

Eurographics Symposium on Rendering 2009

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June 29th - July 1st, 2009

Organized by



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Preface

This special issue of Computer Graphics Forum contains the proceedings of the Eurographics Symposium on Rendering 2009, which took place in Girona, Spain, from June 29 to July 1, 2009. The symposium is the twentieth annual event in the highly successful sequence of Eurographics Workshops and Symposia on Rendering. Over the years, this series has produced many remarkable papers that have introduced influential new ideas and important practical techniques.

This year we received 72 submissions, of which 21 papers were accepted for publication, at an acceptance rate of 29%. The accepted papers were selected by our international program committee, a group of 60 researchers who are experts in various areas. We opted for a large program committee to manage the tight review cycle this year, which only spanned 30 days between submission deadline and final notifications. Each submission was reviewed by a primary and two secondary committee members, and also by at least one tertiary reviewer, outside the committee, whom we selected for their expertise. Following an often extensive discussion, all reviewers of a paper made the decision to accept or reject, consulting with the chairs or external reviewers in difficult cases. All reviews have been double blind, i.e. author names were kept hidden from all reviewers (including primary and secondaries) to remove any trace of bias in the reviewing process, which we believe is important in such a well-connected research community of contributors to the Eurographics Symposium on Rendering.

Since last year, the proceedings are part of Computer Graphics Forum, and therefore a second review cycle was carried out requiring minor revisions for 14 papers. Additionally, five submissions were recommended for publication in a regular issue of Computer Graphics Forum, after a major revision. The end result is a proceedings that covers a wide range of topics, from global illumination, ray tracing, to real-time rendering, non-photorealistic rendering, and appearance acquisition.

In addition to the contributed papers, we were proud to present Prof. Dr. Thomas Haegele (Filmakademie Baden-Württemberg) and Joe Marks (Disney Research) as invited speakers. The titles and abstracts of their presentations appear hereafter.

We would like to thank the organizing chairs, Celine Loscos and Ignacio Martin, and their colleagues at the University of Girona, for creating the environment for another successful Symposium on Rendering and for managing the EGSR website.

Our deepest gratitude goes to Stefanie Behnke from the Technical University of Graz for her amazingly responsive management of the Eurographics submission and review system and for her help producing the proceedings. She made it possible to run the tight review process smoothly.

Finally, we thank the members of the program committee and the external reviewers, who all contributed significantly to shape these proceedings. And most importantly, we thank all authors who submitted to the symposium. Thanks for all these contributions.

Hendrik P. A. Lensch (DE)
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Hoffman, Naty	Weiskopf, Daniel
Holzschuch, Nicolas	Wexler, Dan
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Author Index

Antani Lakulich	1237	Lee Hochang	1207
Barthe Loïc	1111	Lischinski Dani	1083
Boissieux Laurence	1091	Liu Xinguo	1121
Bonneel Nicolas	1171	Magnor Marcus	1073
Bouatouch Kadi	1189	Manocha Dinesh	1237
Chandak Anish	1237	Nichols Greg	1141
Cha Deukhyun	1247	Nowrouzezahrai Derek	1131
Chen Tongbo	1161	Orzan Alexandrina	1091
Cline David	1217	Panne Michiel van de	1171
Cohen-Or Daniel	1083	Paris Sylvain	1171
Cohen Michael	1083	Paulin Mathias	1111
Debevec Paul	1161	Peers Pieter	1161
Deussen Oliver	1083	Razdan Anshuman	1217
Dingliana John	1151	Ruiters Roland	1181
Dorsey Julie	1227	Rushmeier Holly	1227
Drettakis George	1171	Shopf Jeremy	1141
Durand Frédo	1171	Snyder John	1131
Fabianowski Bartosz	1151	Son Sungjin	1247
Feng Jieqing	1121	Szirmay-Kalos László	1055
Forest Vincent	1111	Szécsi László	1055
Garanzha Kirill	1199	Taylor Micah	1237
Gassenbauer Václav	1189	Thollot Joelle	1091
Ghosh Abhijeet	1161	Weidlich Andrea	1065, 1101
Guennebaud Gaël	1111, 1121	White Kenric	1217
Häring Sebastian	1073	Wilkie Alexander	1065, 1101
Ihm Insung	1247	Wilson Cyrus A.	1161
Jeschke Stefan	1217	Winnemöller Holger	1091
Křivánek Jaroslav	1189	Wonka Peter	1217
Klein Reinhard	1181	Wu Hongzhi	1227
Kniep Stefan	1073	Wyman Chris	1141
Kopf Johannes	1083	Yang Baoguang	1121
Lee Chang Ha	1207	Yoon Kyunghyun	1207

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back cover (from left to right, from top to bottom):

David Cline, Stefan Jeschke, Kenric White, Anshuman Razdan, and Peter Wonka:
“Dart Throwing on Surfaces”, pp. 1217 – 1226

Derek Nowrouzezahrai and John Snyder:
“Fast Global Illumination on Dynamic Height Fields”, pp. 1131 – 1139

Andrea Weidlich and Alexander Wilkie:
“Anomalous Dispersion in Predictive Rendering”, pp. 1065 – 1072

Holger Winnemöller, Alexandrina Orzan, Laurence Boissieux, and Joelle Thollot:
“Texture Design and Draping in 2D Images”, pp. 1091 – 1099

Vincent Forest, Loïc Barthe, Gaël Guennebaud, and Mathias Paulin:
“Soft Textured Shadow Volume”, pp. 1111 – 1120

Stefan Kniep, Sebastian Häring, and Marcus Magnor:
“Efficient and Accurate Rendering of Complex Light Sources”, pp. 1073 – 1081

TABLE OF CONTENTS

Rendering I

- Deterministic Importance Sampling with Error Diffusion* 1055
László Szirmay-Kalos and László Szécsi
- Anomalous Dispersion in Predictive Rendering* 1065
Andrea Weidlich and Alexander Wilkie
- Efficient and Accurate Rendering of Complex Light Sources* 1073
Stefan Kniep, Sebastian Häring, and Marcus Magnor

Images and Textures

- Locally Adapted Projections to Reduce Panorama Distortions* 1083
Johannes Kopf, Dani Lischinski, Oliver Deussen, Daniel Cohen-Or, and Michael Cohen
- Texture Design and Draping in 2D Images* 1091
Holger Winnemöller, Alexandrina Orzan, Laurence Boissieux, and Joelle Thollot
- A Robust Illumination Estimate for Chromatic Adaptation in Rendered Images* 1101
Alexander Wilkie and Andrea Weidlich

Shadows

- Soft Textured Shadow Volume* 1111
Vincent Forest, Loïc Barthe, Gaël Guennebaud, and Mathias Paulin
- Packet-based Hierarchical Soft Shadow Mapping* 1121
Baoguang Yang, Jieqing Feng, Gaël Guennebaud, and Xinguo Liu

Real Time Global Illumination

- Fast Global Illumination on Dynamic Height Fields* 1131
Derek Nowrouzezahrai and John Snyder
- Hierarchical Image-Space Radiosity for Interactive Global Illumination* 1141
Greg Nichols, Jeremy Shopf, and Chris Wyman
- Interactive Global Photon Mapping* 1151
Bartosz Fabianowski and John Dingliana

Appearance Measurement and Rendering

- Estimating Specular Roughness and Anisotropy from Second Order Spherical Gradient Illumination* 1161
Abhijeet Ghosh, Tongbo Chen, Pieter Peers, Cyrus A. Wilson, and Paul Debevec
- Single Photo Estimation of Hair Appearance* 1171
Nicolas Bonneel, Sylvain Paris, Michiel van de Panne, Frédo Durand, and George Drettakis
- BTF Compression via Sparse Tensor Decomposition* 1181
Roland Ruiters and Reinhard Klein

TABLE OF CONTENTS

Rendering II

- Spatial Directional Radiance Caching* 1189
Václav Gassenbauer, Jaroslav Křivánek, and Kadi Bouatouch
- The Use of Precomputed Triangle Clusters for Accelerated Ray Tracing in Dynamic Scenes* 1199
Kirill Garanzha

Important Points and NPR

- Motion based Painterly Rendering* 1207
Hochang Lee, Chang Ha Lee, and Kyunghyun Yoon
- Dart Throwing on Surfaces* 1217
David Cline, Stefan Jeschke, Kenric White, Anshuman Razdan, and Peter Wonka
- Characteristic Point Maps* 1227
Hongzhi Wu, Julie Dorsey, and Holly Rushmeier

Visibility and Particles

- FastV: From-point Visibility Culling on Complex Models* 1237
Anish Chandak, Lakulish Antani, Micah Taylor, and Dinesh Manocha
- GPU-Assisted High Quality Particle Rendering* 1247
Deukhyun Cha, Sungjin Son, and Insung Ihm

Keynote

Rendering as Part of a Film School Curriculum

Thomas Haegele

Filmakademie Baden-Württemberg GmbH
Institute of Animation, Visual Effects and Digital Postproduction
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Abstract

Animation students at the Filmakademie Baden-Württemberg can use any commercially available renderer they like. For the most part, they choose Mental Ray or Maya's built-in renderer. But other renderers are also used, such as Renderman, V-Ray, Gelato, Cinema 3D, Mantra and Lightwave.

With such an array of demanding users, applications, and projects easily comprising of tens of thousands of frames, render management takes on a whole new meaning, and for this we rely on the network manager "Royal Render". Students submit requests from rendering and compositing software to the manager and Royal Render assigns and manages tasks to workstations. Royal Render is developed by a Filmakademie alumni, who began work on this application while at a CG company.

At the Institute, Royal Render tackles difficulties not uncommon in the industry. It has to support a wide number of software packages, as we alone use 6 different 3D packages, 5 renderers and 5 compositing packages. Few students have experience with rendering management so the user interface is an important issue. There is no render wrangler. Students submit scenes directly from within their software and do not have to worry about technical issues of rendering frames on our farm of 100 workstations. This allows them to concentrate on their task of completing their animations.

The Institute of Animation is now supporting the development of a new version of Royal Render as a development and test environment. The new version will offer more control, extended flexibility and even better recognition of render problems.

Most recent advancements in real time graphics is specifically driven by game development. The VFX project "Motherland" uses cg set extensions and atmospheric effects that are solely created using Cryengine 2, developed by the German studio Crytek. This demonstrates that we are at the eve of drastic changes in current creation pipelines for computer generated content.

Within the Institute's current R&D scope of "Dynamic Real-time Animation", a platform for character-centric application prototypes beyond film and video games is being developed. The open source structure allows for the implementation of complex technologies like computer vision, synthetic speech, AI and alternative input devices within a user-friendly authoring environment. A field test at the University Medical Center of Freiburg utilized an early version of the framework to study "Recognition of Dynamic Emotional Facial Expression" with autistic children.

The Institute of Animation's Research & Development group is also cooperating with the University of Konstanz in creating a dedicated non-photorealistic renderer (NPR). Called aQtree, it observes all

items, whether 3D mesh or hand-drawn stroke, simultaneously as a 2D element and as 3D geometry. Crucial for convincing NPR visuals and solid temporal qualities, this hybrid approach also sidesteps the limitations of render passes, allowing compositing processes to access 3D information directly. We expect such development will lead to alternative workflows which allow for more direct artistic control and less segmentation within the rendering and compositing processes.

Short Biography

Thomas Haegele studied visual communications, political and social sciences and German literature. After working as a freelance artist and Creative Director, he established /Polygon/, one of the first German production houses for professional computer animation. Since its formation in 1991, he has been professor for Animation and Visual Effects at Filmakademie Baden-Württemberg. Today, he is the Director of the Institute of Animation, Visual Effects and Digital Postproduction, as well as the Deputy Managing Director of the Filmakademie. He is also the founder and conference chair of FMX, Europe's largest conference on animation, effects, games and digital media.

Keynote

Industrial Research in CG & Related Fields

Joe Marks

Disney Research

Abstract

At some point in your career you may consider working for an industrial research lab. In this talk I will attempt to explain how to make sense of the world of industrial research in CG and related fields. The key dimensions on which labs differ are:

- Definition of Research
- Topic Areas
- Funding & Support
- Personnel Recruitment & Organization
- Project Selection
- Engagement with Academe
- Achieving & Measuring Return on Investment (ROI)

At The Walt Disney Company we are revisiting all of these issues as we renew our research culture. I will describe our approaches to the issues above, and contrast with those of other well-known labs.

Short Biography

Joe Marks grew up in Dublin, Ireland. Being more perseverant than imaginative, he earned three degrees from Harvard University. His areas of interest include computer graphics, human-computer interaction, and artificial intelligence. He has worked previously at Bolt Beranek and Newman and at Digital's Cambridge Research Laboratory. Prior to joining The Walt Disney Company he was the Research Director at Mitsubishi Electric Research Labs in Cambridge, MA, from 2000-2006.