

Oliver Wang

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Switzerland

CURRENT POSITION **Disney Research Zurich** 2014 - Current
Zürich, Switzerland
Research Scientist
Computer graphics, computer vision, image and video processing.

PRIOR EXPERIENCE **Disney Research Zurich** current
Zürich, Switzerland 2012 - 2014
Research Scientist 2010 - 2012
Associate Research Scientist
Post-Doctoral Researcher
Computer graphics, computer vision, image and video processing, under the supervision of Prof. Markus Gross.

University of California, Santa Cruz 2004-2010
Santa Cruz, California, USA.
MS, PhD in Computer Science
Thesis Topic: Illumination for clarity. Research in computational photography/videography, reflectance function acquisition and applications, and image based relighting under the supervision of Prof. James Davis.

Cornell University 1999-2003
Ithaca, New York, USA.
BA in Computer Science.

SELECT RESEARCH PUBLICATIONS **VideoSnapping: Interactive Synchronization of Multiple Videos**
Oliver Wang, Christopher Schroers, Henning Zimmer, Markus Gross, Alexander Sorkine-Hornung
ACM Trans. Graph. (SIGGRAPH) 2014

Distinguishing Texture Edges From Object Boundaries in Video

Oliver Wang, Martina Dmecke, Aljoscha Smolic, Markus Gross
IEEE Transactions on Image Processing (TIP), 22(12). 2013

DuctTake: Spatiotemporal Video Compositing

Jan Rüegg, Oliver Wang, Aljoscha Smolic, Markus Gross
Computer Graphics Forum (Eurographics), 32: 2013

Practical Temporal Consistency for Image-Based Graphics Applications

Manuel Lang, Oliver Wang, Tunc Aydin, Aljoscha Smolic, Markus Gross
ACM Trans. Graph. (SIGGRAPH) 31(4) 2012

Nonlinear Disparity Mapping for Stereoscopic 3D

Manuel Lang, Alexander Hornung, Oliver Wang, Stephan Poulakos, Aljoscha Smolic, Markus Gross
ACM Trans. Graph. (SIGGRAPH) 29(3) 2010

PATENTS

Stereoscopic editing for video production, post-production and display adaptation.

European Patent App. 2323416. US Patent 8,711,204 B2 2014

Discontinuous Warping for 2D-to-3D Conversions

US Patent 8,666,146 B1 2014

Synthesizing Views Based on Image Domain Warping

US Patent 20,130,057,644 2013

Systems and Methods for Converting Video

US Patent 20,130,063,549 2013

Automated Detection of Creases and/or Tears in Scanned Prints.

US Patent 7,924,477 2007

TEACHING AND
COURSES

Lecturer at ETH, 2014

252-0543-01L Computer Graphics (Joint assignment)

Gave lectures on ray tracing, sampling, light fields, and image based rendering.

Lecturer at ETH, 2013

252-0543-01L Computer Graphics (Joint assignment)

Gave lectures on ray tracing, rendering, global illumination, sampling and light fields.

Invited Lecturer at COST Training School on 3D Media, UX and Computational Architecture, 2012

Topic: Content Creation for Stereoscopic 3D and Beyond

Invited Course at Eurographics 2008

Topic: Image-Based Empirical Information Acquisition, Scientific Reliability, and Long Term Digital Preservation for the Natural Sciences and Cultural Heritage

Authored Book Chapter in Emerging Technologies for 3D Video: Creation, Coding, Transmission and Rendering

Topic: Image-Based warping for Stereoscopic Processing

CO-ADVISED
STUDENT THESES

PhD Theses

Federico Perazi, Video Panoramas. 2016 (expected)

Kaan Yucer, Visual Hulls from Unsegmented Images. 2015 (expected)

Manuel Lang, Image Domain Warping and Propagation for Video Applications. 2014

Chenxi Zhang, Personal Photo Enhancement. 2013

Peter Kaufman, Finite Element Image Warping. 2012

Masters Theses

Simone Meyer, Phase Based Motion Interpolation and Retargeting. 2014

Joel Bohnes, 3D Reconstruction for Nonrigid Objects. 2014

Florian Angehrn, Master Camera Model Registration for Free Viewpoint Video. 2013

Martina Dumecke, Video-based Object Boundary Recognition. 2013

Nicolas Märki, Interactive Colorization for iPad. 2013

Christine Chen, Computational sports broadcasting: automated director assistance for live sports. 2012

Jan Rüegg, Spatio-temporal Video Compositing. 2012

Daniel Saner, Combining High-speed Asynchronous Capture Devices with Traditional Cameras. 2012

Lars Schnyder, Composition, Mixing, and Overlay in Stereo 3D. 2011

PROFESSIONAL
SERVICES

JCGT 2015-2016 Editorial Board
ACM SIGGRAPH 2015 Technical Papers Committee
CVPR 2015 Program Committee
Eurographics 2015 Short Papers Committee
ICME 2013 Technical Program Committee
3DTV-CON 2012 Organizing Committee

Reviewer: ACM SIGGRAPH (2015, 2014, 2013, 2012, 2011, 2010), ACM Transactions on Graphics (2013), Eurographics (2015, 2014, 2013, 2012, 2011), ACM SIGGRAPH Asia (2014, 2011), CVPR (2014), IEEE Transactions on Image Processing (2013, 2012), ICIP (2013), ICME (2013), EGSR (2014), CVPR (2015, 2014, 2013), ECCV(2014, 2012), VMV (2013), SI:3D Imaging, Processing and Modeling (2012), Computer Graphics Forum (2014,2013), EUSIPCO (2012), Pacific Graphics (2012), (2011), PCS (2012), Journal of Selected Topics in Signal Processing (2012), The Visual Computer Journal (2011), IEEE Transactions on Circuits and Systems for Video Technology (2011)

Invited talks: University of British Columbia (2014), Google (2014), Adobe (2014), Pixar (2012), Universität Ulm (2010), Nokia Research (2009),

MOVIE CREDITS

Planes: Fire & Rescue 2014
Big Hero 6 2014

AWARDS

2008 ARCS Foundation Fellowship

PRIOR
PROFESSIONAL
EXPERIENCE

Disney Research Zürich 2009
Research Internship

Max-Planck-Institut für Informatik, Saarbrücken, Germany 2008-2009
Guest researcher in the area of computational videography

Industrial Light and Magic, San Francisco, Ca 2007
R&D Internship developing texture synthesis algorithms

Hewlett-Packard, Palo Alto, Ca 2006
Research internship developing 3D scanning techniques

UC Santa Cruz, Santa Cruz, Ca 2004-2010
Teaching assistant and grad student researcher

Stereographics, San Rafael, Ca 2004
Software R&D for 3D viewing technology

COMPLETE
PUBLICATION LIST

Oliver Wang, Christopher Schroers, Henning Zimmer, Markus Gross, and Alexander Sorkine-Hornung. Videosnapping: Interactive synchronization of multiple videos. *ACM Trans. Graph.*, 33(4), 2014.

Nicolas Maerki, Oliver Wang, Markus Gross, and Aljosa Smolic. ColorBrush: Animated Diffusion for Intuitive Colorization Simulating Water Painting. In *International Conference on Image Processing (ICIP)*, 2014.

Florian Angehrn, Oliver Wang, Yagiz Aksoy, Markus Gross, and Aljosa Smolic. Master-Cam FVV: Robust Registration of Multiview Sports Video to a Static High-Resolution Master Camera for Free Viewpoint Video. In *International Conference on Image Processing (ICIP)*, 2014.

Chenxi Zhang, Jizhou Gao, Oliver Wang, Pierre Georgel, Ruigang Yang, James Davis, Jan-Michael Frahm, and Marc Pollefeys. Personal photo enhancement using internet photo collections. *IEEE Transactions on Visualization and Computer Graphics*, 99:1, 2013.

Oliver Wang, Martina Dumcke, Aljoscha Smolic, and Markus Gross. Distinguishing texture edges from object boundaries in video. *Image Processing, IEEE Transactions on*, 22(12):5063–5070, 2013.

Nikolce Stefanoski, Oliver Wang, Manuel Lang, Pierre Greisen, Simone Heinzle, and Aljoscha Smolic. Automatic view synthesis by image-domain-warping. *Image Processing, IEEE Transactions on*, 22(9):3329–3341, 2013.

N. Stefanoski, C. Bal, M. Lang, O. Wang, and A. Smolic. Depth estimation and depth enhancement by diffusion of depth features. In *Image Processing (ICIP), 2013 20th IEEE International Conference on*, pages 1247–1251, Sept 2013.

Jan Rüegg, Oliver Wang, Aljoscha Smolic, and Markus Gross. Ducttake: Spatiotemporal video compositing. In *Computer Graphics Forum*, volume 32, pages 51–61. Wiley Online Library, 2013.

Peter Kaufmann, Oliver Wang, Alexander Sorkine-Hornung, Olga Sorkine-Hornung, Aljoscha Smolic, and Markus Gross. Finite element image warping. In *Computer Graphics Forum*, volume 32, pages 31–39. Wiley Online Library, 2013.

Simone Croci, Aljoscha Smolic, and Oliver Wang. Dynamic time warping based 3d contours. In *Vision, Modeling & Visualization*, pages 229–230. The Eurographics Association, 2013.

Christine Chen, Oliver Wang, Simon Heinzle, Peter Carr, Aljoscha Smolic, and Markus Gross. Computational sports broadcasting: Automated director assistance for live sports. In *Multimedia and Expo (ICME), 2013 IEEE International Conference on*, pages 1–6. IEEE, 2013.

Lars Schnyder, Manuel Lang, Oliver Wang, and Aljoscha Smolic. Depth image based compositing for stereo 3d. In *3DTV-Conference: The True Vision-Capture, Transmission and Display of 3D Video (3DTV-CON), 2012*, pages 1–4. IEEE, 2012.

Manuel Lang, Oliver Wang, Tunc Aydin, Aljoscha Smolic, and Markus Gross. Practical temporal consistency for image-based graphics applications. *ACM Transactions on Graphics (TOG)*, 31(4):34, 2012.

Oliver Wang, Manuel Lang, M Frei, Alexander Hornung, Aljoscha Smolic, and M Gross. Stereobrush: interactive 2d to 3d conversion using discontinuous warps. In *Proceedings of the Eighth Eurographics Symposium on Sketch-Based Interfaces and Modeling*, pages 47–54. ACM, 2011.

Oliver Wang and James Davis. Gradient domain hdr compositing. In *ACM SIGGRAPH 2011 Posters*, page 34. ACM, 2011.

Aljoscha Smolic, Steven Poulakos, Simone Heinzle, Pierre Greisen, Manuel Lang, Alexander Hornung, Miquel Farre, Nikolce Stefanoski, Oliver Wang, and Lars Schnyder. Disparity-aware stereo 3d production tools. In *Visual Media Production (CVMP), 2011 Conference for*, pages 165–173. IEEE, 2011.

Lars Schnyder, Oliver Wang, and Aljoscha Smolic. 2d to 3d conversion of sports content using panoramas. In *Image Processing (ICIP), 2011 18th IEEE International Conference on*, pages 1961–1964. IEEE, 2011.

Miquel Farre, Oliver Wang, Manuel Lang, Nikolce Stefanoski, Alexander Hornung, and Aljoscha Smolic. Automatic content creation for multiview autostereoscopic displays using image domain warping. In *Multimedia and Expo (ICME), 2011 IEEE International Conference on*, pages 1–6. IEEE, 2011.

Oliver Wang, Martin Fuchs, Christian Fuchs, James Davis, H-P Seidel, and Hendrik PA Lensch. A context-aware light source. In *Computational Photography (ICCP), 2010 IEEE International Conference on*, pages 1–8. IEEE, 2010.

Manuel Lang, Alexander Hornung, Oliver Wang, Steven Poulakos, Aljoscha Smolic, and Markus Gross. Nonlinear disparity mapping for stereoscopic 3d. *ACM Transactions on Graphics (TOG)*, 29(4):75, 2010.

Martin Fuchs, Tongbo Chen, Oliver Wang, Ramesh Raskar, Hans-Peter Seidel, and Hendrik Lensch. Real-time temporal shaping of high-speed video streams. *Computers & Graphics*, 34(5):575–584, 2010.

Oliver Wang, Prabath Gunawardane, Steve Scher, and James Davis. Material classification using brdf slices. In *Computer Vision and Pattern Recognition, 2009. CVPR 2009. IEEE Conference on*, pages 2805–2811. IEEE, 2009.

Ruggero Pintus, Thomas Malzbender, Oliver Wang, Ruth Bergman, Hila Nachlieli, and Gitit Ruckenstein. Photo repair and 3d structure from flatbed scanners. In *VISAPP (1)*, pages 40–50, 2009.

Prabath Gunawardane, Oliver Wang, Steven Scher, Ian Rickards, James Davis, and Tom Malzbender. Optimized image sampling for view and light interpolation. In *Proceedings of the 10th International conference on Virtual Reality, Archaeology and Cultural Heritage*, pages 93–100. Eurographics Association, 2009.

Martin Fuchs, Tongbo Chen, Oliver Wang, Ramesh Raskar, Hans-Peter Seidel, and Hendrik PA Lensch. A shaped temporal filter camera. 2009.

Oliver Wang, James Davis, Erika Chuang, Ian Rickard, Krystle De Mesa, and Chirag Dave. Video relighting using infrared illumination. In *Computer Graphics Forum*, volume 27, pages 271–279. Wiley Online Library, 2008.

Mark Mudge, Tom Malzbender, Alan Chalmers, Roberto Scopigno, James Davis, Oliver Wang, Prabath Gunawardane, Michael Ashley, Martin Doerr, Alberto Proenca, et al. Image-based empirical information acquisition, scientific reliability, and long-term digital preservation for the natural sciences and cultural heritage. *Eurographics Tutorials*, 2008.

Oliver Wang, Jonathan Finger, Qingxiong Yang, James Davis, and Ruigang Yang. Automatic natural video matting with depth. In *Computer Graphics and Applications, 2007. PG'07. 15th Pacific Conference on*, pages 469–472. IEEE, 2007.

Jacob Telleen, Anne Sullivan, Jerry Yee, Oliver Wang, Prabath Gunawardane, Ian Collins, and James Davis. Synthetic shutter speed imaging. In *Computer Graphics Forum*, volume 26, pages 591–598. Wiley Online Library, 2007.

Oliver Wang, Suresh K Lodha, and David P Helmbold. A bayesian approach to building footprint extraction from aerial lidar data. In *3D Data Processing, Visualization, and Transmission, Third International Symposium on*, pages 192–199. IEEE, 2006.