

Robust Chattering Free Backstepping Sliding Mode Control

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Robust Chattering Free Backstepping Sliding Mode Control Strategy for Autonomous Quadrotor Helicopter Mohd Ariffanan Mohd Basri, Abdul Rashid Husain, Kumeresan A. Danapalasingam Department of Control & Mechatronics Engineering, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia.

[Robust chaotic control of Lorenz system by backstepping ...](#)

In this paper a robust chattering free backstepping sliding mode controller is developed for the attitude stabilization and trajectory tracking control of quadrotor helicopter with external disturbances. The control scheme is developed based on backstepping technique and a sliding surface is introduced in the final stage of the algorithm. To attenuate the chattering problem caused by a ...

Fractional order chattering-free robust adaptive ...

Based on a nonlinear disturbance observer, a backstepping sliding mode robust control is proposed for a wire-driven parallel robot (WDPR) system used in the wind tunnel test to dominate the motion of the end effector. The control method combines both the merits of backstepping control and sliding mode robust control. The WDPR is subject to different types of disturbances, and these ...

[Design of Robust Chattering free Integral Sliding Mode ...](#)

In addition to the ability to suppress disturbance, the additional term also weakens the chattering phenomenon during sliding mode. Implementation of similar composite controller for speed control of PMSM would also result in a robust, chattering-free system.

[Tracking Control for an Autonomous Airship based on Neural ...](#)

In this paper a robust chattering free backstepping sliding mode controller is developed for the attitude stabilization and trajectory tracking control of quadrotor helicopter with external disturbances. The control scheme is developed based on backstepping technique and a sliding surface is introduced in the final stage of the algorithm.

[Backstepping Sliding Mode Robust Control for a Wire-Driven ...](#)

chattering of the exponential sliding-mode control ... al. [20] proposed two model-free wheel slip control-ler on the basis of fuzzy logic control approach and ... value. Then, a new robust backstepping sliding mode controller (RBSMC) with L 2-gain performance for

[Robust Chattering Free Backstepping Sliding](#)

In this paper, a robust and chattering-free sliding-mode control strategy using recurrent neural networks (RNNs) and H approach for a class of nonlinear systems with uncertainties is proposed. The dynamic and algebraic models of the RNN are extracted based on the nominal model of the system and formulation of a quadratic programming problem.

[Robust chattering free backstepping sliding mode control ...](#)

The chattering-free sliding mode compensates for persistent or intermittent, ... In this paper, a novel robust backstepping-based controller that induces integral sliding modes is proposed for the Newton – Euler underactuated dynamic model of a quadrotor subject to smooth bounded disturbances, ...

[Robust chattering-free optimal sliding-mode control using ...](#)

In this paper, the chattering free full-order sliding-mode control has been proposed. The main contributions can be summarized as follows: (1) the singularity problem in TSM systems has been avoided by preventing differentiating terms with fractional power in sliding-mode manifold from deriving the control laws.

[Robust Backstepping Sliding Mode Control with L -Gain ...](#)

In this paper, a robust and chattering-free sliding-mode control strategy using recurrent neural networks (RNNs) and H approach for a class of nonlinear systems with uncertainties is proposed.

[Chattering free full-order sliding-mode control ...](#)

Firstly, an adaptive backstepping sliding mode control (ABSMC) method is introduced to improve the system stability and eliminate the limit cycle response. ... In addition, a sliding mode surface is constructed to attain a free chattering and a fast convergence rate.

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this robust chattering free backstepping sliding mode control will present you more than people admire. It will lead to know more than the people staring at you. Even now, there are many sources to learning, reading a collection nevertheless becomes the first complementary as a good way.

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[CiteSeerX - Document Details \(Isaac Council, Lee Giles, Pradeep Teregowda\): Abstract](#) — In this

paper a robust chattering free backstepping sliding mode controller is developed for the attitude stabilization and trajectory tracking control of quadrotor helicopter with external disturbances. The control scheme is developed based on backstepping technique and a sliding surface is introduced in

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eliminate/reduce chattering, various methods have been proposed to reach a continuous robust control. For example, S. Serdar proposed a chattering-free sliding-mode control method with an adaptive estimate term [3]. The backstepping methodology is a popular technique used to control lighter than air vehicles. Backstepping

[Robust chattering free backstepping/backstepping sliding ...](#)

[Design of Robust Chattering free Integral Sliding Mode Controller for Dual Input Buck Boost Converter Lisy E.R.1, M. Nandakumar2, Anasraj R.3 and Ramesh Kumar P.4](#) 1Assistant Professor, 2Professor, 3Associate Professor, 4Assistant Professor, 1,2,3,4 Electrical Engineering Department, Govt. Engineering College -Calicut University, Thrissur ...

[Robust chattering-free optimal sliding-mode control using ...](#)

The chattering phenomenon is carefully analyzed, and then a class of chattering-free controllers are proposed. To handle the time-varying disturbance, a robust adaptive control scheme is developed via the

backstepping procedure. The method to generate the required fractional order differential signals online is provided.

[Robust Chattering Free Backstepping Sliding Mode Control](#)

In this paper a robust chattering free backstepping sliding mode controller is developed for the attitude stabilization and trajectory tracking control of quadrotor helicopter with external ...

[Robust Backstepping Control Based on Integral Sliding ...](#)

This work presents a robust chaotic control strategy for the Lorenz chaos via backstepping design. Backstepping technique is a systematic tool of control law design to provide Lyapunov stability. The concept of extended system is used such that a continuous sliding mode control (SMC) effort is generated using backstepping scheme.

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