

Dr.-Ing. Carsten Stoll

Max-Planck Institut Informatik
Department 4 – Computer Graphics
Campus E1.4
66123 Saarbrücken
Germany

Tel : +49 681 9325 407
Fax : +49 681 9325 499
Email : stoll@mpi-inf.mpg.de
Homepage : <http://www.mpi-inf.mpg.de/~stoll/>

PROFILE

Date of birth : 14 May 1979
Place of birth : Frankfurt, Germany
Citizenship : German
Languages : German (native), English (fluent), French (basic)

MOTIVATION

I am committed to finding new and simple methods which allow us to capture the physical world and represent it virtually in the computer. Being able to easily reconstruct the shape, motion and appearance of objects, performers and even whole scenes will enable countless new possibilities for communication, entertainment, and even medical applications.

EDUCATION

Max-Planck Center for Visual Computing and Communication, Saarbrücken
Senior Researcher **04/2010-present**
Head of research group „Optical Performance Capture“

Max-Planck Institut Informatik, Saarbrücken (Computer Graphics Group)
Post-Doctoral Researcher **11/2009-03/2010**

Max-Planck Institut Informatik, Saarbrücken (Computer Graphics Group)
Ph.D. student in Computer Science **12/2004-11/2009**
Thesis: *Template Based Shape Processing*
(Advisors: Prof. Dr. Hans-Peter Seidel and Dr. Christian Theobalt)

Technical University of Darmstadt
Diplom in Computer Science (Masters Equivalent) **10/1999-07/2004**
Thesis: *Surface Adapting Partition of Unity Implicits*
(Advisor: Prof. Dr Marc Alexa)

RESEARCH EXPERIENCE

Stanford University
Visiting Researcher, AI Lab **06/2008-10/2008**

- Performance Capture
- Estimation of physical material parameters from animations

Max-Planck Institut Informatik, Saarbrücken
Researcher, Computer Graphics Group **12/2004-ongoing**

- Performance Capture
- Template Based Shape Processing
- GPU Assisted Rendering of Complex Primitives

Technical University of Darmstadt
Undergraduate Research Assistant, Discrete Geometric Modeling Group **2002-2004**

TEACHING EXPERIENCE

Max-Planck Institut Informatik, Saarbrücken

Teaching Assistant

2008

Geometric Modeling

SELECTED PUBLICATIONS

- Carsten Stoll, Jürgen Gall, Edilson de Aguiar, Sebastian Thrun, Christian Theobalt; "Video-Based Reconstruction of Animatable Human Characters" (Proceedings of ACM SIGGRAPH Asia 2010)
 - Jürgen Gall, Carsten Stoll, Edilson de Aguiar, Christian Theobalt, Bodo Rosenhahn, Hans-Peter Seidel; "Motion Capture using Joint Skeleton Tracking and Surface Estimation" (Proceedings of IEEE CVPR 2009)
 - Nils Hasler, Carsten Stoll, Bodo Rosenhahn, Thorsten Thormählen, Hans-Peter Seidel; "Estimating Body Shape of Dressed Humans" (Proceedings of Shape Modeling International 2009)
 - Nils Hasler, Carsten Stoll, Martin Sunkel, Bodo Rosenhahn, Hans-Peter Seidel; "A Statistical Model of Human Pose and Body Shape" (Proceedings of Eurographics 2009)
 - Edilson de Aguiar, Carsten Stoll, Christian Theobalt, Naveed Ahmed, Hans-Peter Seidel, Sebastian Thrun; "Performance Capture from Sparse Multi-view Video" (Proceedings of ACM SIGGRAPH 2008)
 - Edilson de Aguiar, Christian Theobalt, Carsten Stoll, Hans-Peter Seidel; "Marker-less 3D Feature Tracking for Mesh-based Motion Capture" (Proceedings of 2nd Workshop on Human Motion at ICCV 2007)
 - Edilson de Aguiar, Christian Theobalt, Carsten Stoll, Hans-Peter Seidel; "Marker-less Deformable Mesh Tracking for Human Shape and Motion Capture" (Proceedings of IEEE CVPR 2007)
 - Edilson de Aguiar, Christian Theobalt, Carsten Stoll, Hans-Peter Seidel; "Rapid Animation of Laser-Scanned Humans" (Proceedings of IEEE VR 2007)
 - Carsten Stoll, Edilson de Aguiar, Christian Theobalt, Hans-Peter Seidel; "A Volumetric Approach to Interactive Shape Editing" (Technical Report, MPI Informatik 2007)
 - Carsten Stoll, Zachy Karni, Christian Rössl, Hitoshi Yamauchi, Hans-Peter Seidel; "Template Deformation for Point-Cloud Fitting" (Proceedings of IEEE Symposium on Point-Based Graphics 2006)
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BOOK CHAPTERS

- Christian Theobalt, Edilson de Aguiar, Carsten Stoll, Hans-Peter Seidel, Sebastian Thrun; Chapter "Performance Capture from Multi-view Video" In: *Image and Geometry Processing for 3D-Cinematography* (Springer 2010)
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PATENTS HELD

Edilson de Aguiar, Carsten Stoll, Christian Theobalt, Hans-Peter Seidel, Sebastian Thrun
"Systems, Methods and Devices for Motion Capture Using Multi-view Video"
U.S. Provisional Patent.

THESES

Template Based Shape Processing

Ph.D. Thesis

In this thesis I present how to apply semantic knowledge in the form of a template model into shape reconstruction processes. This is exemplified on several applications, including :

- Semantically meaningful hole-filling for surface reconstruction from point-clouds
- Mesh-based performance capture using a laser scan of the actor
- Estimating physically based material parameters of animated templates

Surface Adapting Partition of Unity Implicits

Diploma Thesis

This thesis presents an extension to partition-of-unity based surface reconstruction from point-clouds. Using a BSP-tree based spatial subdivision that adapts to the input point cloud allows for surface reconstructions with far less primitives than when using a regular spatial subdivision like a kd-tree.

PROFESSIONAL ACTIVITIES

Reviewer

ACM Siggraph
ACM Siggraph Asia
ACM Eurographics
IEEE Conference on Computer Vision and Pattern Recognition
IEEE Visualization
IEEE International Conference on Computer Vision
Graphics Interface
Conference on Visual Media Production
IEEE International Conference on Multimedia & Expo
Symposium on Geometry Processing
3DPVT

OTHER ACTIVITIES

Max-Planck Institut Informatik, Saarbrücken

Computer Administrator, Computer Graphics Group

03/2005-ongoing

- Managing hardware/software inventory for the Computer Graphics Group
- Managing and approving hardware/software acquisitions for the Computer Graphics Group
- Deciding on structural developments of IT infrastructure of the institute.
- Coordination with the IT Department of the institute
- Involved in planning and acquiring a new hybrid motion capture studio

Max-Planck Institut Informatik, Saarbrücken

Conference Organizer, „Vision, Modeling and Visualization 2007“

05/2007-11/2007

- Setup and extension of conference submission system
- General organization during conference (technical and logistical)

Infraserv Höchst, Frankfurt

IT Support

2000-2002

- General second level IT-Support for several Service-, Biotechnology- and Pharma-Companies

TECHNICAL SKILLS

Operating Systems

Windows, Linux

Select programming skills

C, C++ (MS Visual Studio), PHP, Perl, SQL, Matlab
OpenGL, GLSL, CG

Other tools

Adobe Photoshop, Adobe Premiere Pro, Steinberg Cubase, Autodesk Maya
Various game based 3D modeling tools (Quake GTK Radiant, ...)

PERSONAL INTERESTS

Music

Enthusiast musician/audio engineer with several label released tracks

<http://www.discogs.com/artist/Tectonic+Shift>

Martial Arts

Training and teaching beginners Brazilian martial arts (Capoeira)