

# Dynamic Output Feedback Stabilization of Linear Systems with Nonsmooth Time-varying Delays in States and Outputs

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**Abstract:** This paper solves the dynamic output feedback stabilization problem of a class of time-delay systems where the state and output contain interval, nonsmooth time-varying delays. The proposed controller uses only the delayed output measurement to stabilize the closed-loop system and guarantee an adequate level of system performance. By constructing a new set of multiple Lyapunov-Krasovskii functionals in combination with the Leibniz-Newton formula, a new criterion for the existence of dynamic output feedback guaranteed cost controllers is established and expressed in terms of linear matrix inequalities. A numerical example is given to illustrate the obtained results.

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