



EDUCATION AND ARTIFICIAL INTELLIGENCE

2nd International Scientific Conference

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BOOK OF ABSTRACTS



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(EDAI 2026)



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APPLICATION OF LOGISTIC REGRESSION IN PREDICTING STUDENTS' CHOICE OF STEM AND NON-STEM TRACKS

Marina Svičević* , Aleksandar Milenković , Lazar Krstić ,
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Abstract. This paper examines the possibility of predicting students' choice of STEM and non-STEM tracks in grammar school by applying logistic regression to data collected through a questionnaire-based survey. The analysis was conducted on a dataset comprising 1044 students from four grammar schools in Kragujevac and Novi Sad. The target variable was defined as a binary classification of students into STEM and non-STEM track groups, while the input features included socio-demographic data, data on academic achievement, and students' responses related to school experiences and subject preferences. After data preprocessing, which included the transformation of categorical features, the treatment of missing values, and standardization, logistic regression was applied as an interpretable binary classification model. The results showed that the model successfully distinguishes between students in STEM and non-STEM tracks, with accuracy, precision, recall, F1-score, and AUC-ROC values of 0.823, 0.784, 0.793, 0.789, and 0.898, respectively. The analysis of the model coefficients also made it possible to identify the features that contribute most strongly to the classification. The findings point to the importance of school context, certain educational characteristics, and subject preferences in understanding students' choice of STEM and non-STEM tracks.

Keywords: students' choice of grammar school track, STEM tracks, logistic regression, educational data mining, prediction

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