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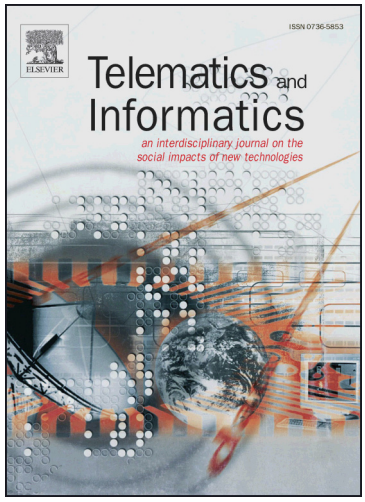

Prerequisites between Learning Objects: Automatic Extraction based on a Machine Learning Approach

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Prerequisites between Learning Objects: Automatic Extraction based on a Machine Learning Approach

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Abstract

One standing problem in the area of web-based e-learning is how to support instructional designers to effectively and efficiently retrieve learning materials, appropriate for their educational purposes. Learning materials can be retrieved from structured repositories, such as repositories of Learning Objects and Massive Open Online Courses; they could also come from unstructured sources, such as web hypertext pages. Platforms for distance education often implement algorithms for recommending specific educational resources and personalized learning paths to students. But choosing and sequencing the adequate learning materials to build adaptive courses may reveal to be quite a challenging task.

In particular, establishing the prerequisite relationships among learning objects, in terms of prior requirements needed to understand and complete before making use of the subsequent contents, is a crucial step for faculty, instructional designers or automated systems whose goal is to adapt existing learning objects to delivery in new distance courses. Nevertheless, this information is often missing. In this paper, an innovative machine learning-based approach for the identification of prerequisites between text-based resources is proposed. A feature selection methodology allows us to consider the attributes that are most relevant to the predictive modeling problem. These features are extracted from both the input material and weak-taxonomies avail-

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