Abstract

In this paper, a new way of optimizing fuzzy logic is introduced. This way is used to optimize the output of Interval Type-2 Fuzzy Logic controller by replacing the Defuzzification stage by the Optimization algorithm. The algorithm chooses the best crisp output variable from the type-reduced set which is the output of the Type-Reduction stage instead of averaging the set extremes which was performed by Defuzzification stage. Artificial Bee Colony optimization algorithm is used to optimize the Interval Type-2 Fuzzy Logic controller to manage the navigation of multiple mobile robots in indoor environments.

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Index Terms

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Keywords

Bio-inspired Optimization; Type-2 Fuzzy Logic; Differential Drive Mobile Robots; Navigation