

## Adaptive Terminal Sliding Mode Control For Nonlinear

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### Adaptive Terminal Sliding Mode Control

Parameter Adaptive Terminal Sliding Mode Control of Flexible Coupling Air-Breathing Hypersonic Vehicle 1. Introduction. A hypersonic vehicle is a kind of aircraft which can fly at more than Mach 5. Compared with... 2. AHV Model with Aerodynamic-Propulsion-Flight-Flexible Dynamic Coupling. In this ...

### Parameter Adaptive Terminal Sliding Mode Control of ...

The purpose of the present study is to introduce the adaptive terminal sliding mode (ATSM) controller subject to input nonlinearity for complete synchronization and anti-synchronization between two chaotic gyros, under the existence of system uncertainties and external disturbances.

### Adaptive terminal sliding mode control subject to input ...

Since this assumption is difficult to be satisfied in practical applications, an adaptive nonsingular fast terminal sliding-mode control (ANFTSMC) is used to estimate and compensate the unknown upper bounds of the system uncertainty and external disturbances which can increase the robustness of the control system and improve control performance.

### Adaptive nonsingular fast terminal sliding-mode control ...

In a nonlinear sliding surface based fast and adaptive terminal sliding mode control strategy is proposed for the active power control of a DFIG based system. Moreover, to minimize the chattering effect several hybrid control techniques have been proposed such as fuzzy SMC, adaptive SMC and higher order SMC [19-24]. In [19, 20] fuzzy SMC

### Adaptive Fractional Order Terminal Sliding Mode Control of ...

In this paper, a robust adaptive terminal sliding mode controller is proposed for dynamic positioning of a semi-submersible offshore platform. First, a state feedback controller is designed to stabilize the nominal system.

### Robust adaptive terminal sliding mode control for dynamic ...

Abstract: This paper focuses on the design of an adaptive second-order fast nonsingular terminal sliding mode control (ASOFNTSMC) scheme for the trajectory tracking of fully actuated autonomous underwater vehicles (AUVs) in the presence of dynamic uncertainties and time-varying external disturbances. First, a second-order fast nonsingular terminal sliding mode (SOFNTSM) manifold is designed to ...

### Adaptive Second-Order Fast Nonsingular Terminal Sliding ...

ROBUST ADAPTIVE FRACTIONAL-ORDER TERMINAL SLIDING MODE CONTROL FOR LOWER-LIMB EXOSKELETON Saim Ahmed , Haoping Wang and Yang Tian ABSTRACT This paper introduces a robust adaptive fractional-order non-singular fast terminal sliding mode control (RFO-TSM)foralower-limb exoskeletonsystemssubjectto unknown externaldisturbancesanduncertainties.The

### Robust Adaptive Fractional Order Terminal Sliding Mode ...

An Adaptive Backstepping Nonsingular Fast Terminal Sliding Mode Control for Robust Fault Tolerant Control of Robot Manipulators Abstract: This paper develops a novel control methodology for tracking control of robot manipulators based on a novel adaptive backstepping nonsingular fast terminal sliding mode control (ABNFTSMC).

### An Adaptive Backstepping Nonsingular Fast Terminal Sliding ...

This paper proposes a sliding mode observer (SMO) with adaptive gain variation for the permanent synchronous motor magnet (PMSM) for estimating motor speed and position. The observer is designed to make the drive sensorless, speed estimation and rotor position using back-electromotive force (Back-EMF).

### Design of an Adaptive Gain variation Sliding Mode Control ...

Haibing Chen's 8 research works with 15 citations and 101 reads, including: Parameter Adaptive Terminal Sliding Mode Control of Flexible Coupling Air-Breathing Hypersonic Vehicle

### Haibing Chen's research works | Beihang University (BUAA) ...

In this paper, a time-delayed fractional order adaptive sliding mode control algorithm is proposed for a two-wheel self-balancing vehicle system. The closed-loop system is proved based on the Lyapunov-Razumikhin function. The switching function is designed to make the system robust when facing uncertainties and external disturbances. It is designed to avoid monotonically increasing gains and ...

### Time-Delayed Fractional Order Adaptive Sliding Mode ...

This paper presents a novel discrete-time sliding mode control (DSMC) for a general class of discrete-time chaotic systems with input nonlinearity and uncertainties. Unlike the co

### Sliding Mode Control for Discrete-Time Chaotic Systems ...

One of the efficient control strategies of PMSM is based on ANFIS. ANFIS is very popular technique to deal with uncertainties. System dynamics in such cases can be compared with combining the proportional-integral-derivative (PID) with the Sliding Mode Controller (SMC).

### Design and performance analysis of adaptive neuro-fuzzy ...

In this paper, an observer-based second-order non-singular fast terminal sliding mode control for robotic manipulators is proposed, and an adaptive law is designed to estimate the exact model and boundary parameters of the robot manipulator. The tracking errors are proven to converge to zero in a finite time.

### Observer-based adaptive second-order non-singular fast ...

In this article, an adaptive target tracking controller based on nonsingular terminal sliding mode control is designed for underactuated AUV. Unknown dynamics of the AUV are approximated by RBFNN. Adaptive tuning algorithm is employed to update gains of sliding mode controller and weights of the NN, which makes the system more robust to model uncertainties and external disturbances.

### Target tracking control of underactuated autonomous ...

Other examples on robust control include sliding mode and terminal sliding mode control. The major obstacle to achieving high loop gains is the need to maintain system closed loop stability. Loop shaping which allows stable closed loop operation can be a technical challenge.

### Robust control - Wikipedia

An adaptive terminal-integral sliding mode force control is proposed by considering the hysteresis and the effects between the end effector and a flexible environment. Force control has not been studied extensively nowadays and even less for elastic joint robot manipulators. Thus, to improve the system precision control, the adaptive sliding mode controller (ASMC) is designed by a Lyapunov approach obtaining the adaptive and controller laws, respectively.

### Adaptive Terminal-Integral Sliding Mode Force Control of ...

In an adaptive terminal sliding mode control for DC|DC buck converters has been presented and the purpose of the is to introduce the adaptive TSM controller subject to input nonlinearity for complete synchronization and anti-synchronization between two chaotic gyros, under the existence of system uncertainties and external disturbances.