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High quality optimization of artificial intelligent with SMC

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Abstract:

The artificial intelligent is widely used in electrical and control engineering to enhance the system performance but still the system with artificial intelligent is either complicated or weaken the response of system. Therefore, sliding mode control SMC with neural network together is suggested to improve the system performance. The benefit of SMC is that no sensitive to variation of system parameters and easy to implementation and decreasing the feedback complexity. The results using matlab show the system with SMC and neural network is more precise.

Key words: SMC, neural network, artificial intelligent.

Introduction:

Sliding mode control is proposed by many authors to optimize high order system with nonlinear system [1] [2] [3] .in addition, other suggested SMC with fuzzy logic to improved maximum power point tracking with boost converter [4][5][6]. Hybrid SMC with fuzzy is also applied to inverter with LC filter and photovoltaic system repectively [7] [8] [9]. Power system based on grid connection is reported in [10] and applied to PMSM [11] [12] via SMC with ANFIS to classified the system. Finally, learning machine with grid-connected PV system using SMC with GA-ANFIS under altered conditions.

Materials and Results:

In this article, the Sliding Mode Control is useful for the system to increase the stability for that system and to minimize the even and odd harmonics. Figure 1, 2, and 3show that the behaviour of system with SMC and neural network is fast response as compare with classical system.

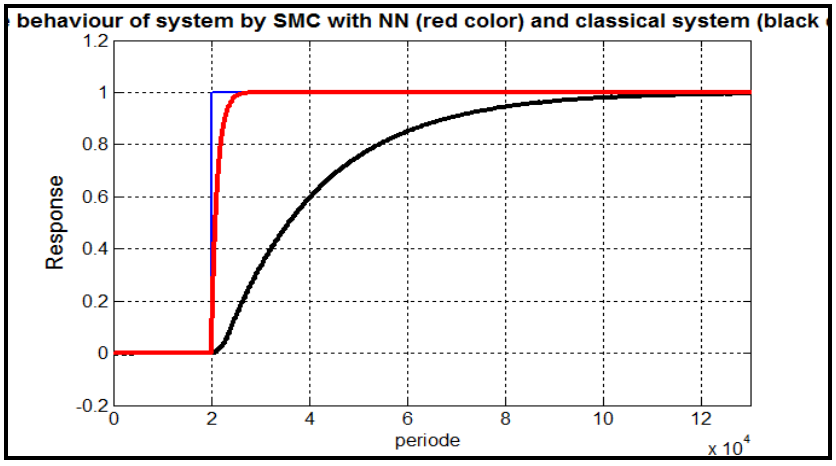

Figure 1: comparison of two systems output

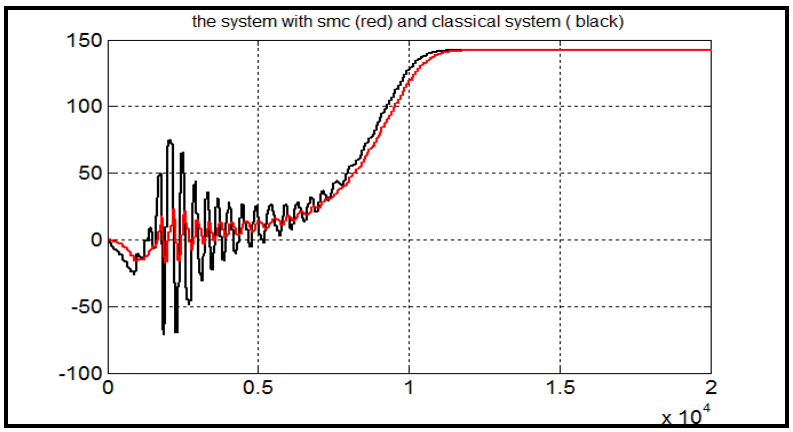

Figure 2: comparison of output oscillation

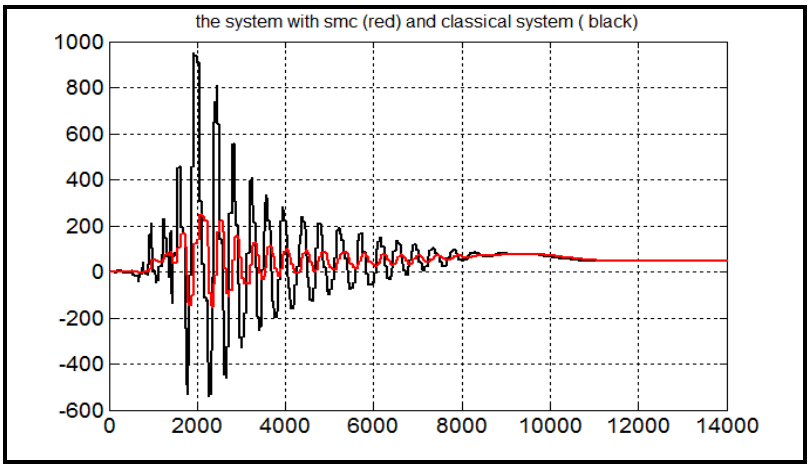

Figure 1: comparison of fauls

Conclusion

The main target for using the SMC with artificial intelligent AI is to minimizing the difficulty and the disadvantages of AI as results to modify the nonlinear system. the simulation results exhibit that the system with SMC has the ability and the expert as compare with traditional system.

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