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Experimental studies for systems forced by a random series of impulses

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ABSTRACT

The article presents the possibility of adapting machine learning algorithms in the analysis of systems excited by a random series of impulses. The aim of the research is the selection and evaluation of stochastic estimators of determined moments from the trajectory of motion. Experimental studies are designed to generate a dataset for analysis. The distributions in the datasets were selected in such a way that the average values of the distributions is the same but the stochastic moments are different. Recognition of the distribution of excitation impulses is carried out using statistical learning systems with the use of part of supervised learning. Solutions are sought that can adapt to new data for classifiers based on the same estimators of distribution parameters. The research is conducted in the Python environment.

Keywords: machine learning algorithms, random vibrations, stochastic impulses.

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