عنوان مقاله:

ARTIFICIAL NEURAL NETWORK APPLICATION FOR DYNAMIC RESPONSES ON STRUCTURE

محل انتشار:

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خلاصه مقاله:

Dynamic response of structure may be encountered in the case of seismic and wind load. In this paper response at the top of a selected water tower for the El-Centro and Koyna earthquake ground excitations, has been computed through the Duhamel integral and compared with the predicted response using MLFF neural network with backpropagation. Also effect of tuned mass damper (TMD) on across wind response of tall RC chimney for wind load has been carried out. Effect of TMD is quantified by comparing percentage reduction in peak tip deflection and base moment with or without TMD. For a 220 m tall RC chimney, TMD with mass equal to 1 % mass of chimney is found to reduce peak tip deflection by 28 % and base moment by 24 %. The network was trained with mass of the TMD of 0t, 90t, 180t, and tested for the mass of TMD of 270t.Also first two modal frequencies have been predicted for 270 t. Number of inputs have been varied to observe the variation in predicted response of peak tip deflection, base moment .and first two modal frequencies. The values have been predicted between 1% to 10.6% errors

کلمات کلیدی: