ESTIMATION OF MISSILE TRAJECTORY USING
ENSEMBLE KALMAN FILTER METHOD (EnKF)

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ABSTRACT

Missile is an example of unmanned vehicle that can be controlled to adjust the direction or has an automatic control system to attain the target. This ability is so advantageous for human activities especially in military. The problem is how to get the best estimation in missile trajectory such that it can attain the target accurately. In this Final Project, Ensemble Kalman Filter method (EnKF) is used to determine the estimation of missile trajectory since it can be implemented in both linear and nonlinear dynamic model by rising a number of ensembles. The mathematical model of missile has four states that will be estimated by EnKF method, which are flight path angle \((\gamma)\), speed \((V)\), horizontal position \((x)\), and altitude \((h)\). Then, the small error of root mean square (RMS) is produced by this estimation.

Keywords : estimation, missile trajectory, Kalman Filter, Ensemble Kalman Filter (EnKF), RMS Error.