

## **Robust $H^\infty$ State Feedback Control for Discrete Time T-S Fuzzy Systems Based on Fuzzy Lyapunov Function Approach**

**Authors :** Walied Hanora

**Abstract :** This paper presents the problem of robust state feedback  $H^\infty$  for discrete time nonlinear system represented by Takagi-Sugeno fuzzy systems. Based on fuzzy lyapunov function, the condition ,which is represented in the form of Liner Matrix Inequalities (LMI), guarantees the  $H^\infty$  performance of the T-S fuzzy system with uncertainties. By comparison with recent literature, this approach will be more relaxed condition. Finally, an example is given to illustrate the proposed result.

**Keywords :** fuzzy lyapunov function,  $H^\infty$  control , linear matrix inequalities, state feedback, T-S fuzzy systems

**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020