Neural Network Motion Control of VTAV by NARMA-L2 Controller for Enhanced Situational Awareness

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Abstract : This paper focuses on a critical component of the situational awareness (SA), the control of autonomous vertical flight for vectored thrust aerial vehicle (VTAV). With the SA strategy, we proposed a neural network motion control procedure to address the dynamics variation and performance requirement difference of flight trajectory for a VTAV. This control strategy with using of NARMA-L2 neurocontroller for chosen model of VTAV has been verified by simulation of take-off and forward maneuvers using software package Simulink and demonstrated good performance for fast stabilization of motors, consequently, fast SA with economy in energy can be asserted during search-and-rescue operations.