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Special Issue E-Learning Systems and Applications

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PAPERS

Developing An Interactive Web-Based Clustering System For Analyzing
Students' Academic Performances

Remote Control Laboratory Experiments In Physics
Using LabVIEW

Context-Aware Recommender Systems
For Learning

Moocs Video Mining Using Decision Tree J48 And Naive Bayesian
Classification Models

SGFreemium Model: Modeling Solution For Attaching A Learner Via Serious
Games

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Preface

Nowadays the rapid development of internet technologies such as the Wifi infrastructure, the sensor networks and the Internet of things, has offered to the users new opportunities for performing selective online education and new methods for adaptive and personalized learning. The research community has proposed several approaches and solutions, like e-Lab or remote laboratories to solve many issues related to the equipment' scarcity and the ever-increasing number of students that surpasses the institutions' capacities. MOOCs, which are also very efficient means of learning, based on videos and multimedia databases offer also a variety of diversified learning activities. Serious games are equally considered as valuable tools for digital Learning. They are designed in cooperation with a domain specialist to meet the needs of a specific category of learners.

This special issue has come to focus on Adaptive Learning Systems and Applications, including the incorporation of new technologies and new pedagogical approaches to thoroughly meet the needs of various groups of learners.

In fact, this special issue received as submissions the best papers accepted in the IEEE CiSt'16 and ACM BDCA'17 conferences and which cover topics related to e-learning systems and Applications. After carrying a careful peer review process, we have retained five papers.

The authors of the first paper entitled 'Developing an Interactive Web-Based Clustering System for Analyzing Students' Academic Performances', Najdi et al. have developed a web-based system to make clustering of students' performance more usable for university managers. The resulting system could help universities to transform data accumulated in their logs into valuable knowledge. The latest can enhance the understanding of the performances of the students and help addressing the root causes of the existing academic issues.

The second paper entitled 'Remote Control Laboratory Experiments in Physics using LabVIEW', Khazri et al. describes the implementation of real experiments in physics via Remote Laboratories (RLs). RLs are distributed computing environment that allow learners to perform experiments by interacting with real devices, real instruments, and remote mechanisms, through an appropriate platform of telecommunications. Students perform their exercises at home just as in a real lab and they can run their experiments directly as if they were working on site. Needless to say that a remote laboratory can play an important role to rise the student's interest in improving their self-paced learning.

The third paper entitled 'Context-Aware Recommender Systems for Learning', El Guabassi et al. proposes a recommendation system using learner context and decision trees for efficient guidance for ubiquitous learning. The ubiquitous learning provides learners with the right resource at the right time and in the most appropriate way. It consists of selecting relevant resources based on the learner profile like his level of knowledge, skills, preferences, interests, and his surrounding context related to the physical environment, technologies, mobility, tools, time, location, noise, and luminosity.

The fourth paper entitled 'Moocs Video Mining Using Decision Tree J48 and Naive Bayesian Classification Models', EL Harrak et al. presents an approach towards Moocs videos mining using metadata based on J48 and Naive Bayesian classification models to provide learners with better results. They have classified Moocs videos based on their category using web metadata. The Moocs web video metadata are extracted from standard website and stored in a database for classification. The classification results of J48 and Naive Bayesian classification models are compared and the Naive Bayesian classification model was found to be more efficient for classifying Moocs web videos using metadata.

The fifth paper entitled 'SGFreemium model: modeling solution for attaching a learner via Serious Games', Meftah et al. discusses the efficiency of Serious Games in education. They propose the Freemium model that addresses the following needs: the assurance of achieving intimacy between the learner and the game, learning by trial and error, taking into account the differences that exist in learning rhythms, the stimulation of pedagogical interactions between pupils, the effective integration of pedagogical information and the regular return of pupils to their actions, while motivating the player's learning process.

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