عنوان مقاله:

Adaptive Nonlinear Controller for Quadrotor Altitude Control with Online Control Coefficients Function

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خلاصه مقاله:

In this paper, an adaptive controller is presented to control a quadrotor, whose parameters are extracted from the genetic algorithm optimization method. The advantage of this method is that based on the system states, the control coefficients are calculated online. For this purpose, a function between system states-space and control coefficients is obtained. From the database collected from the genetic algorithm optimization method, the parameters of the control coefficient function are obtained using the least squares method. The stability of the proposed controller is proved by the Lyapunov method. Finally, the performance of the proposed controller is compared with the PID controller, which is widely used in the literature. The results show that the proposed approach is promising.

کلمات کلیدی:

Quadrotor, nonlinear control, Lyapunov Stability, Genetic Algorithm, Gain Tuning