

Digital home applications

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The development of the digital home technology is a trend of information technology penetration and fusion in life. Numerous digital media equipments and contents have been applied into life at home. The growth of media contents and broadband-width stimulates the problems of producing, editing, transmitting, and displaying of media contents. It brings enormous opportunities as well as challenges for researchers and application developers. With the theme of “Digital Home, Smart Life”, we present the technological advances and research results in the fields of digital application in daily life. The research topics are about digital simulation modeling, video tracking, image processing, personal interactive and digital media equipments development. The research results are important in the theory foundation and have great applications in the world. This issue consists of twelve papers, which are briefly discussed as follows.

Ruomei Wang et al. in their article “An Adaptive Neural Fuzzy Network Clothing Comfort Evaluation Model and Application in Digital Home” presented a theoretical clothing comfort evaluation model based on the adaptive fuzzy neural network (FNN).

Li Liu et al. in their article “Mesh-based Anisotropic Cloth Deformation for Virtual Fitting” proposed a novel dynamic cloth simulation method via geometric deformation energy model that preserves geometric features well to achieve cloth behaviors with various material effects.

Hao Jiang et al. in their article “3D Video Components Generation Using Object Tracking Technique” proposed a computer interactive conversion method to capture components which is used to generate 3D sequences. A 2D-to-3D system can generate 3D sequence interactively.

Xing Huo et al. in their article “An Automatic Video Scratch Removal Based on Thiele Type Continued Fraction” presented an automatic scratch detection method as well as a novel scratch removal approach.

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Jinghua Li et al. in their article “Chinese Sign Language Animation Generation Considering Context” studied the effect of context on manual gesture and non-manual gesture, and presented a method for generating stylized manual gesture and non-manual gesture according to the context.

Bo Li et al. in their article “Image Denoising with Patch Estimation and Low Patch-rank Regularization” proposed an image denoising algorithm for one special class of images which had periodical textures and contaminated by Poisson noise using patch estimation and low patch-rank regularization.

Guoming Chen et al. in their article “Steganalysis Based on Distribution Characters of Stego-images in Reduced Dimension Space” proposed an Improved Kernel Linear Discriminant Analysis algorithm to analyze the distribution differences between cover images and stego-images in the reduced dimensional space.

Pengcheng Wang et al. in their article “Adaptive Particle Shape Setting and Normal Calculation Methods in Fluid Rendering” presented an adaptive particle shape setting method in Lagrangian-approach based screen space splatting algorithm in real-time fluid rendering.

Mikel Zorrilla et al. in their article “HTML5-based System for Interoperable 3D Digital Home Applications” provided a state-of-the-art survey of current capabilities and limitations of the digital home devices and described a latency-driven system design based on hybrid remote and local rendering architecture, enhancing the interactive experience of 3D graphics on these thin devices.

Yi Wang et al. in their article “Real-time Estimation of Hand Gestures based on Manifold Learning from Monocular Videos” proposed an efficient method that can recover pose and viewpoints for numerous hand gestures from monocular videos based on Locality Preserving Projections.

Issa Traore et al. in their article “Online Risk-based Authentication using Behavioral Biometrics” introduced a risk-based authentication technique based on behavioral biometrics as solution approach to tackle this challenge.

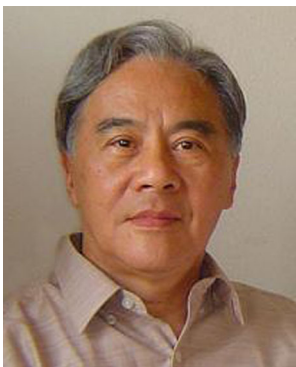
Shengfa Wang et al. in their article “Normal-controlled Coordinates Based Feature-preserving Mesh Editing” developed an implicit editing algorithm based on normal-controlled coordinates (NCC), which is efficient by subtly using vertex normals. And they also presented a linear method based on NCC to reconstruct a mesh from predefined face normals.

We are most grateful to the authors for their valuable contributions and for their willingness and efforts to improve their papers. And we also thank all of reviewers for their valuable suggestions and comments.

We would like to take this opportunity to appreciate the Editor-in-Chief of the Multimedia Tools and Application Journal, for his invaluable support and encouragements throughout the preparation of this special issue. We thank the staffs at Springer for their kind help in this issue. Finally, we hope you will enjoy reading this selection of papers.



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