

Sliding Mode Control Of Uncertain Parameter Switching Hybrid Systems Wiley Series In Dynamics And Control Of Electromechanical Systems

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Sliding Mode Control Of Uncertain

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Sliding Mode Control of Uncertain Parameter-Switching ...

IET Digital Library: Sliding mode control for uncertain discrete-time systems based on fractional order reaching law. The design and validation of a new fractional order (FO) reaching law for uncertain discrete-time systems is studied. A sliding mode controller is subsequently constructed by adopting this law.

IET Digital Library: Sliding mode control for uncertain ...

A predictor is designed to compensate the delay effect in the control input, and then an integral sliding mode control technique along with super-twisting algorithm is applied to compensate partially the effect of the perturbation term. Finally, a nominal delay-free part of the control input is designed to stabilize the sliding mode dynamics.

Sliding mode predictive control of linear uncertain ...

The methodology provides guarantees on the level of closed-loop performance that will be achieved by uncertain systems which experience delay. The methodology is also shown to facilitate sliding-mode controller design for systems with polytopic uncertainties, where the uncertainty may appear in all blocks of the system matrices.

Sliding-mode control of uncertain systems in the presence ...

This study proposes a sliding mode control method for chaos control of the uncertain unified chaotic systems. A sliding mode control law is developed by using a PI switching surface, and the reachability condition is satisfied. I believe that this method will be generalized.

Sliding mode control of uncertain unified chaotic systems ...

So far, sliding mode control (SMC) is one of the influential nonlinear control methods that have been widely applied to control for both certain and uncertain systems , , . In order to design sliding mode control systems, the establishment of suitable sliding surfaces to ensure the desired dynamics is considered first, and then a sliding mode controller is designed to drive the states of the system on the sliding surfaces.

Adaptive terminal sliding mode control of uncertain ...

Abstract. This paper presents a robust sliding mode control law for time delay systems with parametric uncertainties and external disturbances. The uncertainties and disturbances are assumed to be matched. The method for designing a switching hyperplane using Lambert W function is proposed for generation of sliding motion in the system.

Sliding Mode Control of Uncertain Time Delay System using ...

To improve the robustness of the model predictive control (MPC) in the presence of modeling uncertainties and disturbances in the steering control processes, a sliding mode predictive tracking control (SMPC) strategy for a SbW system with uncertain dynamics is proposed. The simulation and experimental results demonstrate that the performance of the proposed SMPC tracking controller is superior to both SMC and MPC methods for the steering angle tracking task.

Sliding mode predictive tracking control for uncertain ...

Abstract. In this paper, a sliding mode control (SMC) of uncertain discrete singular systems with external disturbances and time-varying delays is under consideration. By use of the free weighting matrices and the Lyapunov-Krasovskii functional, a delay-dependent sufficient condition is given in strict linear matrix inequality (LMI) format to guarantee the sliding mode dynamics to be admissible (regular, causal and stable).

Robust sliding mode control for uncertain discrete ...

In this paper, an adaptive second-order terminal sliding-mode (SOTSM) controller is proposed for controlling uncertain systems. The design procedure is carried out in two parts. A linear sliding ...

Second-order terminal sliding mode control of uncertain ...

Full Text. References. Abstract. This paper addresses asymptotic stabilization of uncertain nonlinear fractional-order systems with bounded inputs in the presence of model uncertainties and external disturbances.

Adaptive constrained sliding mode control of uncertain ...

Sliding Mode Control of Uncertain Parameter-Switching Hybrid Systems is a comprehensive reference for researchers and practitioners working in control engineering, system sciences and applied mathematics, and is also a useful source of information for senior undergraduate and graduates studying in these areas.

Sliding Mode Control of Uncertain Parameter-Switching ...

The bounding techniques of the sliding mode controller design are then used to develop a combined classical (non-sliding) controller-observer design method for uncertain time delay systems. Two observer structures are developed to estimate system states, and a linear feedback control is given based on the observed states to asymptotically stabilize the combined plant-controller-observer.

Subsequently, terminal sliding mode tracking control is developed using disturbance observer technique for the uncertain SISO nonlinear system with control singularity and unknown non-symmetric input saturation. The effects of the control singularity and unknown input saturation are combined with the external disturbance which is approximated using the disturbance observer.

Terminal sliding mode tracking control for a class of SISO ...

Sliding-mode control of continuous time-systems with robust. continuous-time control techniques has been under investigation for decades world-wide. However, implementation nowadays is in discrete time. A mathematical proof of stability and robustness is especially complicated for discrete-time control . A recent literature study on discrete sliding mode control showed that current developments cannot deal with uncertainties which would be overcome via robust continuous-time control techniques.

Sliding mode control theory - discrete control of ...

This paper investigates the robust adaptive sliding mode control problem for a class of nonlinear uncertain neutral Markovian jump systems. In this study, An observer-based adaptive sliding mode controller is synthesized to render the resulting error system stochastically stable with a prescribed disturbance attenuation level.

Robust Adaptive Sliding Mode Control for Nonlinear ...

Many works on the sliding mode control of uncertain fractional-order nonlinear systems are published in the literature, we can cite for instance , , , , . In these works, the conventional SMC is used, where the uncertainties are compensated by using high gains in the discontinuous control law.

Sliding mode active disturbance rejection control for ...

Fractional-order calculation for stability analysis and controller design. Abstract. The main goal in this article is synchronization of fractional-order uncertain chaotic systems in the finite time. For this aim, a terminal sliding mode controller with fractional sliding surface is employed to synchronize the states of two different fractional order chaotic systems with parameter uncertainties and external disturbances.

Adaptive terminal sliding mode control scheme for ...

-The sliding mode control usually applies to the system with matched uncertainties, i.e. the uncertainties enter the system at the same level (point) with the control.-The sliding mode control cannot usually handle arbitrary unmatched uncertainties, Suppose: The system (*) is modified as: The system is transformed as

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