عنوان مقاله:

Designing a Hybrid Controller for Non-minimum Phase Quadruple Tank System with Model Uncertainties

محل انتشار:

نویسندگان:

Elnaz Mirakhorli - *Department of Electrical Engineering, Iran University of Science and Technology, Tehran ۱۶۸۴۶-۱۳۱۱۴, Iran*

Mohammad Farrokhi

خلاصه مقاله:

This paper is concerned with the design of a hybrid state-feedback sliding-mode controller using fuzzy logic for a multivariable laboratory process of quadruple tank system. This apparatus is set to operate in its non-minimum phase mode which is more challenging to control as compared to the minimum phase mode. In the proposed control strategy, the consequent part of the fuzzy rules consists of either a sliding-mode controller (SMC) or a state-feedback controller (SFC). The proposed method takes advantages of the fast transient response of the SMC and the zero steady-state errors in SFC. Experimental results confirm the effectiveness of the proposed method as compared to the standalone SMC and SFC methods, especially when there are uncertainties in the model of the system

کلمات کلیدی:

Non-minimum phase system; Quadruple tank system; Sliding-mode control; State-feedback control; Fuzzy hybrid systems

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/119103