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Adaptive Control Approach for an Unmanned Aerial Manipulator

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Abstract : In this paper, we propose a nonlinear controller for Aerial Manipulator (AM) consists of a Quadrotor equipped with two degrees of freedom robotic arm. The kinematic and dynamic models were developed by considering the aerial manipulator as a coupled system. The proposed controller was designed using Nonsingular Terminal Sliding Mode Control. The objective of our approach is to improve performances and attenuate the chattering drawback using an adaptive algorithm in the discontinuous control part. Simulation results prove the effectiveness of the proposed control strategy compared with Sliding Mode Controller.

Keywords : adaptive algorithm, quadrotor, robotic arm, sliding mode control
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