عنوان مقاله:

Optimal Nonlinear Transient Control with Neuro-AVR of Single - Machine Infinite-Bus Power Systems

محل انتشار:

نوزدهمین کنفرانس بین المللی برق (سال: 1383)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

In this paper, a method to design a nonlinear optimal controller using approximate solution of the HJB equation is presented. Using this method, the power system stabilizer is designed. In order to regulate generator terminal voltage to its nominal value, we will use a simple voltage egulator. The final control neuro-automatic action is the sum of nonlinear optimal controller and neuro-voltage regulator. Also, the advantages of the controller with nonlinear feedback in some grounds like increasing domain of validity of the system will be shown. Simulation results show that the nonlinear control action exhibits a better performance compared to that of corresponding linear counter part. As a result, the fault tolerance of the system using the nonlinear control law is increased. Also, the proposed voltage .regulator, which can be trained on-line, shows satisfactory performance

کلمات کلیدی:

Power system transient stability, Voltage regulation, Optimal Control, Nonlinear feedback control, HJB equation, Neural networks