Dynamic stabilization of one wheel mobile robot (OWMR): a soft-computing approach

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Abstrak

This paper presents application of various Soft-computing control strategies for offline control of one wheel mobile robot (OWMR). The techniques considered for controlling were Fuzzy logic reasoning, Adaptive neuro-fuzzy inference system (ANFIS), and Neural networks (NNs). The study compares the performance of proposed techniques in terms of settling time, maximum overshoot, and steady state error. A Matlab-Simulink model of OWMR system has also been developed. The results obtained from simulation of fuzzy controller were used to train ANFIS and NNs controller. The simulation results showed better performance and learning ability of ANFIS controller compared to other two controllers. The results are shown with the help of graphs and tables to validate the proposed study.