

Adaptive fractional order control of a quadrotor

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Abstract: Due to their exceptional flying maneuverability and simple dynamics, multirotor systems are widely used for various applications. Such systems vary over time due to external disturbances or unmeasured changes to which they are subjected. In this case, a simple PID controller cannot provide the desired response, unless the controller parameters are re-tuned. An adaptive control algorithm responds to this need. Moreover, to increase robustness, fractional order controllers are designed, being recognized for this property. Such control provides the entire process with good robustness and ensures good operation for major process changes. The present paper describes a comparison between such an algorithm and a classical PID applied to a quadrotor system.

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