

Iterative Linear Quadratic Regulator (iLQR) vs LQR Controllers for Quadrotor Path Tracking

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Abstract : This paper presents an iterative linear quadratic regulator optimal control technique to solve the problem of quadrotors path tracking. The dynamic motion equations are represented based on unit quaternion representation and include some modelled aerodynamical effects as a nonlinear part. Simulation results prove the ability and effectiveness of iLQR to stabilize the quadrotor and successfully track different paths. It also shows that iLQR controller outperforms LQR controller in terms of fast convergence and tracking errors.

Keywords : iLQR controller, optimal control, path tracking, quadrotor UAVs

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