

Design of a Model Following Control System for Nonlinear Descriptor System in Discrete Time

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Abstract: A model following control system (MFCS) can output general signals following the desired ones. In this paper, a method of nonlinear MFCS will be extended to be a nonlinear descriptor system in discrete time. The nonlinear system studied in this paper has the property of norm constraint $\|f(v(k))\| \leq \alpha + \beta\|v(k)\|^\gamma$, where $\alpha \geq 0$, $\beta \geq 0$, $0 \leq \gamma < 1$. In this case, a new criterion is proposed to ensure the internal states be stable.

Keywords: discrete-time system; descriptor; model following control system; nonlinear control system; disturbance;

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