



DOCTORAL RESEARCH TOPIC:

Application of the Artificial Intelligence on the path to the buildings' sector decarbonisation

RESEARCH FIELD:

Energetics and Power Engineering (T 006)

BRIEF DESCRIPTION OF RESEARCH TOPIC:

As practice shows, it is not enough to increase the efficiency of newly constructed buildings by tightening the requirements to achieve a significant energy saving and decarbonization in the building sector, because the majority of the building sector consists of existing and often energy inefficient buildings. There also exists the problem that part of the existing buildings are relatively new buildings, but their consumption is high and does not reach the design values. There are many reasons for this, and one of them is inefficient management of buildings, management that ignores real needs (premises are overheated, ventilated, etc.).

As the literature review carried out by (Hong et al. 2020) shows, in the field of energy performance analysis of buildings, the application of methods related to artificial intelligence (mainly neural network methods or machine learning) is spreading in various stages of the building life cycle, but number of researches related to the application in maintenance phase of existing buildings is still very low. Large amounts of data (BigData) are required for artificial intelligence models to train them properly, so there is a great potential for using data collected by energy suppliers.

The thesis would address the improvement of maintenance of existing buildings through the application of artificial intelligence and also seeking to reduce energy performance gaps.

SCIENTIFIC SUPERVISOR:

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