

SEMINAR ANNOUNCEMENT
Introduction to Data Mining for Forest Ecology and Forestry

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Abstract:

In the area of ecological data analysis there is an increasing demand for methods and tools based on novel approaches from machine learning and information theory that would complement classical statistical methods. This would significantly increase the number of tasks that can be addressed with data analysis and provide higher quality analysis results. Data mining, for example, uses machine learning methods that employ approaches from classical statistics as well as information theory. Machine learning tools have been successfully used for data analysis and learning of qualitative and quantitative models from the data. Models can be written in a human readable form (e.g., decision rules and trees, equations) or in a form that can only be used for predicting new examples (e.g., neural networks, support vector machines, etc.). For the purpose of the analysis of ecological data, decision trees, decision roles and equation discovery are the most frequently used methods of choice. Due to their structural properties, models induced by machine learning methods are easy to interpret and can be used to predict values of variable that can be simple or structured (e.g., a vector, a hierarchy, etc.). The seminar presents several applications of data mining techniques to different problems related to Slovenian forests, ranging from habitat modeling and population dynamics to predictions of future development of growing stock.