

## Discrete Sliding Mode Control For Robust Tracking Of Time

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### Discrete Sliding Mode Control For

Abstract: This paper proposes a nonlinear discrete-time sliding mode based tension control for deployment of tethered space robot with only length and angle measurements. The discrete-time dynamics of deployment is uncovered based on discretization of Hamilton's principle. Taking into account the underactuated dynamics, the proposed discrete-time sliding surface can generate a specified reduced-order system, which can be regarded as an uncertain discrete-time system with multiple time delays

### Discrete-Time Sliding Mode Control for Deployment of ...

In control systems, sliding mode control is a nonlinear control method that alters the dynamics of a nonlinear system by application of a discontinuous control signal that forces the system to "slide" along a cross-section of the system's normal behavior. The state-feedback control law is not a continuous function of time. Instead, it can switch from one continuous structure to another based on the current position in the state space. Hence, sliding mode control is a variable structure control m

### Sliding mode control - Wikipedia

Discrete Sliding Mode Control for Hypersonic Cruise Missile A discrete variable structure control (DVSC) with sliding vector is presented to track the velocity and acceleration command for a hypersonic cruise missile. In the design an integrator is augmented to ensure the tracking with zero steady-state errors.

### Discrete Sliding Mode Control for Hypersonic Cruise Missile

In this paper, a new discrete second order sliding mode control for nonlinear multivariable systems with external disturbances is proposed. The new control strategy is designed in order to reduce...

### (PDF) Discrete second order sliding mode control for ...

This book presents novel algorithms for designing Discrete-Time Sliding Mode Controllers (DSMCs) for Networked Control Systems (NCSs) with both types of fractional delays namely deterministic delay and random delay along with different packet loss conditions such as single packet loss and multiple packet loss that occur within the sampling period.

### Discrete-Time Sliding Mode Control for Networked Control ...

A discrete system is considered without disturbance, based on reaching law approach different sliding mode control law is developed and performance is analyzed. following are the laws developed 1.

### Discrete Sliding mode control - File Exchange - MATLAB Central

Abstract In this article, a control scheme combining radial basis function neural network and discrete sliding mode control method is proposed for robust tracking and model following of uncertain time-delay systems with input nonlinearity.

### RBF-based discrete sliding mode control for robust ...

One effective solution to minimize the effects of data sampling and quantization imprecisions is the use of higher order sliding modes. To this end, in this pa- per, a new formulation of an adaptive second order discrete sliding mode control (DSMC) is presented for a general class of multi-input multi-output (MIMO) uncertain nonlinear sys- tems.

### Adaptive Discrete Second Order Sliding Mode Control with ...

Abstract. This paper mainly addresses the position and attitude tracking control for a small quadrotor UAV via discrete-time sliding mode control (DSMC). Firstly, the linear extrapolation method is used to transform the continuous-time system into discrete-time system. Based on the discrete-time system, the discrete-time flight controllers are designed to perform position and attitude tracking control of the quadrotor UAV.

### Discrete-time sliding mode control for a quadrotor UAV ...

Discrete sliding-mode control of a PWM inverter for sinusoidal output waveform synthesis with optimal sliding curve Abstract: This paper presents a discrete sliding-mode control scheme with feedforward compensation for the closed-loop regulation of the pulse-width modulated (PWM) inverter used in an uninterruptible power supply (UPS).

### Discrete sliding-mode control of a PWM inverter for ...

Like many sliding-mode controllers, it is difficult to switch accurately on the sliding-mode surface when used for discrete control which easily causes chattering. To overcome the problem, a similar control law for discrete control is proposed based on the principle of control law ( 41 ) by Han [ 29 ].

### Disturbance Observer-Based Discrete Sliding-Mode Control ...

Sliding mode control for discrete system The control law (8) is now realized by a digital computer The control is given at every sampling instant  $U$ , where  $4$  is the sampling period In digital control, the input  $a$  has a constant value between sampling  $u(t)=u_k, ka!-t<(k+1)4$ .

### Sliding mode control of a discrete system - ScienceDirect

To effectively improve the static and dynamic performance of grid current, a new kind of carrier-based pulse width modulation scheme based on the double closed-loop discrete sliding mode strategy is put forward.

### Discrete sliding mode control strategy for a three-phase ...

Discrete Time Sliding Mode Control II - Lecture by Sohom Chakrabarty - Duration: 1:34:08. Sohom C Research 375 views. 1:34:08. Intro to Control - 4.3 Linear Versus Nonlinear Systems - Duration ...

### Discrete Time Sliding Mode Control I - Lecture by Sohom Chakrabarty

Abstract 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.

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

The focus of this book is on the design of a specific control strategy using digital computers. This control strategy referred to as Sliding Mode Control (SMC), has its roots in (continuous-time) relay control. This book aims to explain recent investigations' output in the field of discrete-time sliding mode control (DSMC).

### Advances in Discrete-Time Sliding Mode Control: Theory and ...

This paper proposes a data-driven model-free sliding mode learning control (MFSMLC) for a class of discrete-time nonlinear systems. In this scheme, the control design does not depend on the mathematical model of the controlled system. The nonlinear system can be transformed into a dynamic linear data system by a novel dynamic linearization method. A recursive learning control algorithm is designed for the nonlinear system that can drive the sliding variable reach and remain on the sliding ...

### Data-driven model-free sliding mode learning control for a ...

robust sixth-order Discrete-time Extended Sliding Mode Observer (DESMO) for sensorless control of PMSM in order to estimate the currents, speed, rotor position, load torque and stator resistance. The satisfying simulation results on Simulink/Matlab environment for a 1.6 kW PMSM demonstrate the good performance and stability of