The robust tracking and model following problem of linear discrete-time systems is investigated in this paper. An approach to design a robust tracking controllers for this class of linear systems is proposed. First, it is assumed that system states must be fully accessible. The system is controlled to track dynamic outputs generated by a reference model. By using the the Lyapunov stability, the convergence of the tracking error to the origin, is proved. An application to a class of disturbed systems is considered. Numerical examples are given to demonstrate the validity of our results. Second, it is assumed that the system states are not accessibles. An observer is designed firstly, and then based on the observed states the controller is designed. The proposed approach employs linear controllers rather than nonlinear ones. Therefore, the designing method is simple for use and the resulting controller is easy to implement.

References


Index Terms

Computer Science  Applied Mathematics
Keywords

Robust tracking, model following, discrete-time systems, disturbances, observer