
Eurographics 2012 costituisce la principale piattaforma di confronto per la comunità della computer grafica con l'obiettivo di esplorare le nuove tendenze e per mostrare nuove tecnologie e soluzioni per la simulazione e la didattica.


Altri eventi organizzati in occasione di Eurographics 2012:
- Gli incontri One-to-one (organizzati dall’agenzia regionale Sardegna Ricerche) si terranno il 16 e il 17 Maggio, alla Fiera di Cagliari, con l'obiettivo di favorire opportunità di collaborazione tra mondo accademico e mondo imprenditoriale nel campo della Computer Graphics e delle applicazioni correlate.

Per informazioni: www.eurographics2012.it - publicity-eg2012@crs4.it
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Per domani 15 maggio segnaliamo:


**Industrial Talk** a cura di **Imagination Technologies** (ditta produttrice del chipset grafico PowerVR per iPhone e iPad)

**IND1 [Imagination Technologies]: PowerVR: Masterclass in Graphics Technology and Optimization**
15 maggio, dalle 11 alle 12, Room B
Relatore: M. Weber (Developer Technology Engineer, Imagination Technologies)

**Abstract.** Imagination's PowerVR graphics IP is a crucial part of today's consumer electronics market, integrated into a wide variety of the latest smartphone, mobile console, computing and other products. Get the latest information on PowerVR graphics acceleration with practical tips, rules and guidelines to extract the best graphics performance. Discover the new PowerVR Series 6 Rogue architecture, PowerVR's unique Tile Based Deferred Rendering approach, the components of the cores, how they implement APIs like OpenGL ES 2.0 and the kind of techniques and 'gotchas' that take graphics from good to great.

**Industrial Talk** a cura di **IBM and VARGROUP**

**IND2 [IBM and VARGROUP]: IBM solutions for High Performance Computing Cloud for EDA and CAE**
15 maggio, dalle 14 alle 15, Room A.
Relatore: Walter Bernocchi (Client Technical Architect, IBM STG Technical Computing Italy)

**Abstract.** The relevant technology progresses occurred in the last decade on microprocessors, networking, storage, cluster integration and middleware, qualify high performance computing capabilities a strategic asset for product designing at affordable costs. IBM provides advanced architectures to efficaciously integrate servers, storage and middleware, to address new needs on simulations for product development. Sizing, flexibility, reliability, resilience, availability, virtualization, TCO: criteria to be used to identify the best solution for an industrial organization which intends to invest in high performance computing. The exploitation of parallel computing for engineering applications in addition of an efficient data handling and 3D visualization, efficaciously managed by an user friendly resource scheduler, determines an optimal methodology for innovative product designing. Concepts as Cloud Computing and the specific IBM Engineering Computing framework implement the computing-on-demand service to a private, hybrid or public cloud infrastructure with the aim to optimize costs due to infrastructure itself and system management. This talk intends to give an overview of the architecture and technology that made the IBM cloud for High Performance Computing with example of
implementations in the 2D and 3D spaces.

KEYNOTE 1: From Spider-Man to Avatar, Emily and Benjamin: Achieving Photoreal Digital Actors
Relatore: Paul Debevec (University of Southern California, Institute for Creative Technologies)
Martedì 15 Maggio, dalle 18 alle 19, Room P

Abstract. Somewhere between "Final Fantasy" in 2001 and "The Curious Case of Benjamin Button" in 2008, digital actors crossed the "Uncanny Valley" from looking strangely synthetic to believably real. This talk describes some of the technological advances that have enabled this achievement. For an in-depth example, the talk describes how high-resolution face scanning, advanced character rigging, and performance-driven facial animation were combined to create "Digital Emily", a collaboration between the USC ICT Graphics Laboratory and Image Metrics. Actress Emily O'Brien was scanned in Light Stage 5 in 33 facial poses at the resolution of skin pores and fine wrinkles. These scans were assembled into a rigged face model driven by Image Metrics' video-based animation software, and the resulting photoreal facial animation premiered at SIGGRAPH 2008. The talk also presents techniques which may allow digital characters to leap from the movie screen and into the space around us, including a 3D teleconferencing system that uses live facial scanning and an autostereoscopic display to transmit a person's face in 3D and make eye contact with remote collaborators.

About the Speaker. Paul Debevec received ACM SIGGRAPH's first Significant New Researcher Award in 2001 and co-authored the 2005 book High Dynamic Range Imaging from Morgan Kaufmann. In February 2010, he received a Scientific and Engineering Academy Award® for his work on the Light Stage systems.
Virtual Room Demonstrations

Massive model multi resolution rendering on a high performing two channel projection blend. CRS4, HP, NVIDIA and projectiondesign showcase hardware and systems for exploring complex 3D models in an advanced projection-based virtual room setting.

Hardware Configuration. One HP Z800 workstation with Nvidia Quadro 6000 driving two F35 WQXGA projectors in edge blending with WB2560 multi image processors, leading to a seamless 4864x2560 projected image.

Free entrance

Powered by NVIDIA, HP, projectiondesign, CRS4

Eurographics 2012 is the 33rd Annual Conference of the European Association for Computer Graphics. The event takes place between 13-15 May 2012 and is organised by CRS4 Visual Computing and University of Cagliari.

More information is available at www.eurographics2012.it
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PRESS RELEASE: New Results for Disney Research at Eurographics 2012

ZURICH, SWITZERLAND: The Disney Research, Zurich (DRZ) graphics and materials research teams, along with collaborators from Swiss Federal Institute of Technology (ETH Zurich), Massachusetts Institute of Technology (MIT), Technische Universität Berlin (TU Berlin), Max-Planck-Institut Informatik (MPI Informatik Saarbrucken, Germany), and Disney Research, Boston (DRB) have five papers accepted for presentation at the 2012 Eurographics Conference to be held May 13-18 in Cagliari, Sardinia, Italy.

“Disney Research is pleased to return to Eurographics and to have strong representation with this year’s selected works. The research displayed at this year’s conference reinforces The Walt Disney Company’s strong commitment to technology and innovation in entertainment,” states Markus Gross, Director, Disney Research, Zurich. The presentations to be shared at the conference include a physical object whose surface can display up to four distinct images depending on the direction of the illumination, and a method for designing physical objects that cast shadows of different shapes and colors when illuminated from different angles. Additional presented research focuses on image rendering and video processing, on physical simulation of cloth using measurements from real life examples, and on an automatic process for creating custom shaped rubber balloons.

Project abstracts can be found below:

**SHADOWPIX: Multiple Images from Self Shadowing**

SHADOWPIX are white surfaces that display several prescribed images formed by the self-shadowing of the surface when lit from certain directions. The effect is surprising and not commonly seen in the real world. We present algorithms for constructing SHADOWPIX that allow up to four images to be embedded in a single surface. SHADOWPIX can produce a variety of unusual effects depending on the embedded images: moving the light can animate or relight the object in the image, or three colored lights may be used to produce a single colored image. SHADOWPIX are easy to manufacture using a 3D printer.

*Authors: Amit Bermano (DRZ, ETH Zurich), Ilya Baran (DRZ), Marc Alexa (TU Berlin, Disney Research Boston (DRB)), Wojciech Matusik (DRZ, MIT CSAIL, DRB)*
Manufacturing Layered Attenuators for Multiple Prescribed Shadow Images:

We present a practical and inexpensive method for creating physical objects that cast different color shadow images when lit from different directions. Given target images and light directions, this approach computes attenuation masks, which are then printed on transparent materials and stacked to form a single layered attenuator whose shadows look like the input images. Alternatively, this method can compute layers so that their permutations produce different prescribed shadow images under fixed lighting. Each layered attenuator is quick and inexpensive to produce, can generate multiple full-color shadows, and can be designed to respond to different types of natural or synthetic lighting setups. The effectiveness of the layered attenuators is illustrated in simulation and in reality with the sun as a light source. Authors: Ilya Baran (DRZ), Philipp Keller (ETH Zurich), Derek Bradley, Stelian Coros, Wojciech Jarosz and Derek Nowrouzezahrai (DRZ), Markus Gross (DRZ and ETH Zurich)

NoRM: No-Reference Image Quality Metric for Realistic Image Synthesis:

Images and video frames of complex 3D scenes using photo-realistic rendering software often contain perceptually significant artifacts. Expert parameter tuning is required to avoid these artifacts. Detecting and preventing artifacts can be automated through quality evaluation of images, thus avoiding a tedious manual process. Most practical quality assessment methods rely on a ground-truth reference, which is often not available in rendering applications. We show that the performance of a dedicated algorithm without a reference metric can match the state-of-the-art algorithms that do require a reference. This method successfully detects various non-trivial types of artifacts, such as VPL clamping, glossy VPL noise and shadow map aliasing. In a subjective study we
show that, on average, the correlation between our metric’s predictions and the ground truth data is slightly higher than the full-reference metrics HDR-VDP-2 and SSIM.

Authors: Robert Herzog and Martin Cadík (MPI Informatik Saarbrucken, Germany), Tunç O. Aydin (MPI Informatik Saarbrucken, Germany, DRZ), Kwang In Kim, Karol Myszkowski and Hans-Peter Seidel (DRZ)

Data-Driven Estimation of Cloth Simulation Models:

Modern cloth simulators produce beautiful results, but an accurate match to the behavior of a real piece of cloth is often difficult to achieve. This paper provides measurement and fitting methods that allow nonlinear models to be fit to the observed deformation of a real cloth sample. Unlike standard textile testing, our system measures complex 3D deformations of a sheet of cloth, not just one-dimensional force-displacement curves, so it provides a good match for a wider range of deformation conditions. The fitted models are evaluated by comparison to measured deformations with motions very different from those used for fitting.

Authors: Eder Miguel (URJC Madrid, DRZ), Derek Bradley, Bernhard Thomaszewski and Bernd Bickel (DRZ), Wojciech Matusik (DRZ, MIT), Miguel A. Otaduy (DRZ), Steve Marschner (Cornell University)

Computational Design of Rubber Balloons:

These balloon animals are not your standard carnival fare! We present an automatic process for fabrication-oriented design of custom-shaped rubber balloons. Given a detailed target shape, we compute an optimal balloon shape that, when inflated, approximates the target shape as closely as possible. To achieve this goal, we propose a novel physics-driven shape optimization method which combines physical simulation of inflatable elastic membranes with a dedicated constrained optimization algorithm. By fabricating balloons designed with our method, and comparing their inflated shapes to the results predicted by simulation, we are able to validate our approach.
extensive set of manufactured sample balloons demonstrates the shape diversity that can be achieved by our method.

Authors: Mélina Skouras (ETH Zurich), Bernhard Thomaszewski and Bernd Bickel (DRZ), Markus Gross (ETH Zurich, DRZ)

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About Disney Research:

Disney Research (www.disneyresearch.com) is a network of research laboratories supporting The Walt Disney Company. Its purpose is to pursue scientific, and technological innovation to advance the Company's broad media and entertainment efforts. Disney Research is managed by an internal Disney Research Council co-chaired by Disney-Pixar's Ed Catmull and Walt Disney Imagineering's Bruce Vaughn, and including the directors of the individual labs. It has facilities in Los Angeles, San Francisco, Pittsburgh, Boston, and Zurich. Research topics include Computer Graphics, Video Processing, Computer Vision, Robotics, Radio and Antennas, Wireless Communications, Human-Computer Interaction, Displays, Data Mining, Machine Learning and Behavioral Sciences.

About Eurographics 2012:

Eurographics 2012, the 33rd Annual Conference of the European Association for Computer Graphics, will take place from May 13 through May 18 in Cagliari, Sardinia, Italy. It will be organized by CRS4 Virtual Computing and University of Cagliari. Eurographics 2012 will provide a unique platform for the computer graphics community to showcase latest techniques and educational work, and to explore new trends and ideas.

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Resources: Full conference participation information, a downloadable copy of this press release, and high resolution images to accompany the projects which will be presented at Eurographics 2012 are available at disneyresearch.com: