Emerging E-Learning Technologies

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INTRODUCTION

E-learning offers a tremendous amount of new features, including time and location independent studying, consolidation of a bundle of learning resources over the Internet, and presentation of e-learning content in various media types. These benefits significantly improve the effectiveness of learning for e-learning users. Hence, many institutions or organizations have already adopted or had a trial of different kinds of e-learning systems to enhance both the teaching process and the way of communication among e-learning users. However, there still exists some substantial problems to solve before e-learning systems can be made ideal for serving the community. Particularly, we need a way to formulate e-learning content such that one may effectively retrieve relevant pieces of learning material from an e-learning system. In addition, the e-learning content should also be presented in an elegant way to provide a good perception and understanding to e-learning users.

The Fourth International Conference on Web-Based Learning 2005 (ICWL’05) was held at City University of Hong Kong (China) in July 2005. It was part of our continuous effort to address many of the aforementioned issues. The conference received about 100 submissions. This special issue collects the extended version of some of the best papers presented at the conference.

Paper Overview

This special issue includes six papers covering some of the recent technological advances in e-learning. These papers can be roughly divided into two groups. The first group of papers addresses the technological issues in learning content formulation and extraction. The first article from Busetti, Dettori, Forcheri, and Ierardi (of Istituto di Matematica Applicata e Tecnologie Informatiche del CNR and Istituto di Tecnologie Didattiche del CNR, Italy) presents a pedagogical approach to formulate e-learning objects to improve the perception of e-learning users on the learning material. The second article from Chen, Li, and Feng (of City University of Hong Kong, Hong Kong and University of Twente, The Netherlands) presents an automatic way of constructing and optimizing e-textbooks by using the learning resources from the Web. The third
article from Zhuang, Zhang, Lu, and Wu (of Zhejiang University, China) presents a technique to extract Chinese brush calligraphy characters to construct an e-learning database.

The second group of papers presents some interesting e-learning systems. The fourth article from Cheung, Mørch, Wong, Lee, Liu, and Lam (of Hong Kong Baptist University, Hong Kong and University of Oslo, Norway) describes the use of latent semantic analysis (LSA), critiquing systems, and knowledge building to support e-learning in English composition. The fifth article from Phung, Valetto, Kaiser, and Liu (of Columbia University, University of South Carolina and IBM T.J. Watson Research Center, USA) describes an e-learning architecture and adaptation model to allow groups of students to collaboratively view video-based learning content in synchrony. The sixth article from Li, Lau, Komura, Wang, and Siu (of University of Durham, UK, University of Edinburgh and City University of Hong Kong, Hong Kong) describes a method for adaptive rendering and transmission of human motion information to support 3-D animation-based e-learning over the Internet.

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