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# Transactions on Edutainment XIII

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## Editorial

The present issue of *Transactions on Edutainment* is made up of five sections covering various topics in the area of edutainment. The first section is on e-learning and visualization and contains five papers. In the first paper, by Zifei Yan et al., the authors propose a digital museum exhibition system based on the combination of a hand-held projector and depth sensor. In the second paper, by Mingliang Cao et al., the authors present a CPI (conceptual-procedural-integrative) learning method for textile and clothing university students to learn computational design for thermal functions of clothing and their performance on knowledge, skills, and application levels. In the third paper, Huaqing Shen et al. study the esthetic computing of virtual cameras to improve artists' working efficiency and to assist non-artist users' in esthetic-related decision-making when using three-dimensional production software. In terms of photo composition, by setting the default value of controlled variables, automatically produced shot types can help the user to improve production efficiency greatly as well as to simplify work flow. In the fourth paper, by Hao Ma et al., a synthetic visualization system combining parallel coordinate plots and multidimensional scaling is proposed for the analysis of multivariate time series data. In the last paper in this section, by Xusheng Hu et al., a wearable tactile information expression system based on electrotactile rendering is designed and developed.

The second section on virtual reality and applications comprises five papers. In the first paper, by Yuyong He et al., the authors propose an adaptable behavior-coding schema for avatar interaction in the distributed virtual environment. The Huffman coding technique is adapted to minimize the average length of behavior codes based on a survey and its analysis. In the second paper, authored by Yingying Zhang et al., a virtual music control system based on dynamic hand gesture recognition is presented. The system mode was mainly designed and realized by three modules including a control terminal, client terminal, and the server. In the third paper, Lin Yang et al. present a real-time interactive system based on hand gesture recognition in virtual fitting. The fourth paper, by Huaichao Wang et al., describes a robust rectification algorithm for the vision navigation system of the planetary rover to rectify stereo images based on the traditional projective rectification method. In the fifth paper, by Yanjun Peng et al., an interactive dynamic simulation method is proposed to solve computational models of soft tissue undergoing large deformation, collision detection, and volume conservation in medical surgical simulation visualization.

Five papers make up the third section on graphics and image. In the first paper, Wenhui Zhou et al. design a general distributed stream computing architecture to support light-field data stream acquisition and computation. In the second paper, by Guping Zheng et al., the authors improve the traditional terrain-rendering algorithm, combining it with a material point method that is very suitable for processing deformation. In the third paper of the section, Defa Zhang et al. introduce new GPU-based color-grading algorithms for a real-time 3D scene rendering pipeline, which is used to

solve the problem of color bias and lack of lighting and brightness in common real-time rendering systems. A new real-time color grading solution is also provided to make use of the 3DLUT data along with parametric textures, so as to read and apply data on the GPU side efficiently. In the fourth paper, by Lu Qian et al., an extended manifold ranking method is presented as a new retrieval framework. Line drawings are abstracted to represent 3D models, and a visual vocabulary is used to describe the local features of both sketches and line drawings. To rank the similarities between models, a method of semantic classification as a constraint is presented. The fifth paper, by Abderrezak Cheleghoum et al., puts forward a novel algorithm of obstacle avoidance to support robot navigation.

The fourth section on multimedia applications also comprises five papers. In the first paper, by Tao Yang et al., the authors take advantage of an automatic video generation method to apply human-computer interactions in its process with the aim of finding a balance between time efficiency and depth map generation quality. The second paper in this section, by Yong Wang et al., proposes an approach to building a collaborative system based on multi-agent mechanisms, so as to support urban management. A multi-agent collaborative model, which combines centralized and distributed management architecture, was developed. In the third paper, by Zhenxin Nie et al., a novel method based on a foreground-background pixel pair feature is proposed to solve the vehicle logo recognition. In the fourth paper, by Xuekuo Li et al., a content-aware image retargeting using line-based MLS deformation is presented. In the fifth paper, by Yi Chen et al., the authors describe a method for visualizing multidimensional data based on cartograms. The results of user evaluation demonstrated that our method and system can effectively help users to analyze the geospatial distribution of pesticide residue pollution.

The fifth section on applications contains five papers. In the first paper, by Jinlai Lv et al., the authors propose a shot detection algorithm of self-adaptive dual thresholds based on multi-feature fusion. The second paper, by Quanyu Wang et al., presents an indoor positioning method and system based on iBeacons, which are low-energy Bluetooth gadgets proposed by Apple. An array of iBeacons are deployed in an indoor environment to periodically emit signals that can be received by a mobile phone. In the third paper, by Yong Wang et al., a dynamic load-balancing architecture with a master/slave model is put forward. The architecture is used in a cluster-monitoring system in order to use and distribute resources effectively. In the fourth paper, by Qing Shen et al., the authors present a method for multiple attribute decision-making based on converting triangular fuzzy numbers into connection numbers. This model was applied to a situation with unknown attribute weights. In the fifth paper, by Gengyun Jia et al., a novel feature-weighting algorithm called local feature weighting (LFW) that assigns each sample a unique weight vector is proposed.

The topics covered in this issue are wide-ranging and I hope the readers can find papers that are a good match to their research interests.

# 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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