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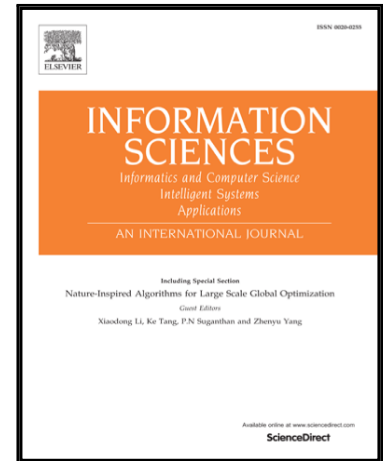
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# Robust event-triggered control for networked control systems

Dan Liu <sup>\*</sup> and Guang-Hong Yang <sup>†</sup>

## Abstract

This paper is concerned with event-triggered dynamic output feedback control for networked control systems subject to communication delays. Two event-triggered conditions are predefined independently to check in an asynchronous matter if sampled signals from the sensor and control input signals from the controller should be transmitted to the controller and the actuator, respectively. As a result, communication resources can be further saved. Then, under the proposed framework, the closed-loop system is modeled as a switched system with a time-delay, based on which a novel exponential stability criterion is derived. This criterion is of less conservatism due to that the chosen Lyapunov-Krasovskii functional is not necessarily decreased. Moreover, the control gains and event-triggered parameters can be co-designed if the related linear matrix inequalities are feasible. The effectiveness of the proposed method is demonstrated via two numerical examples.

**Key words:** Event-triggered control; Networked control systems; Dynamic output feedback

## 1 Introduction

Today's control systems are largely implemented via a digital platform, where control components are connected through a communication network, leading to the so called networked control systems (NCSs) [13,15,17,21]. NCSs have many advantages like reduced installation costs, better maintainability

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