Design of optimal fuzzy logic controller with genetic algorithms

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Abstract

This paper is aimed at looking into the determination of optimal trajectories of the non-linear model of two-links articulated manipulator. In a first step, genetic algorithms are used to generate a sequence of the optimal control which is used to bring the manipulator robot at a desired position. In a second step, genetic algorithms optimize the parameters of membership functions and consequences of a Sugeno fuzzy logic based optimal controller. Simulation results show that the second step gives suboptimal solutions, however the first step yields to optimal solutions which are very sensitive with respect the parameters variation of the system.

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