

TRACKING OF MANOEUVRING TARGET USING FUZZY LOGIC AUGMENTED H-INFINITY FILTER

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Abstract

Conventionally for target tracking, Kalman filter and closely related algorithms are used. These filters inherently are as such not robust. In this paper, fuzzy logic augmented H-infinity filters are proposed for target tracking application. Initially, fuzzy logic is used at filter level to eliminate or reduce local estimation errors and then, an additional fuzzy system is used to minimize effects of outliers and estimation errors during data fusion process. An adaptive H-Infinity filter using fuzzy degree of matching is also proposed for target tracking. The performance of these algorithms is evaluated using MATLAB and its fuzzy logic tool box. Very encouraging results have been obtained with the newly proposed algorithms for target tracking.

Keywords: Target Tracking, Evasive Manoeuvre, H-Infinity Filter, Fuzzy Logic, Degree of Matching