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Monitoring a Membrane Structure Using Non-Destructive Testing

Authors : Gokhan Kilic, Pelin Celik

Abstract : Structural health monitoring (SHM) is widely used in evaluating the state and health of membrane structures. In the past, in order to collect data and send it to a data collection unit on membrane structures, wire sensors had to be put as part of the SHM process. However, this study recommends using wireless sensors instead of traditional wire ones to construct an economical, useful, and easy-to-install membrane structure health monitoring system. Every wireless sensor uses a software translation program that is connected to the monitoring server. Operational neural networks (ONNs) have recently been developed to solve the shortcomings of convolutional neural networks (CNNs), such as the network's resemblance to the linear neuron model. The results of using ONNs for monitoring to evaluate the structural health of a membrane are presented in this work.

Keywords : wireless sensor network, non-destructive testing, operational neural networks, membrane structures, dynamic monitoring
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