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عنوان مقاله:

A Novel Robust Adaptive Trajectory Tracking in Robot Manipulators

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نویسندگان:

Shaghayegh Gorji - *Faculty of Electrical, Biomedical and Mechatronics Engineering, Qazvin Branch, Islamic Azad University, Qazvin, Iran*

Mohammad Javad Yazdanpanah - *Control and Intelligent Processing Center of Excellence, School of Electrical and Computer Engineering, University of Tehran, Tehran, Iran*

خلاصه مقاله:

In this paper, a novel adaptive sliding mode control for rigid robot manipulators is proposed. In the proposed system, since there may exist explicit unknown parameters and perturbations, a Lyapunov based approach is presented to increase system robustness, even in presence of arbitrarily large (but not infinite) discontinuous perturbations. To control and track the robot, a continuous controller is designed with two phases of adaptation. The first phase is related to the robot parameters and the other one is accounted for perturbation estimating. We investigated the stability in the sense of Lyapunov with derive adaptive laws and uniform ultimate boundedness in the applied worst condition. The simulation results for two degrees of freedom rigid robot manipulator effectively demonstrate capability of the mentioned approach. Moreover, the results show that the domain of attraction is so vast and a global uniform ultimate boundedness could be expected.

کلمات کلیدی:

Adaptive Control, Sliding Mode, Perturbation Estimation, Trajectory Tracking, Rigid Robot Manipulators

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