

## Oliver Wang

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USA      Website: oliverwang.info

CURRENT POSITION      **Adobe Research**      2015 - Current  
Seattle, Wa  
*Senior Research Scientist*  
Machine learning, computer vision, computer graphics, image and video processing.

PRIOR EXPERIENCE      **Disney Research Zurich**  
Zürich, Switzerland      2014 - 2015  
*Research Scientist*  
*Associate Research Scientist*      2012 - 2014  
*Post-Doctoral Researcher*      2010 - 2012  
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      **High-Resolution Image Inpainting using Multi-Scale Neural Patch Synthesis**  
Chao Yang, Xin Lu, Zhe Lin, Eli Shechtman, Oliver Wang, Hao Li  
CVPR 2017

**Deep Video Deblurring**  
Shuochen Su, Mauricio Delbracio, Jue Wang, Guillermo Sapiro, Wolfgang Heidrich, Oliver Wang  
CVPR 2017 Spotlight

**Bilateral Space Video Segmentation**  
Nicolas Maerki, Federico Perazzi, Oliver Wang, Alexander Sorkine-Hornung  
CVPR 2016

**Sampling Based Scene-Space Video Processing**  
Felix Klose, Oliver Wang, Jean-Charles Bazin, Marcus Magnor, Alexander Sorkine-Hornung  
SIGGRAPH 2015

**Phase-Based Frame Interpolation for Video**  
Simone Meyer, Oliver Wang, Henning Zimmer, Max Grosse, Alexander Sorkine-Hornung  
CVPR 2015 Oral

**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

**Panoramic Video from Unstructured Camera Arrays with Globally Consistent Parallax Removal**

US Patent No. 0028950 A1, 2016

**Method and System for Providing and Displaying Optional Overlays**

US Patent No. 0057488 A1, 2016

**Practical Temporal Consistency for Video Applications**

US Patent No. 9036089 B2, 2015

**Interactive Synchronization of Multiple Videos**

US Patent No. 0332096 A1, 2015

**Simulating Color Diffusion in a Graphical Display**

US Patent No. 0193950 A1, 2015

**Spatio-Temporal Video Compositing**

US Patent No. 0071612 B2, 2015

**Systems and Methods for Converting Video**

US Patent No. 8928729 B2, 2015

**Discontinuous warping for 2D-to-3D conversions**

US Patent No. 8666146 B1, 2014

**Synthesizing Views Based on Image Domain Warping**

US Patent No. 20,130,057,644, 2013

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

EP Patent 2,323,416, 2011. US Patent No. 20,110,109,720 2011

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

US Patent No. 11/823,491. 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  
Kaan Yucer, Visual Hulls from Unsegmented Images. 2015  
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

**WICED 2017** Program Committee  
**SIGGRAPH Asia 2016** Course Committee  
**SIGGRAPH 2016** Technical Papers Committee  
**JCGT 2015** Editorial Board  
**SIGGRAPH 2015** Technical Papers Committee  
**CVPR 2015** Program Committee  
**Eurographics 2015** Short Paper Committee  
**ICME 2013** Technical Program Committee  
**3DTV-CON 2012** Organizing Committee

MOVIE CREDITS

**Planes: Fire & Rescue** 2014  
**Big Hero 6** 2014

PRIOR  
PROFESSIONAL  
EXPERIENCE

<b>Disney Research Zürich</b> Research Internship	2009
<b>Max-Planck-Institut für Informatik, Saarbrücken, Germany</b> Guest researcher in the area of computational videography	2008-2009
<b>Industrial Light and Magic, San Francisco, Ca</b> R&D Internship developing texture synthesis algorithms	2007
<b>Hewlett-Packard, Palo Alto, Ca</b> Research internship developing 3D scanning techniques	2006
<b>UC Santa Cruz, Santa Cruz, Ca</b> Teaching assistant and grad student researcher	2004-2010
<b>Stereographics, San Rafael, Ca</b> Software R&D for 3D viewing technology	2004

COMPLETE  
PUBLICATION LIST

- Shuochen Su, Mauricio Delbracio, Jue Wang, Guillermo Sapiro, Wolfgang Heidrich, and Oliver Wang. Deep video deblurring for hand-held cameras. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 1279–1288, 2017.
- Christian Richardt, James Tompkin, Jordan Halsey, Aaron Hertzmann, Jonathan Starck, and Oliver Wang. Video for virtual reality. In *ACM SIGGRAPH 2017 Courses*, page 16. ACM, 2017.
- Marek Dvorožňák, Pierre Bénard, Pascal Barla, Oliver Wang, and Daniel Šykora. Example-based expressive animation of 2d rigid bodies. *ACM Trans. Graph*, 36(4):10, 2017.
- Zhaopeng Cui, Oliver Wang, Ping Tan, and Jue Wang. Time slice video synthesis by robust video alignment. *ACM Transactions on Graphics (TOG)*, 36(4):131, 2017.
- Nicolas Bonneel, James Tompkin, Deqing Sun, Oliver Wang, Kalyan Sunkavalli, Sylvain Paris, and Hanspeter Pfister. Consistent video filtering for camera arrays. In *Computer Graphics Forum*, volume 36, pages 397–407, 2017.
- Lisa Anne Hendricks, Oliver Wang, Eli Shechtman, Josef Sivic, Trevor Darrell, and Bryan Russell. Localizing moments in video with natural language. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 5803–5812, 2017.
- Gbolahan S Adesoye and Oliver Wang. Joint mobile-cloud video stabilization. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, pages 36–43, 2017.
- Kaan Yücer, Alexander Sorkine-Hornung, Oliver Wang, and Olga Sorkine-Hornung. Efficient 3d object segmentation from densely sampled light fields with applications to 3d reconstruction. *ACM Transactions on Graphics (TOG)*, 35(3):22, 2016.
- Patrick Wiescholke, Oliver Wang, Alexander Sorkine-Hornung, and Hendrik Lensch. Efficient large-scale approximate nearest neighbor search on the gpu. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 2027–2035, 2016.
- Matthias Soler, Jean-Charles Bazin, Oliver Wang, Andreas Krause, and Alexander Sorkine-Hornung. Suggesting sounds for images from video collections. In *European Conference on Computer Vision*, pages 900–917. Springer International Publishing, 2016.

- Nicolas Märki, Federico Perazzi, Oliver Wang, and Alexander Sorkine-Hornung. Bilateral space video segmentation. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 743–751, 2016.
- Henning Zimmer, Fabrice Rousselle, Wenzel Jakob, Oliver Wang, David Adler, Wojciech Jarosz, Olga Sorkine-Hornung, and Alexander Sorkine-Hornung. Path-space motion estimation and decomposition for robust animation filtering. In *Computer Graphics Forum*, volume 34, pages 131–142, 2015.
- Steven Poulakos, Rafael Monroy, Tunc Aydin, Oliver Wang, Aljoscha Smolic, and Markus Gross. A computational model for perception of stereoscopic window violations. In *Quality of Multimedia Experience (QoMEX), 2015 Seventh International Workshop on*, pages 1–6. IEEE, 2015.
- Federico Perazzi, Alexander Sorkine-Hornung, Henning Zimmer, Oliver Wang, Scott Watson, and Markus Gross. Panoramic video from unstructured camera arrays. In *Computer Graphics Forum*, volume 34. Wiley Online Library, 2015.
- Felix Klose, Oliver Wang, Jean-Charles Bazin, Marcus Magnor, and Alexander Sorkine-Hornung. Sampling based scene-space video processing. *ACM Transactions on Graphics (TOG)*, 34(4):67, 2015.
- 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.
- 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 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.