DAGA 2022

21st – 24th March 2022

Place:

Stuttgart, Germany

Title:

Simplifying the Extraction of Modal Parameters from Test Data using a Neural Network

Authors:

Tim Kamper, Matthias Wegerhoff, Thiago Lobato, Roland Sottek

Abstract:

Although experimental modal analysis (EMA) is a common tool in structural dynamics, it is still mostly performed by experts. To make it available to every user, many challenges must be addressed throughout the process of planning the EMA, conducting the measurements, extracting the modal parameters, and interpreting the results. This paper focuses on the process step of parameter extraction in which the modal parameters (eigenfrequency, damping, and mode shape) are estimated to fit the measured data. The Least Squares Complex Frequency Method (LSCF-Method) is a robust and efficient method widely used to perform this task. However, it requires the user to interact and define input-parameters to gain reliable results.

Within the scope of this work a neural network, which assists the user to parametrize the LSCF-Method, was developed, trained, and tested.

Find more event abstracts in our >> abstracts archive <<