عنوان مقاله:

Application of Adaptive LQR with Repetitive Control for UPS systems

محل انتشار:

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خلاصه مقاله:

In this paper an adaptive linear quadratic controller (LQR) with a repetitive controller (RP) for uninterruptible power supplies (UPS) is proposed. The gain of the controller is determined by minimizing a cost function, which reduces the tracking error and smoothes the control signal. A recursive least square (RLS) estimator is used to identify the plant parameters at different load conditions. A RP controller with forgetting coefficients is used for cyclic disturbances attenuation and the final control action is the sum of the LQR and RP controllers. Simulation results show the effectiveness of the proposed controller in producing an output signal with low total harmonic distortion.

کلمات کلیدی:

Linear quadratic regulator, adaptive control, repetitive controller, uninterruptible power supplies, total harmonic distortion

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