Preface (Vol 34, Issue 6, 7, 8)

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Welcome to the special issue of the 35th Computer Graphics International conference (CGI 2018). CGI is one of the oldest international conferences in computer graphics. It is the official conference of the Computer Graphics Society (CGS), a long-standing international computer graphics organization. CGI and CGS were initiated by Professor Tosiya L. Kunii, from the University of Tokyo in 1983. Since then, the CGI conference has been held annually in many different countries across the world and gained a reputation as one of the key conferences for researchers and practitioners to share their achievements and discover the latest advances in Computer Graphics. This year, CGI 2018 is organized by CGS and Nanyang Technological University, Singapore, and is being held in Bintan, Indonesia, from 11 to 14 June, 2018. CGI is in cooperation with ACM/SIGGRAPH and Eurographics.

This special issue of the Visual Computer is composed of the 33 best papers from CGI 2018. We received 136 submissions from 37 countries and regions, with an acceptance ratio of about 27%. To ensure the highest quality of publications, each paper has been reviewed by at least three experts in the field. The International Program Committee is composed of 109 members plus 73 external sub-reviewers invited by the IPC.

We would like to express our deepest gratitude to all the IPC members and external reviewers who have provided high-quality reviews timely. We would also like to thank all the authors for contributing to the conference by submitting their work. Our special appreciation goes to the organizing committee who have contributed to the success of the CGI 2018.

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<http://www.cgs-network.org/cgi18/>

List of articles in this special issue

The selected 33 papers are organized in the following 6 sections, covering the fundamentals as well as the most advanced research topics in computer graphics.

3D reconstruction We have 4 papers focusing on 3D reconstruction.

1. “Real-time 3D scene reconstruction with dynamically moving object using a single depth camera” by Feixiang Lu, Bin Zhou, Yu Zhang and Qinpeng Zhao from Beihang University, Beijing, China.
2. “A Framework for Developing and Benchmarking Sampling and Denoising Algorithms for Monte Carlo Rendering” by Jonas Deyson B. Santos, Manuel M. Oliveira from Instituto de Informatica, UFRGS, Porto Alegre, RS, Brazil, and Pradeep Sen from University of California, Santa Barbara.
3. “Implicit Surfaces from Polygon Soup with Compactly Supported Radial Basis Functions” by Shengjun Liu, Jintao Xiao, Ling Hu and Xinru Liu from Central South University, Changsha, University.
4. “3D Braid Guide Hair Reconstruction using Electroluminescent Wires” by Hendrik Hachmann, Maren Awiszus and Bodo Rosenhahn from Institut für Informationsverarbeitung, Leibniz Universität Hannover, Germany.

Rendering techniques The second section is on Rendering techniques and consists of 7 papers.

1. “Evaluating Physical and Rendered Material Appearance” by Jiri Filip, Martina Kolafova, Michal Havlicek, Radomir Vavra, Michal Haindl from The Czech Academy of Sciences, Institute of Information Theory and Automation, The Czech Republic and Holly Rushmeier from Yale University, USA.
2. “An Image-Based Method for Animated Stroke Rendering” by Tamas Umenhoffer, Laszlo Szirmay-Kalos, Laszlo Szecsi, Zoltan Lengyel from Budapest University of Technology and Economics, Hungary and Gabor Marinov from Limes Superior Ltd., Budapest, Hungary.
3. “Point-Based Rendering Enhancement via Deep Learning” by Giang Bui, Truc Le, Ye Duan from University of Missouri, Columbia, USA, and Brittany Morago from University of North Carolina Wilmington, USA.
4. “Multiple Importance Sampling Characterization by Weighted Mean Invariance” by Mateu Sbert from Tianjin University, China, and Girona University, Spain, Vlastimil Havran from Czech Technical University in Prague, Czech Republic, Laszlo Szirmay-Kalos from Budapest University of Technology and Economics, Hungary, and Victor Elvira from IMT Lille Douai, CRISTAL laboratory, France.
5. “Hybrid Lighting for Faster Rendering of Scenes With Many Lights” by Jesse Archer, Geoff Leach, Pyarelal Knowles and Ron van Schyndel from RMIT University, Melbourne, Australia.
6. “Incremental Voronoi Sets For Instant Stippling” by Lei Ma from University of Chinese Academy of Sciences, China, Yanyun Chen from State Key Laboratory of Computer Science, ISCAS, China, Yinling Qian and Hanqiu Sun from Chinese University of Hong Kong, Hong Kong.
7. “A Detailed Study of Ray Tracing Performance: Render Time and Energy Cost” by Elena Vasiou, Konstantin Shkurko, Ian Mallett, Erik Brunvand and Cem Yuksel from University of Utah, USA.

Virtual reality and augmented reality The third section focuses on virtual and augmented reality with 4 papers.

1. “Time scaled interactive object driven Multi-party VR” by Nisha Jain, Andrzej Wydra, Wen Hai, Nadia Magnenat-Thalmann from Institute for Media Innovation, Nanyang Technological University, Singapore, and Daniel Thalmann from Ecole Polytechnique Federale de Lausanne, Switzerland.
2. “Real-Time Camera Pose Estimation via Line Tracking” by Yanli Liu, Xianghui Chen, Tianlun Gu, Yanci Zhang from Sichuan University, China, and Guanyu Xing

from University of Electronic Science and Technology of China, China.

3. “A VR-based User Study on the Effects of Vision Impairments on Recognition Distances of Escape-Route Signs in Buildings” by Katharina Krosch, Dominik Bauer, Georg Suter, Michael Wimmer from TU Wien, Austria, Michael Schwarzler from VRVis Research Center, Austria and Henry Fuchs from University of North Carolina Chapel Hill, USA.
4. “Navigation in AR based on Digital Replicas” by Ojaswa Sharma, Jalaj Pandey, Hammad Akhtar and Gaurav Rathee from Indraprastha Institute of Information Technology Delhi, New Delhi, India.

Geometric modelling, geometric computing and shape and surface modelling The fourth section consists of 8 papers.

1. “Deformation Simulation Based on Model Reduction with Rigidity-Guided Sampling” by Shuo-Ting Chien, Chen-Hui Hu, Cheng-Yang Huang, Wen-Chieh Lin from National Chiao Tung University, Taiwan and Yu-Ting Tsai from Yuan Ze University, Taiwan.
2. “Locally Refinable Gradient Meshes Supporting Branching and Sharp Colour Transitions” by Pieter J. Barendrecht, Martijn Luinstra, Jonathan Hogervorst and Jiri Kosinka from University of Groningen, The Netherlands.
3. “Robust Normal Estimation in Unstructured 3D Point Clouds by Selective Normal Space Exploration” by Claudio Mura, Gregory Wyss and Renato Pajarola from University of Zurich, Switzerland.
4. “Offsetting Spherical Curves in Vector and Raster Form” by Troy Alderson, Faramarz Samavati from University of Calgary, Canada, and Ali Mahdavi-Amiri from Simon Fraser University, Canada.
5. “Wire Cut of Double-sided Minimal Surfaces” by Hao Hua and Tingli Jia from Southeast University, Nanjing, China.
6. “Efficiently Consistent Affinity Propagation for 3D Shapes Co-segmentation” by Xiaogang Wang, Bin Zhou, Zongji Wang, Dongqing Zou, Xiaowu Chen and Qinqing Zhao Beihang University, Beijing, China.
7. “Carve in, Carve out—A Bimodal Carving through Vox- elization and Functional Partitioning” by Piyush Kanti Bhunre and Partha Bhowmick from Indian Institute of Technology, Kharagpur, India.
8. “Rigid registration of noisy point clouds based on higher dimensional error metrics” by Enkhbayar Altantsetseg, Oyundolgor Khorloo from National University of Mongolia, Mongolia, and Kouichi Konno from Iwate University, Japan.

Visual analytics and pattern recognition The fifth section consists of 8 papers about visual analytics and pattern recognition.

1. “Visual Attention Prediction For Images With Leading Line Structure” using Issei Mochizuki, Masahiro Toyoura and Xiaoyang Mao from University of Yamanashi, Yamanashi, Japan.
2. “Dual-path Adversarial Learning for Fully Convolutional Networks (FCN) based Medical Image Segmentation” by Lei Bi, Dagan Feng and Jinman Kim from School of Information Technologies, The University of Sydney, Australia.
3. “Hand Joints Based Gesture Recognition For Noisy Dataset Using Nested Interval Unscented Kalman Filter with LSTM Network” by Chunyong Ma, Anni Wang, Ge Chen from Ocean University of China, China, and Chi Xu from School of Automation, China University of Geosciences, China, and Hubei Key Laboratory of Advanced Control and Intelligent Automation for Complex Systems, China.
4. “Efficient Image Super Resolution Integration” by Ke Xu, Xin Wang, Xin Yang, Qiang Zhang, Baocai Yin, Xiaopeng Wei from Dalian University of Technology, China, Shengfeng He from South China University of Technology, China, and Rynson W.H. Lau from City University of Hong Kong, Hong Kong.
5. “Learning to Restore Deteriorated Line Drawing” by Kazuma Sasaki, Satoshi Iizuka, Edgar Simo-Serra and Hiroshi Ishikawa from Waseda University, Japan.
6. “Cross-Table Linking and Brushing: Interactive Visual Analysis of Multiple Tabular Data Sets” by Rainer Splechtna, Michael Beham, Katja Bühler, Krešimir Matković from VRVis Research Center, Vienna, Austria, Denis Gračanin from Virginia Tech, USA, María Luján Ganuza from VyGLab Research Laboratory, DCIC, UNS, Argentina, and Igor Sunday Pandžić, University of Zagreb, Croatia.
7. “Contrast Preserving Image Decolorization Combining Global Features and Local Semantic Features” by Xiaoli Zhang and Shiguang Liu from Tianjin University, China.
8. “Direction Estimation of Moving Pedestrian Groups for Intelligent Vehicles” by Amina Bensebaa, Slimane Larab from USTHB University, Algeria.

Computer animation and graphical human computer interaction This section consists of 2 papers focusing on computer animation and graphical human computer interaction.

1. “Perceptual Evaluation of Maneuvering Motion Illusion for Virtual Pedestrians” by Oner Barut, Ebru Akcapinar Sezer from Hacettepe University, Ankara, Turkey, and Murat Haciomeroglu from Gazi University, Ankara, Turkey.
2. “MCAEM: Mixed-Correlation-Analysis-based Episodic Memory for Companion-User Interactions” by Juzheng

Zhang, Jianmin Zheng and Nadia Magnenat-Thalmann from Nanyang Technological University, Singapore.

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