

FORMATION FLYING RECOGNITION WITH DUAL LAYER INTERVAL TYPE 2 FUZZY LOGIC

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Abstract

Formation flying of aircrafts is critical in aviation especially in combat situations. The existing type 1 fuzzy logic system (T1FLS) used for formation-flight recognition, though very useful and successful may exhibit some inaccuracy in presence of uncertainties and/or noise. To overcome this and to design robust real time systems, this paper introduces an interval type 2 fuzzy logic system for decision fusion (IT2FLSDeF) for formation recognition. The performance of the proposed decision system is evaluated under ideal and realistic conditions. The results indicate that better performance of compared to its type 1 counterpart for the cases studied is achieved.

Keywords: Formation Flight, T1FLS, IT2FLS, Decision Fusion, Performance Evaluation