

IN THE CHALLENGE OF EARTHQUAKE RESPONSE PREDICTION BY NEURAL NETWORK APPROACH

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ABSTRACT

Since the decade of the 1990 the neural networks algorithms have been used for compute approximate solutions for different problems in engineering.

In the building behavior against loads is important to know its response. The behavior during the earthquakes and the estimation of the response is quite difficult to compute due to the nonlinearity on geometry and in material. Neural networks approach is a powerful tool for computing the response of structures with an appropriate learning process from big data of structural components. Even if some material parameters are unknown, the learning on a neural network will be possible and will provide an estimation using collect information from experience and learning.

To make a learning process in this paper, we present a simple algorithm of back propagation implemented in python programming language where the output shows the decrease of the error and how the response start to learn from the beginning until the end of the process. The results show good agreement between the learning data set and predicted response after the neural network learning.

Keywords: confined masonry, neural networks, building response, dynamic earthquake response.

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