SEMINAR
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Czech Society for Mechanics
and Institute of Theoretical and Applied Mechanics, CAS

invite you to a lecture and discussion within the lecture series **ITAM Seminar**

Data analysis and modelling using machine learning techniques

given by

prof. Jan Voráček
College of Polytechnics Jihlava

Laboratory experiments usually generate multidimensional data with limited a priori information. Researchers strive to discover the most significant relations from this primary resource and express the resultant knowledge in the form of an understandable model. Traditionally, parametric, e.g., statistics models, expecting the existence of a background theory are constructed. In cases when this explicit knowledge is not available, the inductive deterministic modelling of the researched concept directly from the data can represent a more appropriate approach.
The seminar will show a basic methodological framework of machine learning-based modeling and related inductive inference, as well as selected unsupervised techniques for expert evaluation of data content. This particularly concerns linear and non-linear variables and data clustering methods, as well as classification and regression problems. The following techniques will be outlined: K-means clustering, principal component analysis, logistic regression, different types of decision and regression trees, support vector machine, and neural networks. The proposed theory will be illustrated through a single unifying example.

The lecture will be held on Wednesday, September 16, 2020 at 2:00 PM in the building of the Institute of Theoretical and Applied Mechanics Prague, Prosecká 76, Prague 9-Prosek.

Lecture 2020/03
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