

2011 Workshop on Digital Media and Digital Content Management (DMDCM 2011)

**Hangzhou, Zhejiang, China
15 – 16 May 2011**



**IEEE Catalog Number: CFP1199N-PRT
ISBN: 978-1-4577-0271-6**

2011 Workshop on Digital Media and Digital Content Management

DMDCM 2011

Table of Contents

Foreword.....	xi
Organizing Committee.....	xii
Program Committee.....	xiii

Virtual Reality and Augmented Reality

A Physics-Based Augmented Reality Jenga Stacking Game	1
<i>Damon Shing-Min Liu, Chun-Hao Yung, and Cheng-Hsuan Chung</i>	
Animations of Medical Training Scenarios in Immersive Virtual Environments	9
<i>Ivelina V. Alexandrova, Marcus Rall, Martin Breidt, Uwe Kloos, Gabriela Tullius, Heinrich H. Bülthoff, and Betty J. Mohler</i>	
Creating for 3D Digital Chinese Ink-Wash Landscape Paintings Based on Maya	13
<i>Xunxiang Li</i>	
Bidirectional Interplay between Tracking and the Rider Simulator and Its Application to Snowboarding	18
<i>Anjin Park, Hyeong Rae Choi, Yujin Jung, Sungkuk Chun, Donghoon Kang, and Jinwook Kim</i>	
Geometry and Texture Coupled Generalization of Urban Buildings	26
<i>Man Zhang, Liqiang Zhang, Hao Wang, and Wenqing Xie</i>	
Hierarchical Occlusion Queries on Driving Simulation	30
<i>Mohd Khalid Mokhtar, Mohd Shahrizal Sunar, Ismail Mat Amin, and Mohd Kufaisal Mohd Sidik</i>	
HUBOT--A Modeling and Simulation Platform Based on PhysX for Multi-link Robot	35
<i>Yichao Sun, Rong Xiong, and Jian Chu</i>	
Modeling and Rendering of Ocean Battlefield Scenes	40
<i>Su-Jun Li and Xiao-Su Zhan</i>	

Object Behavior Specification and Simulation in Virtual Assembly	45
<i>Cheng Cheng, Xueqin Cai, and Ru Jiang</i>	
Rigid Body Simulation with Local Fracturing Effects	49
<i>Wu Bo, Zeng Liang, and Wu Yagang</i>	
Study on Extra Vehicular Spacewalk Simulation Technology	53
<i>Ming An, Shanguang Chen, and Yuqing Liu</i>	
The Design of the <i>Prunus mume</i> Online Virtual Museum	57
<i>Yang Zhang and Xinyuan Huang</i>	
From Virtual Signified to Virtual Reality: Animation in China Children-Oriented Sports TV Program for Beijing Olympic Games	61
<i>Zhenbiao He and Xuefeng Han</i>	
Towards 3D City Modeling through Combining Ground Level Panoramic and Orthogonal Aerial Imagery	66
<i>Fay Huang, Yi-Ju Wu, Akihiko Torii, Augustine Tsai, and Jui-Yang Tsai</i>	

Social Agents and Animations

3D Hand Model Animation with a New Data-Driven Method	72
<i>Ouissem Ben Henia and Saida Bouakaz</i>	
A Convex Optimization Approach for Online Human Walking Motion Adaptation	77
<i>Qing Tang, Rong Xiong, Jian Chu, and Changjiu Zhou</i>	
A Data-Driven Approach for Simulating Pedestrian Collision Avoidance in Crossroads	83
<i>Libo Sun and Wenhui Qin</i>	
A Review of Dynamic Motion Control Considering Physics for Real Time Animation Character	86
<i>Ismahafezi Ismail, Mohd Shahrizal Sunar, Mohd Kufaisal Mohd Sidik, and Cik Suhaimi Yusof</i>	
A Rigid Structure Matching-Based Noise Data Processing Approach for Human Motion Capture	91
<i>Xiaopeng Wei, Boxiang Xiao, Qiang Zhang, and Rui Liu</i>	
A Study on Natural Interaction for Human Body Motion Using Depth Image Data	97
<i>Mohd Kufaisal bin Mohd Sidik, Mohd Shahrizal bin Sunar, Ismahafezi bin Ismail, Mohd Khalid bin Mokhtar, and Normal binti Mat Jusoh</i>	
Abnormal Markers Detection in Motion Capture System Based on the Revised L ² Depth	103
<i>Jun Wang, Chongzhao Han, Yonggang Hu, and Xiaoming Zhou</i>	

Creating Emotional Speech for Conversational Agents	107
<i>Anh Tuan Do and Scott A. King</i>	
Multi-actor Planning for Directable Simulations	111
<i>Mubbasir Kapadia, Shawn Singh, Glenn Reinman, and Petros Faloutsos</i>	
Optimized Motion Capture System for Full Body Human Motion Capturing Case Study of Educational Institution and Small Animation Production	117
<i>Suwich Tirakoat</i>	
Rapid 3D Human Modeling and Animation Based on Sketch and Motion Database	121
<i>Xiaohui Xu, Chang Leng, and Zhongke Wu</i>	
Retrieval Based Cartoon Synthesis via Heterogeneous Features Learning	125
<i>Zhang Liang, Jun Xiao, and Hong Pan</i>	
Towards 3D Communications: Real Time Emotion Driven 3D Virtual Facial Animation	132
<i>Wei Zhou, Nan Xiang, and Xiaoqian Zhou</i>	

Computer Graphics

A Terrain Matching Method for Irregular Military Symbols Based on the Simplification of Control Points	136
<i>Fengxia Li, Qingyi Zhang, and Fei Jie</i>	
Cloth Animation Based on Particle Model with Constraint	141
<i>Shi Min and Mao Tianlu</i>	
Developing Virtual Actors Inspired by Real Actors' Practice	146
<i>Rogério E. da Silva, Manuel F. dos Santos, and Ido A. Iurgel</i>	
Fast Computation of Transition Points for Motion Graph	150
<i>Xiaoyan Hu, Qinpeng Zhao, and Xiaohui Liang</i>	
Hybrid Physical – Topological Modeling of Physical Shapes Transformations	154
<i>Emmanuelle Darles, Saman Kalantari, Xavier Skapin, Benoît Crespín, and Annie Luciani</i>	
Indoor Daylight Simulation Using Radiosity Method	158
<i>Dan Xiao, Gaowa Wuyun, and Zhigeng Pan</i>	
Multilinear Fluid Simulation with Model Reduction for Pressure Projection	162
<i>Jinhyuk Bae, Jinho Park, Sehwi Park, and Junyong Noh</i>	
Multi-resolution Texture Rendering for Medical Data	166
<i>Yun Cheng, Li Jiang, Xiangyin Ma, Jianfeng Xue, and Zhelan Zheng</i>	
Parallel Rendering for Large-Scale Crowd Based on Dynamic Feedback	172
<i>Yanfeng Zhang, Tianlu Mao, and Zhaoqi Wang</i>	
Physically Based Method for Cloth Deformation	176
<i>Shi Min, Wang Zhaoqi, and Mao Tianlu</i>	

Progressive Point-Based Global Illumination	181
<i>Beibei Wang, Yanning Xu, and Xiangxu Meng</i>	
SAH Based KD Tree Construction on Hybrid Architecture	185
<i>Peng Zhou and Xiangxu Meng</i>	
Stochastic Modeling of Lightweight Floating Objects	190
<i>Zhi Yuan, Fan Chen, and Ye Zhao</i>	

Image and Video Processing

A MPEG2 Video Watermarking Algorithm Based on DCT Domain	194
<i>Lu Jianfeng, Yang Zhenhua, Yang Fan, and Li Li</i>	
A GPU Accelerated Algorithm for Compressive Sensing Based Image Super-Resolution	198
<i>Xifei Wu, Hui Xiang, and Peng Lu</i>	
Virtual Completion of Facial Image in Ancient Murals	203
<i>Qi Wang, Dongmin Lu, and Hongxin Zhang</i>	
Face Aging Simulation Based on Image Warping	210
<i>Wei Shen and Zhenjiang Miao</i>	
Jumping Scanning Path Error Diffusion: A Novel Halftoning Algorithm Improving Mid-tone Quality	215
<i>Yan Zhou, Chun Chen, Qiang Wang, and Jiajun Bu</i>	
Research on Extraction and Digitization Method of Blood Vessels for TCM Diagnosis	223
<i>Cong Wu and Koichi Harada</i>	
Segmentation of Tubular Structures Using Flux Maximizing Flows: An Application to Color Medical Images	229
<i>Yugang Liu, Leitong Chen, Hongbin Cai, and Hang Qiu</i>	
A GPU-Accelerated GVF Snake Algorithm	233
<i>Zuoyong Zheng and Ruixia Zhang</i>	
An Improved Graph-Based Image Segmentation Algorithm and Its GPU Acceleration	237
<i>Wenjuan Feng, Hui Xiang, and Yan Zhu</i>	
Big Skin Regions Detection for Adult Image Identification	242
<i>Haiming Yin, Xiaodong Xu, and Lihua Ye</i>	
A Scoreboard Based Method for Goal Events Detecting in Football Videos	248
<i>Song Yang, Wen Xiangming, Sun Yong, Zhang Liang, Yan Lelin, and Lin Haitao</i>	
A Novel Quality Evaluating Method for Over-Segmentation Approaches Using Real-Time Boundary Information	252
<i>Sheng Liu, Rui Cao, Shengyong Chen, and Zichen Chen</i>	

A Motion Estimation Algorithm for Educational Video Compression	257
<i>Pengbin Fu, Haifei Xiong, and Huirong Yang</i>	

CAD and Visualization

A Hybrid Visual Attention Method Based on Itti Model	261
<i>Yi Wang, Xin Fan, Haojie Li, and Qi Jia</i>	
Direct Spherical Parameterization Based on Surface Curvature	266
<i>Bogdan Mocanu and Titus Zaharia</i>	
New Silhouette Detection Algorithm to Create Real-Time Volume Shadow	270
<i>Hoshang Kolivand and Mohd Shahrizal bin Sunar</i>	
Numerical Control Simulation Algorithm Based on Automation Language	275
<i>YongQi Kong</i>	
Rapid Assembly Design for Solid Furniture Modeling	279
<i>Wanbin Pan and Yigang Wang</i>	
Spatiotemporal Analysis of Circulation Behaviors Using Path and Residing Time display (PARTY)	284
<i>Kingkarn Sookhanaphibarn, Ruck Thawonmas, Frank Rinaldo, and Kuan-Ta Chen</i>	
Interactive Cartographic Drawing within the RIA/Silverlight Environment	292
<i>Huanliang Wang and Jianjun Zhu</i>	

Others

A Multi-sensor Data Fusion Method Based on the Set-Pair Identity Degree and Connection Number	298
<i>Yun-Liang Jiang, Zhang-Xian Yang, Gang Li, Yong Liu, and Qing Shen</i>	
A Peer-to-Peer Solution for Achieving Interoperability among Healthcare Centers	302
<i>Yan Hu, Li Jiang, Mingyuan Yu, and Lei Ye</i>	
A Silence/Voice Segment Detection Method of Speech Signal Using Wavelet Transform Parameters	308
<i>Jianping Xie and Jiandong Zhou</i>	
An Interactive Vocabulary Learning System Based on Word Frequency Lists and Ebbinghaus' Curve of Forgetting	313
<i>Liren Zeng and Ling Lin</i>	
Auto-layout Algorithm of Project Network Diagram	318
<i>Weidong Zhao, Wenbin Wang, and Xinming Lu</i>	
Predicting Algorithm of the Polygonal Area of Collapse in the Mine Goaf Based on WebGIS	322
<i>Ming-Xiang He, Wen Wen, Jiu-Chuan Wei, and Xin-Ming Lu</i>	

Prediction of Mine Water Inflow Based on Support Vector Machine	326
<i>Wenxue Wei, Longqing Shi, Xinming Lu, and Feng Zhang</i>	
The Application to Fractal of Complex Dynamics System on Innovative Design of Textile Pattern	330
<i>Zhijun Zhang and Mingjun Wang</i>	
The Optimal Selection of Supply Chain Partners for Mining Enterprises with Genetic Algorithm	336
<i>Ming-Xiang He, Jiu-Chuan Wei, Bao-Xiang Huang, and Xin-Ming Lu</i>	
Two Enhanced BM Algorithm in Pattern Matching	341
<i>Zhu Yong-qiang</i>	

Author Index