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Transactions on Edutainment XI

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Editorial

In this issue, we have four sections on different topics. The first section on object reconstruction and management comprises seven papers. In the first paper by Haisheng Li et al., the authors summarize different aspects of several feature extraction technologies. They then focus on applications of three-dimensional (3D) object features, not only general 3D model retrieval, but also mainly specific applications and 3D CAD objects, non-rigid 3D objects, and deformable objects. In the second paper by Naotomo Tatematsu et al., the authors propose a method that combines temporal modified-RANSAC (TMR) with a fixation-based segmentation algorithm for reconstructing the 3D structure of moving and still objects that are tracked in video and depth image sequences acquired by moving Kinect and/or range finders. In the third paper, Liangcheng Su et al. present a method for 3D reconstruction from images that can be used to identify obstacles based on a single omnidirectional image obtained by an omnidirectional stereo vision optical device (OSVOD). The OSVOD is a novel catadioptric system based on a common perspective camera coupled with two hyperbolic mirrors. In the fourth paper by Min Hu et al., the authors present an analysis of a model registration algorithm of 3D reconstruction and compare it with a common registration algorithm such as RANSAC (random sample consensus) and ICP (iterative closest point). In the fifth paper, Jianping Xie et al. describe a novel license character recognition method based on the nearest feature line (NFL) classifier. In the sixth paper by Bin Shao, moving image matching task allocation strategies based on a multi-agent system are discussed. Combined with a genetic algorithm and a simulated annealing algorithm, it produces a new moving image pattern that matches task allocation strategies based on the multi-agent system. In the seventh paper by Qiaoming Pan et al., a new video matting method based on sampling is proposed. By detecting the movement of the foreground and background objects from video, the authors define the local transformations that transfer the small areas between different frames in the video.

The second section on graphics contains five papers. In the first paper by Dan Xiao the authors compare three different algorithms for labeling each drawn stroke as being a particular component in the generic model. Their statistics show that the K-means classifier yields better results than the other two and they test this by applying the classifier to rocket sketches. The second paper by Xiaorong Du et al. is devoted to establishing effective exaggeration rules, which it puts into practice. It uses the thin plate spline to conduct image distortion in order to achieve face feature exaggeration. Using the thin plate spline to distort images can achieve a smooth effect and then deformation only for exaggerating features, thus making computation easy. In the third paper by Yuanyuan Pu et al., the authors propose an improved synthesis algorithm according to the image quilting algorithm. In this algorithm, the L-overlap region is replaced by an r-overlap region to reduce the amount of pixels used to compute the error of the sum of squared differences (SSD) and to lower the calculation redundancy. In the fourth paper, Lanling Zeng et al. develop an interactive modeling system to

generate plants based on freehand sketches. The fifth paper by Fan Zhang et al. presents a new method of choosing knots. For each data point, the new method constructs a quadratic polynomial curve by three adjacent data points.

In the third section of the volume on VR/AR, six papers are included. In the first by Yang Yang, which is an overview paper, the early application of augmented reality (AR) is introduced and the principle and application of mobile AR technology are discussed. This is followed by a discussion of the present application of mobile AR in e-learning. Finally, the existing problem and application prospect of mobile AR technology in e-learning are described. The second paper in this section by Qing Wang et al. aims to investigate a mapping mechanism for knowledge combination with games. The main achievements include: a new system of classification for educational games based on learning objectives and characters of knowledge, on the basis of which a general-element model of the game and its formal representation is given; knowledge is classified into 11 categories according to the characters of the game to be combined; the relationship between knowledge and game rules is analyzed and a mapping mechanism is proposed. In the third paper by Jun Shen, which is on English learning in EFL settings, video material is shown that presents authentic expressions of English native speakers. The video material also contributes to establishing a better understanding of foreign cultures for the students so as to prevent learning anxiety and provide study motivation. The fourth paper by Lijie Yang et al., describes an interactive construction method of 3D objects from Chinese ink paintings for the challenging problem of generating Chinese ink animation. In the fifth paper by Yinghui Wang et al. proposes an automatic technique that generates Chinese meticulous painting from image. In the sixth paper by Haiying Zhao et al., the authors put forward the motif gene as the basic unit of inheriting the national cultural connotation; through the design segmentation algorithm they obtain traditional motif genes, via a variety of generation models and genetic recombination.

The fourth section on applications contains six papers. In the first paper by Yongqiang Chen et al., after the analysis of the status of Hangzhou's cultural and creative industries, the authors explore the factors that influence the export of the cultural and creative products of Hangzhou, and then discuss the problems with and measures for the export of these products by drawing upon the experience of countries with advanced industries. In the second paper by Qing Shen et al., from the viewpoint of operational research, the authors define identical discrepancy contrary analysis, identical discrepancy contrary inference, and identical discrepancy contrary decision based on set pair analysis together as identical discrepancy contrary mastermind. The third paper by Wei Zhao et al. explores the influence of Baroque music on undergraduate students' recognition memory. To this end, the study randomly selected 63 students from a university as subjects, taking a mixed design of 3×2 to examine the subjects' recognition accuracy of Chinese and English materials under the condition of Baroque music as background music as well as with pilot music and without background music, and collected each subject's band EEG data under the three conditions through bio-feedback instruments. In the fourth paper by Lin Qiu et al., the urgency and feasibility of training service outsourcing students through cooperation between universities and enterprises are identified by analyzing the status of training service outsourcing talents in universities. The cooperation patterns and requirements between Hangzhou Institute

of Service Engineering and enterprises in training service outsourcing students are presented. In the fifth paper, Yunliang Jiang et al., according to cloud computing technology, present a distributed data-mining framework based on Hadoop. They present the implementation of this system framework and process mobile Internet access logs on the Hadoop cluster. In the last paper by Lifeng Yu et al., the authors propose a new efficient k-anonymization algorithm. The main idea of the proposed algorithm is that they first adopt the c-modes algorithm to partition the whole dataset into large clusters, and then take the KACA algorithm to k-anonymize each cluster separately.

July 2015

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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