

Expert pool: Assessment

A cluster-based analysis to diagnose students' learning achievements

Tuesday 19 July: 09.00 - 10.30 (CEST)

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Abstract

Assessment and evaluation of students' performance has always played an important role in the learning process as it provides information about the level of knowledge acquired on a subject, and the progress that has been achieved. However, another main issue is detecting the thematic core in which the students have learning problems because they are evaluated in terms of competencies. This study proposes an adaptive approach to diagnose and feedback students, and makes use of the Item Response Theory to estimate skill levels and classify the students. In addition, it uses a model of concepts' relationship between the concepts and the items of the test. The purpose is to diagnose students' cognitive problems and provide personalized and intelligent learning suggestions. This approach can be used as a system of intelligent diagnosis that receives a set of responses, and generates a data set of weak concepts for each student, specifying their learning path and resulting in clustering individuals who share the same shortcomings to ease any process of group feedback.