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**A STUDY OF USE OF THREE NEW FILTERING ALGORITHMS FOR  
IMAGE CENTROID TRACKING-CUM-FUSION**

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**ABSTRACT**

The eigen factor-SRIF, or VDSRIF, is the same as the V-D filter in terms of time propagation and measurement/data update, and can be referred to as such. For the second approach, the time propagation and data updates are identical to those of the UDF and SRIF, respectively. The third is based on the idea of a fuzzy membership function applied to the linear observer's residuals. Asymptotic stability for this centroid tracking observer is derived using the Lyapunov energy functional. MATLAB simulations are used to test the image-centroid tracking (and fusion, if necessary) performance of all three techniques. It is presumed that all the initial values of  $P$ ,  $Q$ ,  $R$ ,  $\phi$ ,  $H$ ,  $G$ ,  $R_m$  are the same as SRVD filter and the SRIF. Algorithmic steps for combining covariance-information domain of filtering and the direct MLF of the centroids in both the input pictures are presented to make things clearer and simpler (in fact more images can be easily fused as in the case of SRIF). Let's proceed now that we have the beginning settings.