

The European Association for Computer Graphics
44th Annual Conference

EUROGRAPHICS 2023

Saarbrücken, Germany
May 8 – 12, 2023

Organized by



EUROGRAPHICS
THE EUROPEAN ASSOCIATION
FOR COMPUTER GRAPHICS

SIC Saarland Informatics
Campus

Short Papers

Short Papers Program Co-Chairs

Vahid Babaei, MPI Informatics, Germany
Melina Skouras, INRIA, France

Published by
The Eurographics Association
ISSN 1017-4656
ISBN 978-3-03868-209-7

Preface

This year, 23 papers were submitted to the short papers programme of the Eurographics 2023 Conference, taking place 8-12 May 2023 in Saarbrücken. The review process started with assignment of two primary reviewers from the 22 members of the International Programme Committee to each paper. Each of those then selected one additional external tertiary reviewer, making for a total of 4 reviews per paper. After reviewing, program chairs discussed all reviews and made a recommendation for paper acceptance or rejection. 15 papers were conditionally accepted, and after a revision phase also finally accepted. The accepted papers were organized in 5 sessions, titled "Procedural Modeling & Reconstruction", "Rendering & Simulation", "Stylization & Point Clouds", "Perception for Sketches, VR, and Vision", and "Subdivision & SDFs".

We would like to extend our sincere thanks to all of the reviewers from the International Programme Committee, and the external reviewers. In general, we received reviews with excellent qualities. We would also like to thank Stefanie Behnke for her help with the SRM system. And last but certainly not least, we want to thank all the authors who submitted their work to the short papers programme of the Eurographics 2023 Conference!

Short Papers Program Co-Chairs
Vahid Babaei and Melina Skouras

Committee Members

Florian Bernard – University of Bonn
Alan Brunton – Fraunhofer IGD
Pierre Bénard – Université de Bordeaux
Renjie Chen – University of Science and Technology of China
Guillaume Cordonnier – Inria, Université Côte d’Azur
Johanna Delanoy – INSA Lyon
Tao Du – Tsinghua University
Tobias Günther – FAU Erlangen-Nuremberg
Saghi Hajisharif – Linköping University
Thomas Leimkühler – MPI Informatics
Luigi Malomo – ISTI-CNR
Zahra Montazeri – University of Manchester
Julian Panetta – University of California, Davis
Michal Piovarci – IST Austria
Johanna Schmidt – VRVis Austria
Camille Schreck – Inria Nancy
Nicholas Sharp – NVIDIA
Alexey Stomakhin – Walt Disney Animation Studios
Thibault Tricard – Inria
Nobuyuki Umetani – The University of Tokyo
Stephanie Wang – University of California, San Diego
Eduard Zell – University of Bonn

External Reviewers

Adéla, Šubrtová
Ansari, Navid
Arabadzhiyska, Elena
Barill, Gavin
Barroso, Nicolas
Benaim, Sagie
Casas Cambra, Llogari
Colli Tozoni, Davi
Dennstaedt, Marco
Deussen, Oliver
Freire, Marco
Gain, James
Grosch, Thorsten
Gryaditskaya, Yulia
Guarnera, Giuseppe Claudio
Habibie, Ikhsanul
Hähnlein, Felix
Henderson, Paul
Hyde, David
Jindal, Akshay
Jones, R. Kenny
Jourdan, David

Kavoosighafi, Behnaz
Kopanas, Georgios
Krone, Michael
Li, Yining Karl
Liu, Richard
Liu, Zheng
Ly, Mickaël
Mestres, Nolan
Miandji, Ehsan
Nabizadeh, Mohammad Sina
Ortner, Thomas
Porumbescu, Serban
Santos, Pedro
Seyb, Dario
Tariq, Taimoor
Tsirikoglou, Apostolia
Vanderhaeghe, David
Wand, Michael
Wang, Weiming
Winter, Martin
Yenemandra, Tarun
Yu, Cehao

Table of Contents

Procedural Modeling and Reconstruction

- Photogrammetric Reconstruction of a Stolen Statue 1
Zishun Liu, Eugeni L. Doubrovski, Jo M. P. Geraedts, Wenting Wang, Yeung Yam, and Charlie C. L. Wang
- Quick-Pro-Build: A Web-based Approach for Quick Procedural 3D Reconstructions of Buildings 5
Bela Bohlender, Max Mühlhäuser, and Alejandro Sanchez Guinea
- Towards L-System Captioning for Tree Reconstruction 9
Jannes S. Magnusson, Anna Hilsmann, and Peter Eisert

Rendering and Simulation

- Efficient Needle Insertion Simulation using Hybrid Constraint Solver and Isolated DOFs 13
Claire Martin, Ziqiu Zeng, and Hadrien Courtecuisse
- Guiding Light Trees for Many-Light Direct Illumination 17
Eric Hamann, Alisa Jung, and Carsten Dachsbacher
- Out-of-the-loop Autotuning of Metropolis Light Transport with Reciprocal Probability Binning 21
Killian Herveau, Hisanari Otsu, and Carsten Dachsbacher

Stylization and Point Clouds

- CLIP-based Neural Neighbor Style Transfer for 3D Assets 25
Shailesh Mishra and Jonathan Granskog
- Text2PointCloud: Text-Driven Stylization for Sparse PointCloud 29
Inwoo Hwang, Hyeonwoo Kim, Donggeun Lim, Inbum Park, and Young Min Kim
- PointCloudSlicer: Gesture-based Segmentation of Point Clouds 33
Hari Hara Gowtham, Amal Dev Parakkat, and Marie-Paule Cani

Perception for Sketches, VR, and Vision

- Is Drawing Order Important? 37
Sherry Qiu, Zeyu Wang, Leonard McMillan, Holly Rushmeier, and Julie Dorsey
- Velocity-Based LOD Reduction in Virtual Reality: A Psychophysical Approach 41
David Petrescu, Paul A. Warren, Zahra Montazeri, and Steve Pettifer
- Luminance-Preserving and Temporally Stable Daltonization 45
Pontus Ebelin, Cyril Crassin, Gyorgy Denes, Magnus Oskarsson, Kalle Åström, and Tomas Akenine-Möller

Table of Contents

Subdivision and SDFs

Parallel Loop Subdivision with Sparse Adjacency Matrix	49
<i>Kechun Wang and Renjie Chen</i>	
Tight Bounding Boxes for Voxels and Bricks in a Signed Distance Field Ray Tracer	53
<i>Herman Hansson-Söderlund and Tomas Akenine-Möller</i>	
Automatic Step Size Relaxation in Sphere Tracing	57
<i>Róbert Bán and Gábor Valasek</i>	

Author Index

Akenine-Möller, Tomas	45, 53	Kim, Young Min	29
Åström, Kalle	45	Lim, Donggeun	29
Bohlender, Bela	5	Liu, Zishun	1
Bán, Róbert	57	Magnusson, Jannes S.	9
Cani, Marie-Paule	33	Martin, Claire	13
Chen, Renjie	49	McMillan, Leonard	37
Courtecuisse, Hadrien	13	Mishra, Shailesh	25
Crassin, Cyril	45	Montazeri, Zahra	41
Dachsbacher, Carsten	17, 21	Mühlhäuser, Max	5
Denes, Gyorgy	45	Oskarsson, Magnus	45
Dorsey, Julie	37	Otsu, Hisanari	21
Doubrovski, Eugeni L.	1	Parakkat, Amal Dev	33
Ebelin, Pontus	45	Park, Inbum	29
Eisert, Peter	9	Petrescu, David	41
Geraedts, Jo M. P.	1	Pettifer, Steve	41
Gowtham, Hari Hara	33	Qiu, Sherry	37
Granskog, Jonathan	25	Rushmeier, Holly	37
Guinea, Alejandro Sanchez	5	Valasek, Gábor	57
Hamann, Eric	17	Wang, Charlie C. L.	1
Hansson-Söderlund, Herman	53	Wang, Kechun	49
Herveau, Killian	21	Wang, Wenting	1
Hilsmann, Anna	9	Wang, Zeyu	37
Hwang, Inwoo	29	Warren, Paul A.	41
Jung, Alisa	17	Yam, Yeung	1
Kim, Hyeonwoo	29	Zeng, Ziqiu	13