(REVIEW ARTICLE)

Hybrid system based on genetic algorithm with neural network to enhance the system

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Abstract

The nonlinear system is more complicated and has low response. In order to overcome this problem, the artificial intelligent by using genetic algorithm is used to optimize the system and to convert the system from complexity to linearity. In addition, neural network based on FFNN is applied for traing, testing, and validation the system via Matlab Simulink. The results shows that the system with hybrid GA-NN has the authority over the other systems.

1. Introduction

Many researchers are doing a lot of researches to improve the system [1].genetic algorithm is applied to the complicated system for multi process to reducing the noise of output results [2] [3] [4].

In addition, the neural network is one of artificial intelligent suggested to many proposed method to enhance the system [5][6][7]. The artificial intelligent GA-NN were also applied to nonlinear system to optimize the efficiency [8][9][10][11][12][13].
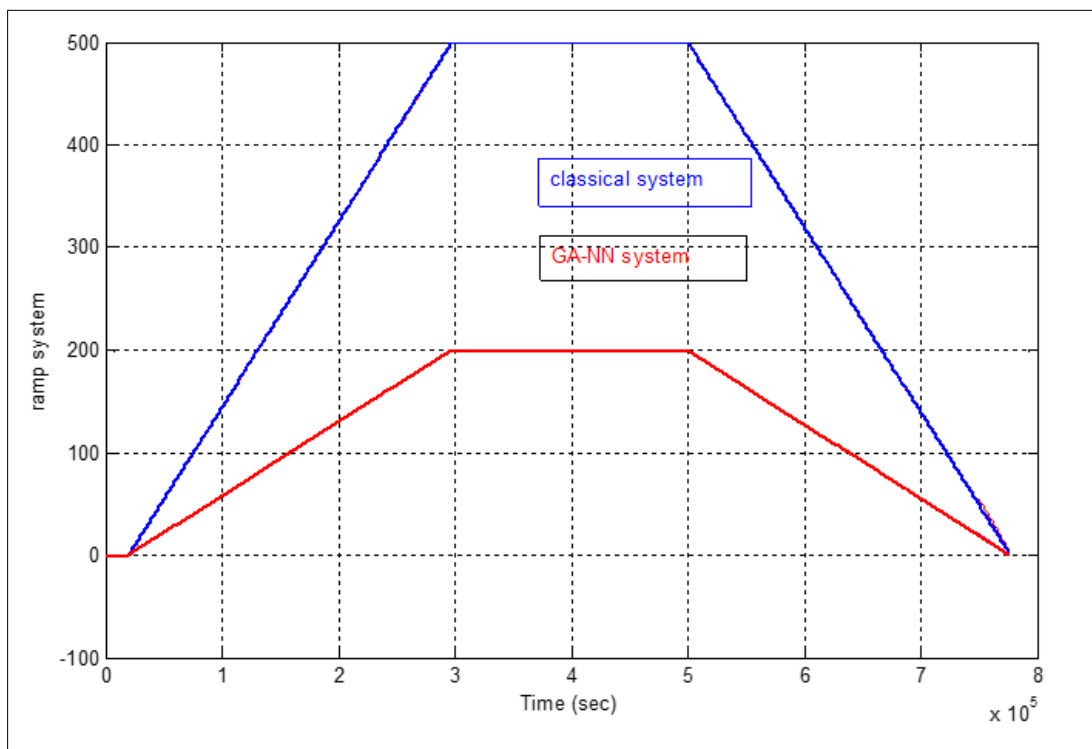
2. Simulation results

In this proposed method, the figures 1,2,3,4,5 and 6 show bellow demonstrates that the system is more effectiveness based on GA-NN as compare with classical control as shown bellow.

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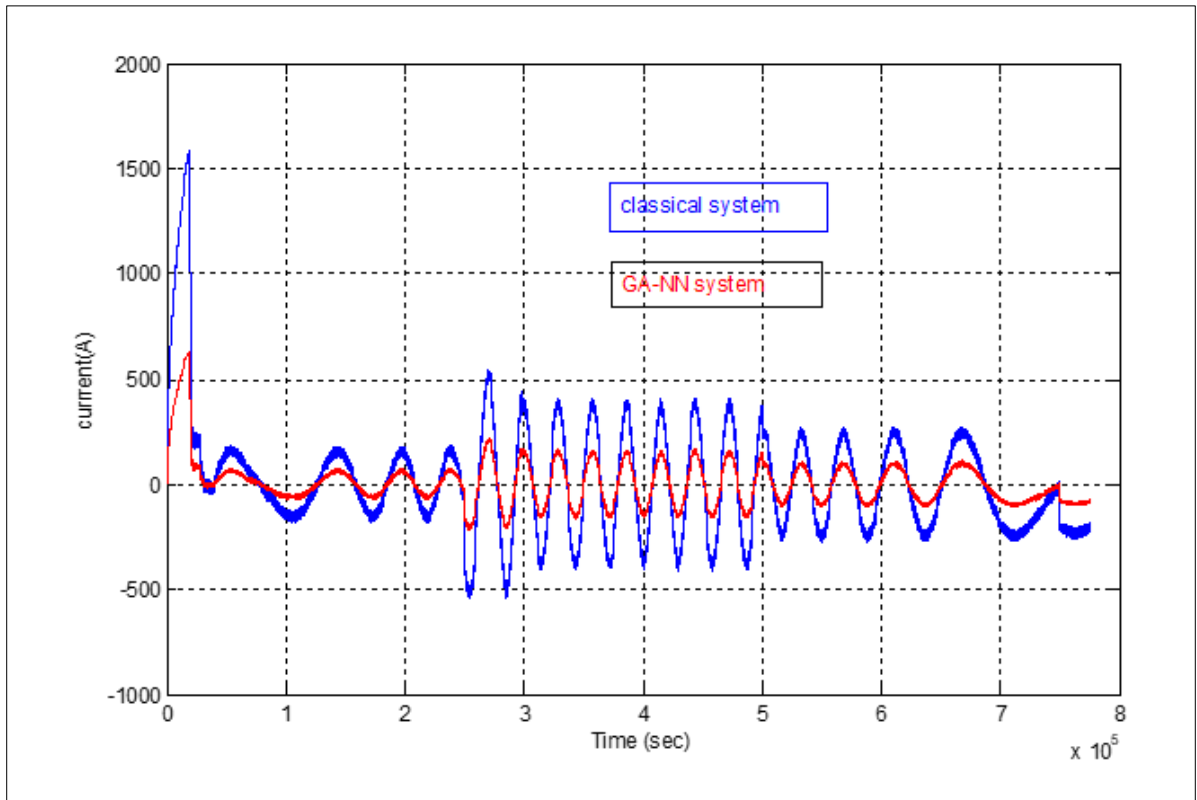
Figure 1 Current system
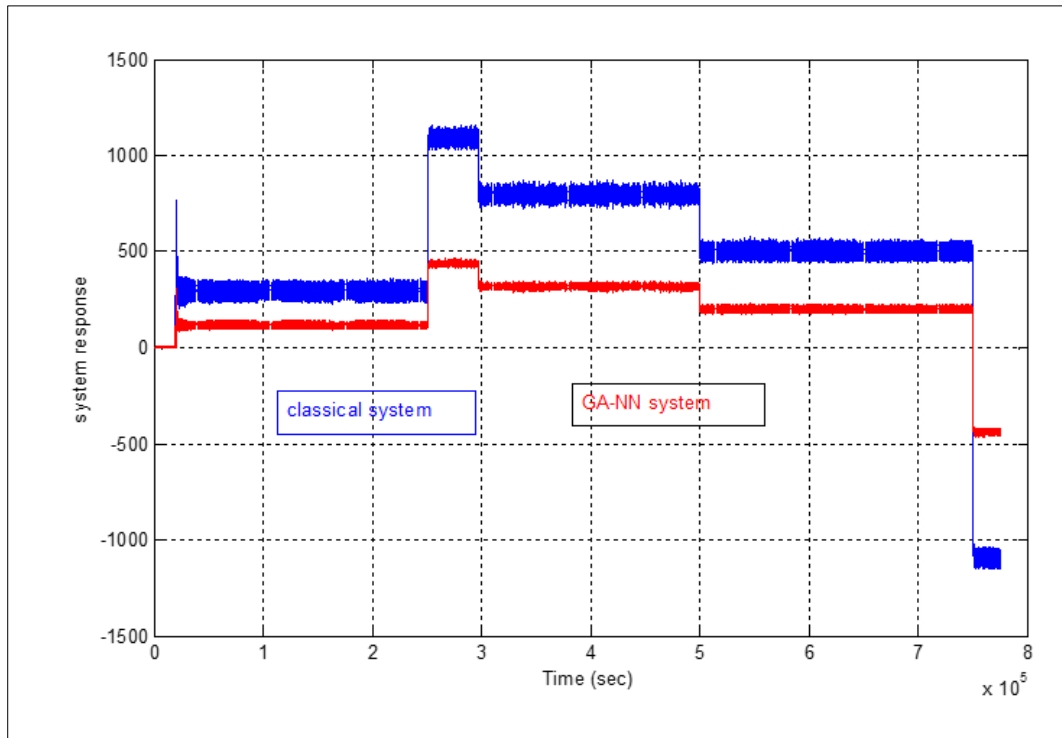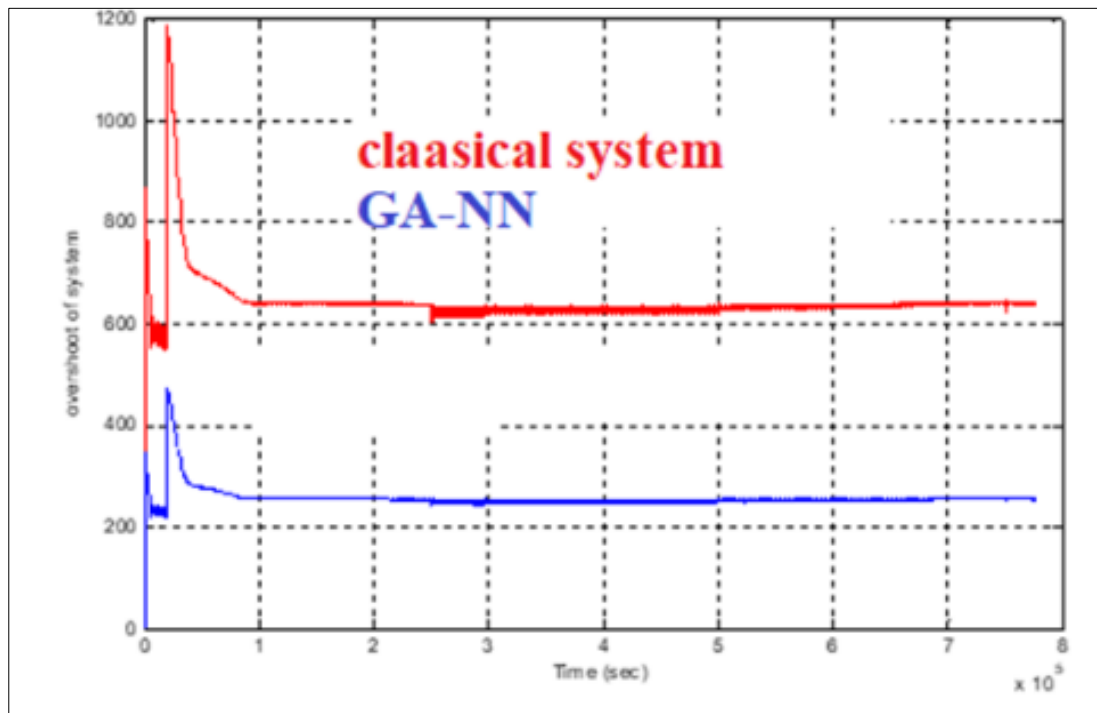

Figure 2 Ramp system

Figure 3 System response
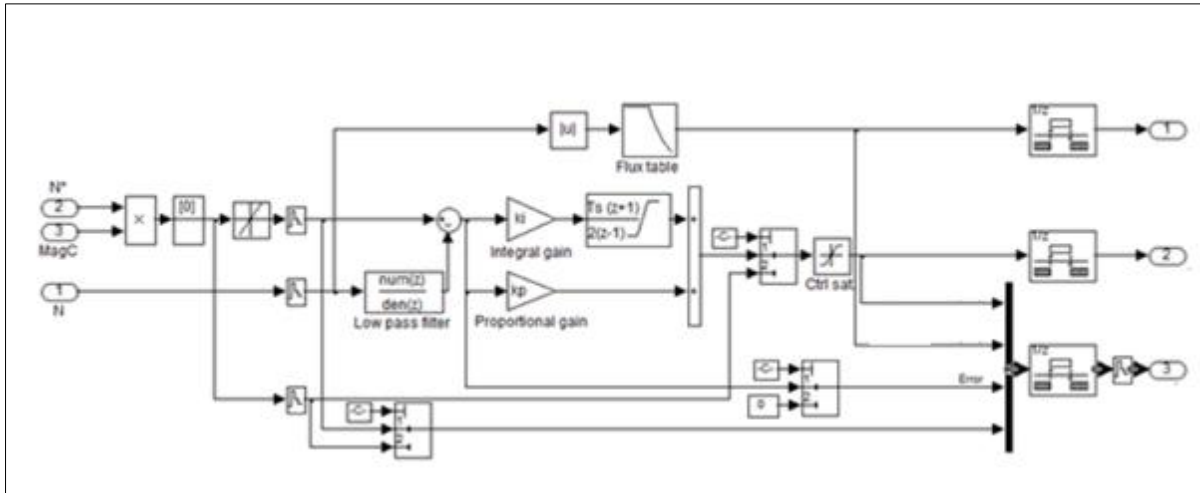

Figure 4 Overshoot system
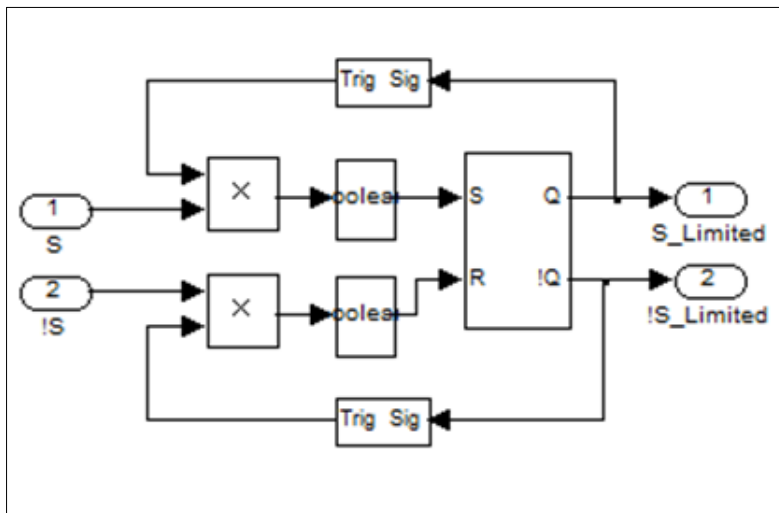
Figure 5 Simulink system

Figure 6 System limited

3. Conclusion

In the classical system it can be seen from simulation results that the system is more complicated and have slow response. In other hand, the GA-NN is more efficient and has good performance as compare with other systems.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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