عنوان مقاله:

Robust Control for Flexible Joint Robots with A Supervisory Control to Remedy Actuator Saturation

محل انتشار:

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خلاصه مقاله:

In this paper a controller design method for flexible joint robots (FJR), considering actuator saturation is proposed and its robust stability is thoroughly analyzed. This method consists of a composite control structure, with a PD controller on the fast dynamics and a PID controller on slow dynamics. Moreover, the need of powerful actuator is remedied by decreasing the bandwidth of the fast controller during critical occasions, with the use of a supervisory loop. Fuzzy logic is used in the supervisory law, in order to adjust the proper gain in the forward path. It is then shown that UUB stability of the overall system is guaranteed in presence of uncertainties, provided that the PD and the PID gains are tuned to satisfy certain conditions.

کلمات کلیدی:

Flexible Joint Robot, Actuator Saturation, Supervisory Control, Fuzzy Logic

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