Authors’ Reply

The missing of $H$ in (5) is a derivation error, however, it does not affect the simulation results since $H = 1$ in our setting. The derivation in (11) is correct. This is because there can be two representations describing the relation of $v_k$ and $a_k$:

$$v_{k+1} = v_k + a_k T$$  \hspace{1cm} (1)

$$v_{k+1} = v_k + a_{k+1} T.$$  \hspace{1cm} (2)

We can use either one as long as this relation is consistent elsewhere. As a matter of fact, (1) and (2) are identical if we let $a_k$ in (1) be a delayed version of (2).

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Comments on “A New Model and Efficient Tracker for a Target with Curvilinear Motion”

In IMMIE formulation, always an input (cross-track acceleration) estimate is used at every sample instant, regardless of whether the target is accelerating or not and hence it will degrade performance during constant-speed sections of track [1]. Just for reducing computational burden and cost, the authors compromised on the accuracies in the estimates of target state vector. The probabilities $a_{ij}$ are to be found out through innovation and so are their covariances in the corresponding Kalman filters. These are chosen arbitrarily as 0.9. The along-track-acceleration inputs which are supposed to be found out adaptively using input estimation techniques are also chosen arbitrarily.

The authors of [1] reduced $NM$ number of Kalman filters to $N$ number of Kalman filters by incorporating only the estimated along-track acceleration ($a_{ij}$).

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