عنوان مقاله:

Integrator Backstepping Control of a ۵ DoF Robot Manipulator with Cascaded Dynamics

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خلاصه مقاله:

In this paper, dynamic equations of motion of a ۵ DoF robot manipulator including mechanical arms with revolute joints and their electrical actuators are considered. The application of integrator backstepping technique for trajectory tracking in presence of parameters of uncertainty and disturbance is studied. The advantage of this control technique is that it imposes the desired properties of stability by fixing the candidate Lyapunov functions initially, then by calculating the other functions in a recursive way. Simulation results are presented in order to evaluate the tracking performance and the global stability of the closed loop system. The validity and usefulness of the proposed technique for robot motion control when the system dynamics including both mechanical arms and electrical actuators become more complex is obtained from the results.

کلمات کلیدی:

Integrator Backstepping Control, Actuators Dynamics, ۵ DoF Robot Manipulator, Robot Control

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