

Trajectory shaping of surface-to-surface missile with terminal impact angle constraint

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=119127&lokasi=lokal>

Abstrak

This paper presents trajectory shaping of a surface-to-surface missile attacking a fixed target with terminal impact angle constraint. The missile must hit the target from above, subject to the missile dynamics and path constraints. The problem is reinterpreted using optimal control theory resulting in the formulation of minimum integrated altitude. The formulation entails nonlinear, two-dimensional missile flight dynamics, boundary conditions and path constraints. The generic shape of optimal trajectory is: level flight, climbing, diving; this combination of the three flight phases is called the bunt manoeuvre. The numerical solution of optimal control problem is solved by a direct collocation method. The computational results are used to reveal the structure of optimal solution which is composed of several arcs, each of which can be identified by the corresponding manoeuvre executed and constraints active.