

## **A New Impact Angle Control Guidance Law to Reduce Sensitivity on Initial Errors**

This paper proposes a new homing guidance which reduces sensitivity on initial zero effort miss and error in flight path angle to the desired angle while achieving the terminal angle constraint on the impact. To develop such a guidance law, the guidance problem is formulated as an optimal guidance problem with a new performance index and constraints including the terminal angle one. The main idea enabling this approach is introduction of distribution functions to the input weighting. The distribution functions in the new performance index allows distributing of the relative input weighting over the entire homing phase. Then, a homing guidance law is derived by applying the optimal control theory with the new performance index. Consequently, the proposed guidance law generates a time-varying gain to ease the sensitivity at the initial homing phase. The characteristics of the proposed guidance algorithm are investigated and its performance is demonstrated through numerical simulations.