



State University of Novi Pazar

BOOK OF ABSTRACTS

The 8th International Conference
Contemporary Problems of Mathematics,
Mechanics and Informatics

CPMMI 2024

Dedicated to Professor Ćemal Dolićanin



Novi Pazar, 2nd – 4th June, 2024

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CPMMI 2024
Dedicated to Professor Ćemal Dolićanin
(1945–2023)

Publisher
State University of Novi Pazar

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Technical Editor
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Proofreading
Sibela Eminović, lector

Printing
100 Copies

ISBN
978-86-81506-30-1

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Comparison of Feature Selection Methods for Biomedical Data Classification

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Abstract. Prior to applying machine learning techniques to huge datasets with large number of features, it is crucial to identify and select the most significant ones in order to reduce the size of the dataset and improve model's performance. Feature selection offers numerous advantages, such as: lowering the price of classifier model training, reducing the model's size and making classification models easier to understand. Filter, wrapper, and embedded methods are three general sets of techniques used for feature selection. The filter methods use a rating process to evaluate each feature's importance before removing features with poor scores. It has been discovered that the filter approaches are quick, scalable, computationally easy, and independent of the classifier. Wrapper methods generate a set of candidate feature subsets and then employ a classification algorithm to evaluate them. Compared to filter methods, wrapped approaches usually provide more accurate results, but are computationally more expensive. There are, however, a number of alternative strategies as well as hybrid ones that do not fit into any of these three categories. In recent years, the application of metaheuristic algorithms has been proposed as a method for solving feature selection problem. In this research, we used both filter and wrapper-based metaheuristic approach for biomedical data classification. The obtained results demonstrate that applying feature selection improves the model's performance, or at least provides the same results while reducing the size of the data set and making data collection easier.

Keywords: feature selection, biomedical data classification, machine learning.

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