegal moves collisions. The approach is tested over ten different simulated data and compared with traditional genetic algorithm (G.A). The results show that the proposed approach performs better with time limitation.