- **number of Iterations =1000**

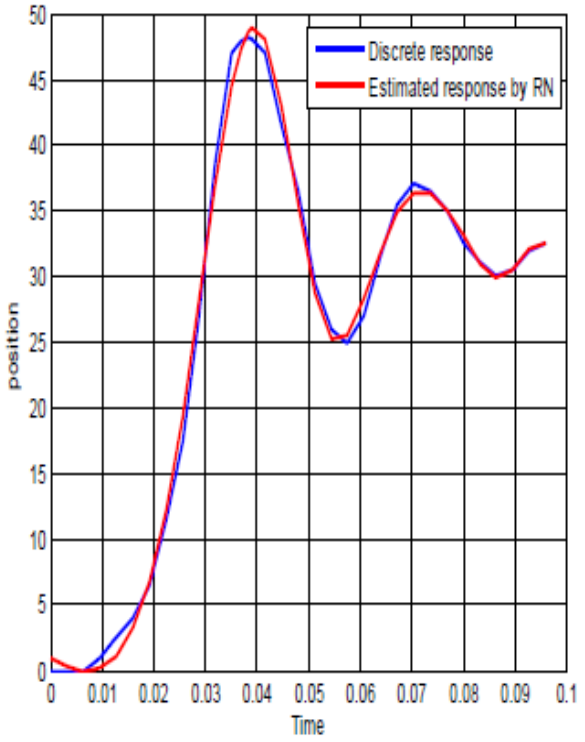

Figure 7 The estimated response for a number of iterations = 1000

The results obtained (of the simulation model and of the neural estimator) satisfy well the aimed objectives.

Initially, during the model simulation based on the four electrical equations and the mechanical one, we obtained the expected responses verifying that the generalized model of the test motor, developed in the work of the document [3], show this limitations and that the method adopted for the identification of the machine parameters do not result in adequate values for the simulation of the actual operation of the designed motor. Then, using a neural network, an estimate based on an experimental unit-step response of the machine is developed. The simulation showed that for a large number of iterations of the implementation of the network we reach a response that perfectly follows the experimental response.

The number of iterations of the implementation of the developed neural network affects the results of the simulation. Thus, for a higher number of iterations to thousand, the results were conclusive.

5 Conclusion

Our study presents a modeling more appropriate to the dynamic behavior of such a stepping motor.

In fact, since the first approach is not reliable; we have proceeded by a neural networks-developed estimator proceeding. The adoption of the selected neural network tool is argued by its learning capacity. Due to the non-linear nature of the model to be studied, such adopted tool seems, a priori, well adequate in respect of its excellent approximation of nonlinear functions.

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