

Abstract

Khaled Mahar

An Intelligent mobile robot navigator using evolutionary fuzzy controller

in many applications, the robot's environment is changing with time in a way that is not predictable by the designer in advance. in addition, the information available about the environment is subjected to imprecision/incompleteness due to the limited perceptual quality of the sensors. these problems can be handled by combining the adaptive power of both evolutionary strategy algorithms/fuzzy controllers. in this paper, an evolutionary strategy algorithm is used to tune fuzzy membership functions to enhance the performance of a fuzzy controller that governs a robot behavior. this fuzzy controller is synthesized from human heuristics with respect to various situations of the changing environment. the controller acts according to a combination of both goal seeking/open area seeking approaches. the proposed system was evaluated through different simulations of the robot's environment. it achieved promising results