

AYBU Aerospace Engineering Department *presents*

Sevda Ceren Keçeciöđlu

Designing Maneuver Controller by Using Incremental Nonlinear Dynamics Inversion (INDI)

Maneuver controllers are needed to perform flight mechanics analyzes in both preliminary design and post flight analysis. Incremental Nonlinear Dynamics Inversion (INDI) control law is convenient to design a generic maneuver controller to perform different maneuvers. INDI is based on computing an increment in the control input to control the defined output and its derivatives by using local linearization of the model and neglecting the state-dependent terms. In this study, a fixed wing aircraft with one turboprop engine is made to perform a 360-degree roll maneuver by using an INDI control law. The desired roll rate is obtained from the flight test results of the aircraft. Simulation results show that the INDI control law is successful in following the desired angular accelerations of the aircraft successfully. The future work includes improving the aircraft model and obtaining the desired angular accelerations from the attitude of the aircraft. Moreover, different maneuvers will be performed by using INDI.

Friday, May 31 • 15:30

Location: B-911 (9th Floor Meeting Room)

About the Speaker

Sevda Ceren Keçeciöđlu is working as an engineer at Turkish Aerospace Industries (TAI) and currently pursuing an M.S. degree in aerospace engineering at AYBU. She received her B.S. degree in aerospace engineering from Gaziantep University.