

**Zhao, Kai; Song, Yongduan; Wang, Yujuan**

**Regular error feedback based adaptive practical prescribed time tracking control of normal-form nonaffine systems.** (English) [Zbl 1411.93082](#)

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Summary: In this work, we present a control approach to achieve practical prescribed time tracking for a class of normal-form nonaffine systems with non-vanishing yet nonparametric uncertainties. We make use of a prescribed time function to perform error transformation, with which we build the control scheme upon the transferred error, ensuring that the tracking error converges to an adjustably small residual set within the prescribed time, with a bounded, continuous and  $C^1$  control action. Furthermore, as the proposed control is directly built upon regular feedback of the transferred error, the settling time is independent of system initial conditions and other design parameters, thus can be pre-specified, which is essentially different from traditional finite-time controls (based upon fractional power state/error feedback). The effectiveness of the proposed control scheme is also confirmed by numerical simulation.

**MSC:**

[93B52](#) Feedback control

[93C40](#) Adaptive control/observation systems

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**Keywords:**

adaptive time tracking control; nonaffine systems; regular error feedback

**Full Text:** [DOI](#)

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