**Abstract**

This work relates to the use of deep learning in vibration analysis of tapered truncated cantilever beams. In this paper, an attempt was made to train a deep learning neural network to predict the natural frequency parameters and node locations of first three mode shapes for tapered truncated cantilever beams. Beam geometries that were considered to generate the data used to train the neural network belong to a quite general class. After tuning some hyperparameters, maximum percent deviation of all the outputs was brought down to less than 0.1 percent. Reported results were obtained by evaluating trained neural networks on a separate test dataset different from both training and validation sets. Finally, cross-evaluation of trained models was done, to see its extrapolating capabilities over unseen data ranges.

**Keywords**

deep Learning

cantilever beam

free vibration

natural frequency

mode shape