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Transactions on Edutainment VIII

Springer

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Editorial

In this journal issue, we have 24 papers from different sources. The first ten articles of this issue represent a selection of outstanding contributions from Edutainment 2011, the 6th International Conference on E-Learning and Games held in Taiwan, in September 2011. The main purpose of Edutainment conferences is the discussion, presentation, and information exchange of scientific and technological developments in the new community. These ten papers cover a broad area from game engines, using games to teach, identifying a player's emotional states, and assessing the effect of educational games on multi-touch interaction, natural user interface, and virtual reality: "Analysis of Brainwave Characteristics for Playing Heterogeneous Computer Games;" "Exploitation in Context-Sensitive Affect Sensing from Improvisational Interaction;" "Hybrid Document Matching Method for Page Identification of Digilog Books;" "Game Design Considerations when Using Non-Touch-Based Natural User Interface;" "Effects of Game-Based Learning on Novice's Motivation, Flow, and Performance;" "Behavioral Traits of the Online Parent–Child Game Players: A Case Study and Its Inspirations;" "Towards an Open Source Game Engine for Teaching and Research;" "Designing a Mixed Digital Signage and Multi-touch Interaction for Social Learning;" "Old Dogs Can Learn New Tricks: Exploring Effective Strategies to Facilitate Somatosensory Video Games for Institutionalized Older Veterans;" "Effects of Multi-symbols on Enhancing Virtual Reality Based Collaborative."

The other 14 papers are regular papers or were selected from national conferences. In the paper "Particle Filter with Affine Transformation for Multiple Key Points Tracking," Sheng Liu et al. propose a novel multiple-point tracking method for long microscopic sequences, which is tested on the micro stereo imaging system and demonstrated by the experimental results. In the paper "Meshless Simulation of Plastic Deformation and Crack," Liang Zeng et al. present a meshless method for local deformation and crack simulation of plastic thin shells. In "Lossless Visible Three-Dimensional Watermark of Digital Elevation Model Data," Yong Luo et al. present a lossless visible 3D watermarking algorithm for protecting digital elevation model data; experiments demonstrate that the proposed algorithm has satisfactory security and can effectively protect the copyright of digital elevation model data. In the paper "3D Articulated Hand Tracking Based On Behavioral Model," Zhiquan Feng et al. propose a new cognitive and behavioral model, TPTM model, providing a way to connect users and computers for effective interaction, and present a real-time freehand tracking algorithm that tracks 3D freehand in real-time with high accuracy. In the paper "SPIDAR-Pen: A 2T1R Pen-Based Interface with Co-located Haptic-Visual Display," the authors propose a string-driven pen-based interface, which is capable of two translational and one rotational (2T1R) interactions, and co-located haptic-visual display. In the paper "Generation of IFS Fractal Images

Based on Hidden Markov Model," Liliang Zhang et al. present a method of generation of iterated function systems fractal attractor images based on a hidden Markov model. The method can draw the shape and color of fractal images by using a probability matrix. In the paper "High Performance Hybrid Streaming Scheme and VCR Support," Yong Wang et al. propose a new scheme, HPHS, and discuss how to support interactive VCR. It merges the outstanding thoughts of HPSCT (revised from GEBB) and a patching scheme. The scheme aims at delivering popular video, allocates the number of channels adaptively according to the request rate to minimize the network bandwidth consumption and satisfy the real-time playback requirement. In the paper "A Modular Image Search Engine Based on Key Words and Color Features," Xianying Huang et al. presents a modular image search engine based on keywords and contents, which organically combines the search engine technology of keywords and color feature of the images; a quantified method based on the maximum pixels ratio of irregular connected regions is also raised, and the retrieval efficiency is proved by experiments. In the paper "The Corroded Defect Rating System of Coating Material Based on Computer Vision," Gang Ji et al. present a method based on computer vision to solve the problem of artificial accurate detection of coating material corroded defects and making accurate ratings automatically. In the paper "Service Replacement Algorithm Using a Complex Network," Yang Zhang et al. use the replaceable degree from the dependency relationship to estimate the effect of the depth and breadth of dependencies between services on the replacement process and its results. In the paper "A Virtual Training System Using a Force Feedback Haptic Device for Oral Implantology," Xiaojun Chen et al. present a virtual training system, by which the resulting data of the preoperative planning can be transferred, and surgical simulation of the plan can be vividly realized. In the paper, "Modeling and Analysis of the Business Process of the Supply Chain of Virtual Enterprises" by Min Lu et al, UML and object-oriented Petri nets are combined to model the distributed business process of the supply chain of virtual enterprises. In the paper "Tree Branching Reconstruction from Unilateral Point Clouds," Yinghui Wang et al. perform unilateral scanning of real-world trees and propose an approach that could reconstruct trees from incomplete point clouds. In the final paper, "Literature Analysis on the Higher Education Informatization of China (2001–2010)," Chen et al. present statistical results from four dimensions: basic theory, construction, management, and evaluation of higher education informatization in China. The authors analyze the statistical results from the distribution of the number of articles, authors, and contents of the 278 articles.

The papers in this issue present numerous application examples of edutainment, which gives more evidence of the high potential and impact of edutainment approaches. We would like to express our thanks to all those people who contributed to this issue. The authors of the papers, the reviewers, and the Program Committee of Edutainment 2011 for recommending high-quality papers to this

new journal. Special thanks go to Fotis Liarokapis, Ming-Puu Chen, Wu-Yuin Hwang, and Wolfgang Müller, who helped select these papers from the two conferences. In addition, thanks also go to Yi Li, Fan Dai, and Qiaoyun Chen from the Editorial Office of this journal in Nanjing Normal University—they spent a lot of effort in contacting authors, managing the review process, checking the format of all the papers and collecting all the material.

April 2012

Maiga Chang
Mingmin Zhang

Transactions on Edutainment

This journal subline serves as a forum for stimulating and disseminating innovative research ideas, theories, emerging technologies, empirical investigations, state-of-the-art methods, and tools in all different genres of edutainment, such as game-based learning and serious games, interactive storytelling, virtual learning environments, VR-based education, and related fields. It covers aspects from educational and game theories, human-computer interaction, computer graphics, artificial intelligence, and systems design.

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