A PSO-optimized type-2 fuzzy logic controller for navigation of multiple mobile robots

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Abstract:
In this paper, an Interval Type-2 Fuzzy Logic controller was used to control the robot cooperation and target reaching tasks during navigation for multiple mobile robots. This controller had been optimized by the Particle Swarm Optimization algorithm and the Hybrid Reciprocal Velocity Obstacles algorithm was also used to handle collision avoidance. This controller was tested on Webots™ robot simulation software and experimentally applied on two real E-puck mobile robots. The simulation and experimental results had shown that the optimized controller outperformed the same controller without optimization.

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