Lyapunov-Based Three-Dimensional Terminal Angle Constrained Guidance Laws

Three-dimensional nonlinear guidance laws are proposed considering terminal angle constraints. Unlike conventional two-dimensional guidance laws, the three-dimensional geometry is considered without the assumption that the yaw channel and the pitch channel are decoupled. It is shown that the states converge to the desired values by using Lyapunov stability theory and LaSalle's invariance theorem. Numerical simulation results are presented to demonstrate the performance of the proposed guidance laws.