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Summary: In this paper, a command filter-based adaptive fuzzy controller is constructed for a class of nonlinear systems with uncertain disturbance. By using the error compensation signals and fuzzy logic system, a command filter-based control strategy is presented to make that the tracking error converge to an any small neighborhood of zero and all closed-loop signals are bounded. In the design procedure, fuzzy logic system is employed to estimate unknown package nonlinear functions, which avoids excessive and burdensome computations. The control scheme not only resolves the explosion of complexity problem but also eliminates the filtering error in finite-time. An example has evaluated the validity of the control method.

MSC:
93C42 Fuzzy control/observation systems
93C40 Adaptive control/observation systems
93C10 Nonlinear systems in control theory
93C41 Control/observation systems with incomplete information
93B52 Feedback control

Keywords:
finitetime adaptive fuzzy control; nonlinear systems; uncertain disturbance

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References:


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