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NullSpace Damage Detection Method with Different Environmental and Operational Conditions

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In this paper a damage detection application is presented. The method used is called NullSpace and is based on Subspace Identification. If the traditional time domain based damage detection methods are applied without taking into account the condition that the structure is working, the results can be confusing. In this paper, a soft-clustering method is used in order to be able to create different clusters. These clusters will reflect the different Environmental and Operational Conditions (EOC) as different learning states. In order to test these variations an offshore wind turbine model has been used. Different wind speeds and nacelle orientations have been simulated using Bladed (Garrad Hassan). The results show that the method used for different conditions is able to detect damage correctly, where the traditional method fails.

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Ключевые слова:

Содержание.