June 27-30 2017, Yokohama, Japan

Computer Graphics International 2017

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The Computer Graphics Society

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Day 1 - June 27, 2017

ENGAGE I
(June 27, 9:00~10:30, Room1)
Welcoming Remarks
Eckhard Hitzer

Keynote: Fast Geometric Algebra Computing for Various Computing Devices
Dietmar Hildenbrand

Analyzing the Inner Product of Two Circles with Gaalop
Dietmar Hildenbrand, Werner Benger, Zhaoyuan Yu

Tutorial A
(June 27, 9:00~10:30 & 11:00~12:30, Room2)
Mixed Reality and Gamification for Cultural Heritage and Virtual Museums
Marinos Ioannides, Daniel Thalmann, George Papagiannakis

ENGAGE II
(June 27, 11:00~12:30, Room3)
Feature Preserving Multi-resolution Subdivision and Simplification of Point Clouds: A Conformal Geometric Algebra Approach
Shuai Yuan, Shuai Zhu, Dong Shuang Li, Wen Luo, Zhaoyuan Yu

Real-time Rendering Under Distant Illumination with Conformal Geometric Algebra
Margarita Papaefthymiou, George Papagiannakis

Geometric Algebras for Uniform Colour Spaces
Jaroslav Hrdina, Petr Vasik, Radomil Matousek, Ales Navrat

Fish Eye Correction by CGA Non-linear Transformation
Jaroslav Hrdina, Petr Vasik, Radomil Matousek, Ales Navrat

Tutorial B
(June 27, 11:00~12:30, Room1)
Machine Learning for Image and Video Processing in Social Data Analysis
Marina L. Gavrilova

Tutorial C
(June 27, 14:00~15:30 & 16:00~17:30, Room1)
Frontiers of Image Processing and Computer Graphics by Deep Learning
Hiroshi Ishikawa, Satoshi Iizuka, Edgar Simo-Serra

ENGAGE III
(June 27, 14:00~15:30, Room2)
Phase Based Edge Detection Algorithms
Kit Ian Kou, Xiao-Xiao Hu

Clifford Algebra and Discretizable Distance Geometry
Rafael Alves, Carlile Lavor, Cipriano Souza, Michael Souza

Triple Conformal Geometric Algebra for Cubic Plane Curves
Eckhard Hitzer, Robert Easter

Optimal Evacuation Routing with Dynamically Network Changes: A Geometric Algebra Approach
Zhaoyuan Yu, Dong-Shuang Li, Wen Luo, Yong Hu, Linwang Yuan
ENGAGE IV
(June 27, 16:00~17:30, Room2)
Resolution of Singularities via Deep Complex-Valued Neural Networks
Tohru Nitta

Laplace Transform: A New Approach in Solving Linear Quaternion Differential Equations
Kit Ian Kou, Zhenfeng Cai

Generalized Sampling Expansions Associated with Quaternion Fourier Transform
Dong Cheng, Kit Ian Kou

Prolate Spheroidal Wave Functions Associated with the Quaternionic Fourier Transform
Cui-Ming Zou, Kit Ian Kou, Joao Morais

Reception
(June 27, 18:00~20:00)
Day 2 - June 28, 2017

Opening
(June 28, 9:00~9:15, Room1)

Keynote 1
(June 28, 9:15~10:15, Room1, Chair: Issei Fujishiro)
Reconstructing Reality: From Physical World to Virtual Environements
Professor Ming C. Lin (University of North Carolina at Chapel Hill)

Rendering (F)
(June 28, 10:45~12:00, Room1, Chair: Enhua Wu)
Adaptive Rendering Based on A Weighted Mixed-Order Estimator
Hongliang Yuan, Changwen Zheng
Analysis of Reported Error in Monte Carlo Rendered Images
Joss Whittle, Mark Jones, Rafal Mantiuk
Adaptive Sparse Polynomial Regression for Camera Lens Simulation
Quan Zheng, Changwen Zheng

Image & Video (S)
(June 28, 10:45~12:25, Room2, Chair: Shi Min Hu)
License Plate Image Patch Filtering using HOG Descriptor and Bio-inspired Optimization
Samiul Azam, Marina Gavrilova
Using Morphological Operators and Inpainting for Hair Removal in Dermoscopic Images
Julie Ann Salido, Conrado Jr Ruiz
Image Completion with Dynamic Patches
Bowen Liu, Ping Li, Bin Sheng, Enhua Wu
Application of Image Analysis in Land-Use and Land-Cover Assessment around Schools
for Planning and Development
Sonam Agrawal, Rajan Dev Gupta
Facial Video Age Progression Considering Expression Change
Shintaro Yamamoto, Pavel A. Savkin, Takuya Kato, Shoichi Furukawa, Shigeo Morishima

ENGAGE V
(June 28, 10:45~12:30, Room3)
Calibration of the Norwegian Motion Laboratory using Conformal Geometric Algebra
Olav Heng, Sondre Sanden Tordal
Initial Alignment using Motors
Adam Leon Kleppe, Lars Tingelstad, Olav Egeland
A Hybrid Approach for Computing Products of High-dimensional Geometric Algebras
Stephane Breuils, Vincent Nozick, Laurent Fuchs, Dietmar Hildenbrand, Werner Benger, Christian Steinmetz
Zeons, Orthozeons, and Processes on Colored Graphs
G. Stacey Staples
Podium Discussion: Future of Geometric Algebra
Eckhard Hitzcr, G. Stacey Staples, Dietmar Hildenbrand, Andreas Aristidou
Image & Texture (F)
(June 28, 14:00~16:05, Room1, Chair: Marina Gavrilova)

High-Dynamic-Range Image Recovery from Flash and Non-Flash Image Pairs
Hristina Hristova, Olivier Le Meur, Remi Cozot, Kadi Bouatouch

Robust Upright Adjustment of 360 Spherical Panoramas
Jinwoong Jung, Joon-Young Lee, Byungmoon Kim, Seungyong Lee, Beomseok Kim

High Speed Video Generation with an Event Camera
Han-Chao Liu, Fang-Lue Zhang, David Marshall, Luping Shi, Shi-Min Hu

Feature-preserving Procedural Texture
Hyeongyeop Kang, Junghyun Han

Multi-Scale Inherent Variation Feature based Texture Filtering
Chunziao Liu, Huan Shao

3D Model (S)
(June 28, 14:00~16:00, Room2, Chair: Takashi Kanai)

3D Meta Model Generation with Application in 3D Object Retrieval
Roman Getto, Johannes Merz, Arjan Kuijper, Dieter W. Fellner

Unsupervised 3D Object Retrieval with Parameter-Free Hierarchical Clustering
Roman Getto, Arjan Kuijper, Dieter W. Fellner

Deep Semantic Hashing of 3D Geometric Features for Efficient 3D Model Retrieval
Takahiko Furuya, Ryutarou Ohbuchi

Invariant Local Shape Descriptors: Classification of Large-Scale Shapes with Local Dissimilarities
Xizhi Li, Patrick Lange, René Weller, Gabriel Zachmann

Complex Hole-filling Algorithm for 3D Models
Enkhbayar Altantsetseg, Oyundolgor Khorloo, Katsutsugu Matsuyama, Kouichi Konno

A Novel Fluid-solid Coupling Framework Integrating FLIP and Shape Matching Methods
Yang Gao, Shuai Li, Hong Qin, Aimin Hao

Deformation & Compression (F)
(June 28, 16:30~18:10, Room1, Chair: Hyewon Seo)

Data-driven Subspace Enrichment for Elastic Deformations with Collisions
Duosheng Yu, Takashi Kanai

Medial-Axis-Driven Shape Deformation with Volume Preservation
Lei Lan, Junfeng Yao, Ping Huang, Xiaohu Guo

Cloth Compression Using Local Cylindrical Coordinates
Jiong Chen, Ying Song, Yicun Zheng, Hanqiu Sun, Jin Huang, Hujun Bao

Adaptive Compression of Animated Meshes by Exploiting Orthogonal Iterations
Aris Lalos, Andreas Vasilakis, Anastasios Dimas, Konstantinos Moustakas

Visualization (S)
(June 28, 16:30~18:30, Room2, Chair: Henry Fuchs)

Visualization Challenge on Time Series Statistical Data
Yukari Shirota, Takako Hashimoto, Basabi Chakraborty

TemporalTracks: Visual Analytics for Exploration of 4D fMRI Time-series Coactivation
Michael de Ridder, Karsten Klein, Jinman Kim
TimeTubes: Visual Fusion and Validation for Ameliorating Uncertainties of Blazar Datasets from Different Observatories
Naoko Sawada, Masanori Nakayama, Hsiang-Yun Wu, Makoto Uemura, Issei Fujishiro

Histogram Equalization and Specification for High-dimensional Data Visualization using RadViz
Yan Chao Wang, Qian Zhang, Feng Lin, Chi Keong Goh, Xuan Wang, Hock Soon Seah

A Force-directed Visualization of Conversation Logs
Yuiho Ishida, Takayuki Itoh

Visual Analytics for Biomedical Cluster Subdivision: A Design Study with Psychiatrists
Jihye Lee, Hyoji Ha, Hyunwoo Han, Sungyoon Bae, Sangjoon Son, Changhyung Hong, Hyunjung Shin, Kyungwon Lee
Day 3 - June 29, 2017

Noise & Sampling (F)
(June 29, 8:30~10:10, Room1, Chair: Shigeo Morishima)
Blue Noise Sampling using an N-Body Simulation based Method
Kin-Ming Wong, Tien-Tsin Wong
Forced Random Sampling: Fast Generation of Importance-Guided Blue-Noise Samples
Daniel Cornel, Robert F. Tobler, Hiroyuki Sakai, Christian Luksch, Michael Wimmer
Adaptive Multiple Importance Sampling for General Functions
Mateu Sbert, Vlastimil Havran
Guided Point Cloud Denoising via Sharp Feature Skeletons
Yinglong Zheng, Guiqing Li, Shihao Wu, Yuxin Liu, Yuefang Gao

Surface (F)
(June 29, 8:30~10:10, Room2, Chair: Roberto Grosso)
Interactive GPU-based Generation of Solvent Excluded Surfaces
Pedro Hermosilla, Michael Krone, Victor Guallar, Pere-Pau Vázquez, Álvar Vinacua, Timo Ropinski
Incremental Collision-free Feathering for Animated Surfaces
Le Liu, Xuehui Liu, Bin Sheng, Yanyun Chen, Enhua Wu
Consistent As-Similar-As-Possible Non-Isometric Surface Registration
Tao Jiang, Kun Qian, Shuang Liu, Xiaosong Yang, Jianjun Zhang
A Heuristic Convexity Measure for 3D Meshes
Rui Li, Yun Sheng, Lei Liu, Guizu Zhang

Penel Discussion
(June 29, 10:40~11:40, Room1, Chair: Prof. Daniel Thalmann (NTU Singapore and EPGL, Switzerland))
Rules and Models versus Data and Machine Learning in Graphics and Vision
Prof. Marina Gavrilova (University of Calgary, Canada)
Prof. Hiroshi Ishikawa (Waseda University, Japan)
Prof. Kwan-Liu Ma (University of California at Davis, USA)
Prof. George Papagiannakis (University of Crete, Greece)

Poster Fast Forward
(June 29, 11:40~12:00, Room1, Chair: Masahiro Toyoura)
Correction of Projector Distortion For Spatial Mixed Reality System
Hasup Lee, Hyungseok Kim, Jee-In Kim
Architectural Scene Modeling and Completion with a Single Image
Chien-Wen Chu, Pin-Hua Lu, Yu-Chien Lan, I-Chen Lin
Visualization of Decision Trees that Analyze Medical Data
Sungyun Bae, Seongmin Mun, Gyeongcheol Choi, Suhyun Lim, Sunjoo Bang, Sangjoon Son, Changhyung Hong, Hyunjung Shin, Kyungwon Lee
Implementing Affective Serious Gaming in VR by Eye Tracking
Jose Luis Soler-Dominguez, Jose Maria Gomis, Manuel Contero
A Method of Correcting Distorted Projector Images on an Arbitrary Screen Using a Kinect Device
Jihoon Park, Dongho Yun, Galam Song, Jigun Kim, Kwanghee Ko
A RANSAC-based Method for Detection of Multiple Spheres From a Point Cloud
Inyoung Oh, Dongho Yun, Daewoon Kim, Kwanghee Ko

A Method to Reduce Iteration for Registration of Partially Overlapped Point Clouds
Jigun Kim, Kwanghee Ko, Galam Song, Jihoon Park, Dongho Yun

Estimation of Face Orientations in Anime using CNN
Shohei Morikawa, Suguru Saito

Application Programable Interface for Haptic Feedback based on Conformal Geometric Algebra
Kevin Mendoza, Gabriel Sepulveda

Segmentation and Reconstruction of Trees from Airborne LIDAR Point Clouds
Shaojun Hu, Takeo Igarashi

Keynote 2
(June 29, 13:30~14:30, Room1, Chair: Xiaoyang Mao)
Studies on Humanlike Robots
Professor Hiroshi Ishiguro (Osaka University)

Modeling (F)
(June 29, 15:00~16:40, Room1, Chair: Deok-Soo Kim)

Marbling-based Creative Modelling
Shufang Lu, Yue Huang, Xiaogang Jin, Aubrey Jaffer, Craig S. Kaplan, Xiaoyang Mao

Semantic 3D Indoor Scene Enhancement Using Guide Words
Suiyun Zhang, Zhizhong Han, Ralph Martin, Hui Zhang

Faithful Computation of Geometric Distance for Lipschitz Continuous Implicit Curves
Mingxiao Hu, Yan Zhou, Xujie Li

Cross Section based Hollowing and Structural Enhancement
Weiming Wang, Baojun Li, Sicheng Qian, Yongjin Liu, Charlie C. L. Wang, Ligang Liu, Xiuping Liu

Perception (S)
(June 29, 15:00~17:00, Room2, Chair: Daniel Thalmman)

Auto-Framing Based on User Camera Movement
Tomoya Sawada, Masahiro Toyoura, Xiaoyang Mao

Generalized Projection for Yamato-e and Ukiyo-e with Projection Reference Plane
Fujiko Yoshimura, Suguru Saito

Enhancing Volume Visualization with Lightness Anchoring Theory
Lin Zheng, Kwan-Liu Ma

Effects of Adding Visual Cues on Distance Estimation, Presence and Simulator Sickness During Virtual Visits Using Wall Screen
Sabah Boustila, Dominique Bechmann, Antonio Capobianco

Supporting Free Walking in a Large Virtual Environment: Imperceptible Redirected Walking with an Immersive Distractor
Haiwei Chen, Henry Fuchs

Adding a Sense of Touch to Online Shopping: Does It Really Help?
Xingzi Zhang, Ningshuang Chen, Alexei Sourin

Banquet
(June 29, 18:30~21:30, Tokyo Bay Dinner Cruise)
Day 4 - June 30, 2017

Character Animation (F)
(June 30, 8:30~10:10, Room1, Chair: Masaki Oshita)
Scanning and Animating Characters Dressed in Multiple-layer Garments
Pengpeng Hu, Taku Komura, Daniel Holden, Yueqi Zhong
An Encoder-decoder Recurrent Network Model for Interactive Character Animation Generation
Yumeng Wang, Wujun Che, Bo Xu
Interactive Facial Expression Editing Based on Spatio-temporal Coherency
Jing Chi, Shanshan Gao, Caiming Zhang
Toward Accurate Realtime Marker Labeling for Live Optical Motion Capture
Shihong Xia, Le Su, Xinyu Fei

Image & Example-based Modeling (S)
(June 30, 8:30~10:30, Room2, Chair: Xiaosong Yang)
Retouch Transfer for 3D Printed Face Replica with Automatic Alignment
Seung-Tak Noh, Takeo Igarashi
Corner Estimation for 3D Point Cloud on Convex Polyhedral Surfaces Using Delaunay Tetrahedralization
Sadayuki Abe, Hiroshi Mori, Fubito Toyama, Kenji Shoji
An Adaptive Floating Tangents Fitting with Helices Method for Image-based Hair Modeling
Yongtang Bao, Yue Qi
Indoor Scene Reconstruction from a Sparse Set of 3D Shots
Cédric Bobenrieth, Hyewon Seo, Arash Habibi, Frédéric Cordier
Example-based Synthesis of Three-dimensional Clouds from Photographs
Kei Iwasaki, Yoshinori Dobashi, Makoto Okabe
An Interactive System for Efficient 3D Furniture Arrangement
Meng Yan, Xuejin Chen, Jie Zhou

Keynote 3
(June 30, 11:00~12:00, Room1, Chair: Daniel Thalmann)
Design Everything by Yourself
Professor Takeo Igarashi (The University of Tokyo)

Natural Things (F)
(June 30, 13:00~14:40, Room1, Chair: Kei Iwasaki)
Coherent Multi-Layer Landscape Synthesis
Oscar Argudo, Carlos Andujar, Antonio Chica, Eric Guerin, Julie Digne, Adrien Peytavie, Eric Galin
Data-driven Modeling and Animation of Outdoor Trees Through Interactive Approach
Shaojun Hu, Zhiyi Zhang, Haoran Xie, Takeo Igarashi
Visual Simulation of Fire-flakes Synchronized with Flame
Taehyeong Kim, Eunki Hong, Jaeho Im, Dohyeon Yang, Youngbin Kim, Chang-Hun Kim
Glass Half Full: Sound Synthesis for Fluid-Structure Coupling Using Added Mass Operator
Justin Wilson, Auston Sterling, Nicholas Rewkowski, Ming Lin
Pose (S)
(June 30, 13:00~15:00, Room2, Chair: George Papagiannakis)
Matching and Pose Estimation of Noisy, Partial and Planar B-Rep Models
Maximilian Sand, Dominik Henrich
Pose Selection for Animated Scenes and a Case Study of Bas-relief Generation
Meili Wang, Shihui Guo, Minghong Liao, Dongjian He, Jian Chang, Jian Zhang, Zhiyi Zhang
Pose Optimization in Edge Distance Field for Textureless 3D Object Tracking
Bin Wang, Fan Zhong, Xueying Qin
Finding Rules of Attractive Human Poses Using Decision Tree and Generating Novel Attractive Poses
Masaki Oshita, Kei Yamamura, Aoi Honda
Efficient and Robust Motion Segmentation via Adaptive Similarity Metric
Xiaoyan Hu, Shunbo Xie
Nonlinear Dance Motion Analysis and Motion Editing using Hilbert-Huang Transform
Ran Dong, Dongsheng Cai, Nobuyoshi Asai

Visual Exploration (F)
(June 30, 15:30~16:45, Room1, Chair: Takayuki Ito)
Rank-based Voting with Inclusion Relationship for Accurate Image Search
Jaehyeong Cho, Jae-Pil Heo, Taeyoung Kim, Bohyung Han, Sung-Eui Yoon
Stacked Fully Convolutional Networks with Multi-Channel Learning: Application to Medical Image Segmentation
Lei Bi, Jinman Kim, Ashnil Kumar, Michael Fulham, Dagan Feng
Ordered Small Multiple Treemaps for Visualizing Time-Varying Hierarchical Pesticide Residue Data
Yi Chen, Xiaomin Du

Surface & Volume (S)
(June 30, 15:30~17:10, Room2, Chair: Dietmar Hildenbrand)
A Physically-based BRDF Model for Retrorreflection
Jie Guo, Jingui Pan
Automatically Unrolling Decorations Painted on 3D Pottery
Ye Liu, Bo Zhang, Liang Wan
Volume Upscaling with Convolutional Neural Networks
Zhenglei Zhou, Yule Hou, Qirui Wang, Guangxiang Chen, Jiawei Lu, Yubo Tao, Hai Lin
An Asymptotic Decider for Robust and Topologically Correct Triangulation of Isosurfaces
Roberto Grosso
Legorization with Multi-height Bricks from Silhouette-fitted Voxelization
Grim Yun, Cheolseong Park, Heekyung Yang, Kyungha Min

Closing
(June 30, 17:10~17:30, Room1)
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