عنوان مقاله:
Task-space Control of Electrically Driven Robots

محل انتشار:
فصلنامه فرایندهای نوین در ساخت و تولید, دوره 7, شماره 4 (سال: 1397)

تعداد صفحات اصل مقاله: 11

نویسنده:
Morteza Tavakoli - *Department of Electrical Engineering, Garmsar Branch, Islamic Azad University, Garmsar, Iran*

خلاصه مقاله:
Actuators of robot operate in the joint-space while the end-effect or of robot is controlled in the task-space. Therefore, designing a control system for a robotic system in the task-space requires the jacobian matrix information for transforming joint-space to task-space, which suffers from uncertainties. This paper deals with the robust task-space control of electrically driven robot manipulators. In conventional robust control approaches, the uncertainty upper bound is required to design the control law. This type of controller design is conservative that may increase the amplitude of the control signal and damage the system. Moreover, calculation of this bound requires some feedbacks of the system states which may be expensive. The novelty of this paper is addressing a robust control law in which the lumped uncertainty is modeled by a differential equation. The control design is simple, robust against uncertainties, and less computational. Simulation results verify the effectiveness of the proposed control approach applied on a two-link robot manipulator driven by geared permanent magnet DC motors.

کلمات کلیدی:
Model-free Control, Electrically Driven Robot, Differential Equations, Robust Control