Contribution ID: **91**   Type: **Paper presentation**

Determining the Degree of Conviction of Students in University Selection Using the Random Forest Algorithm: An Approach for Adaptive and Personalized Decision Support System in Education

Friday 20 September 2024 14:00 (20 minutes)

In the modern era of technology and *Big Data*, Machine Learning algorithms are becoming increasingly relevant across various fields, from medicine and finance to education and management. In this context, *Machine Learning* (ML) stands out as one of the most efficient and versatile methods for data analysis and prediction. The Random Forest algorithm has gained popularity due to its ability to provide accurate estimates, resistance to overfitting, and flexibility in handling complex and noisy datasets. This paper presents a modern adaptive solution for designing a *Decision Support System* (DSS) at the managerial level, focusing on determining the degree of conviction of students in choosing a university. The proposed solution was validated using real data collected through phone and email surveys at the National University of Science and Technology *POLITEHNICA* Bucharest during the period 2021-2022.

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Session Classification: Doctoral Symposium

Track Classification: Doctoral Symposium