

# RESILIENT HYBRID-TRIGGERED CONTROL FOR NETWORKED STOCHASTIC SYSTEMS UNDER DENIAL-OF-SERVICE ATTACKS\*

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## Abstract

This paper investigates the stabilization problem for stochastic networked control systems under periodic denial-of-service (DoS) jamming attacks. First, the resilient hybrid-triggered communication scheme is developed to reduce the network transmission data and improve the utilization efficiency, where a Bernoulli distribution is used to characterize the switching protocol between time-triggered scheme and event-triggered scheme. Then, a resilient hybrid-driven control protocol is designed, and a new switched stochastic system is constructed. Sufficient conditions of the mean-square exponential stability are derived for the underlying system under DoS attacks. Furthermore, a co-design scheme of the feedback gain and the hybrid-triggering parameter is obtained by solving linear matrix inequalities. Finally, a satellite control system is employed to illustrate the virtue and applicability of the proposed approach.

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