

Smart Management Of Actuator Saturation In Integrated



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(PDF) Smart management of actuator saturation in ...

On top of that, a smart saturation management scheme detects when the actuators approach the occurrence of saturation, and determines a policy to avoid actuator saturations. The performance of the resulting control strategy, that is hybrid in general, is tested in simulation and compared with some classical solutions.

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1 Introduction to Saturation. In the case of actuators consider an electric motor where the driving circuit can only provide so many amps before burning out components. That current limit equates to a torque or speed limit. This is a hard, nonlinear, limit to actuators output. In the case of sensors consider a rate gyro.

Saturation - ControlTheoryPro.com

On top of that, a smart saturation management scheme detects when the actuators approach the occurrence of saturation, and determines a policy to avoid actuator saturations.

Vehicle Attitude Control with Saturating Actuators ...

Automated actuator management will be necessary on long pulse fusion experiments to adjust to unforeseen plasma events and unpredictable actuator availability. However, as a control problem, actuator management is underdeveloped in the fusion community.

Actuator management for ECRH at ASDEX Upgrade - ScienceDirect

article investigates the consequences of actuator saturation on the behavior of the event-triggered control loop in terms of its stability and information exchange. Stability properties are derived using linear matrix inequalities (LMIs) which show how the stability of the event-triggered control loop depends on the selection of the event threshold.

Actuator saturation and anti-windup compensation in event ...

The problem of anti-saturation control for a class of time-delay systems with actuator saturation is considered in this paper. By introducing appropriate variable substitution, a new delay time-delay systems model with actuator saturation systems is established. Based on the Lyapunov stability theory, the stability condition and the anti-saturation controller design method are obtained by ...

Symmetry | Free Full-Text | Anti-Saturation Control of ...

Offering real-world solutions to manage system constraints, Actuator Saturation Control provides concise tutorials on recent breakthroughs in the field; novel procedures to achieve global stability, optimal performance, and dynamic anti-windup; practical strategies to model and predict actuator dynamics; effective methods to reduce system sensitivity to external disturbances; equations within the stochastic linearization framework for actuator saturation control; current approaches to ensure ...

Actuator Saturation Control - CRC Press Book

adaptive flight control framework for better redundancy management. In the adaptive control allocation framework, a key step is to combine redundant control surfaces similar to explicit ganging. For each group of combined actuators, we design an adaptive control signal, which is then allocated to each member control

Adaptive Control Allocation in the Presence of Actuator ...

avoids actuator saturation. This approach, however, sacrifices actuator effort (and thus tracking performance) to gain linear behavior. Such strategy is in direct conflict with the notion of optimal tracking performance, which intuitively should take full advantage of system resources, and thus

deliberately push the actuators into saturation.

The effect of actuator saturation on the performance of PD ...

A smart actuator module includes a Smart Transducer Interface Module (STIM), an NCAP, a memory, a communication module, a power module and an actuator interface. The STIM usually contains an actuator, an actuator interface circuit with the driver, filtering circuitry, and a TEDS (Figure 1).

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