

عنوان مقاله:

Adaptive fuzzy pole placement for stabilization of non-linear systems

محل انتشار:

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خلاصه مقاله:

A new approach for pole placement of nonlinear systems using state feedback and fuzzy system is proposed. We use a new online fuzzy training method to identify and to obtain a fuzzy model for the unknown nonlinear system using only the system input and output. Then, we linearized this identified model at each sampling time to have an approximate linear time varying system. In order to stabilize the obtained linear system, we first choose the desired time invariant closed loop matrix and then a time varying state feedback is used. Then, the behavior of the closed loop nonlinear system will be as a linear time invariant (LTI) system. Therefore, the advantage of proposed method is global asymptotical exponential stability of unknown nonlinear system. Because of the high speed convergence of proposed adaptive fuzzy training method, the closed loop system is robust against uncertainty in system parameters. (Finally the comparison has been done with the boundary layer sliding mode control (SMC)

کلمات کلیدی:

Fuzzy identification, pole placement, nonlinear control, switches reluctance motor, Sliding mode control

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