

# ANDREAS GEIGER

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## EMPLOYMENT

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- University of Tübingen, Germany** *from March 2018 - now*  
Full Professor, Department of Computer Science, Autonomous Vision Group
- MPI for Intelligent Systems, Tübingen, Germany** *from June 2016 - now*  
Independent Max-Planck Research Group Leader, Autonomous Vision Group
- ETH Zürich, Switzerland** *from September 2016 - February 2018*  
Visiting Professor, Computer Vision and Geometry Group (interim for Marc Pollefeys)
- MPI for Intelligent Systems, Tübingen, Germany** *June 2013 - May 2016*  
Research Scientist & Group Leader, Perceiving Systems Department
- Karlsruhe Institute of Technology, Germany** *September 2008 - May 2013*  
Research and Teaching Assistant, Department of Measurement and Control Systems

## EDUCATION

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- Karlsruhe Institute of Technology, Germany** *September 2008 - May 2013*  
Ph.D. in Computer Vision, Department of Measurement and Control Systems  
Ph.D. Thesis: Probabilistic Models for 3D Urban Scene Understanding from Movable Platforms  
Advisors: Christoph Stiller, Raquel Urtasun  
Grade: 1.0/1.0 (awarded with distinction)
- Massachusetts Institute of Technology, USA** *July 2008*  
Master Thesis: Human Body Tracking with Rank Priors for Non-Linear Dimensionality Reduction  
Advisors: Trevor Darrell, Raquel Urtasun, Rainer Stiefelhagen  
Grade: 1.0/1.0
- Ecole Polytechnique Fédérale de Lausanne, Switzerland** *February 2006*  
Bachelor Thesis: Automatic Multiple Camera Calibration  
Advisors: Pascal Fua, Vincent Lepetit  
Grade: 1.0/1.0
- Karlsruhe Institute of Technology, Germany** *October 2003 - July 2008*  
Department of Computer Science and Mathematics  
Computer Science: Diploma  
Grade: 1.0/1.0 (awarded with distinction, ranked #4/247)

## INTERNATIONAL AND RESEARCH EXPERIENCE

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- Visiting Researcher** *June - July 2010, July 2011, June 2012*  
TTI Chicago (with Raquel Urtasun)
- Visiting Researcher** *March - May 2010*  
ETH Zürich (with Marc Pollefeys)
- Research Assistant** *September 2008 - February 2013*  
Karlsruhe Institute of Technology (with Christoph Stiller)
- Visiting Student** *February - July 2008*  
Massachusetts Institute of Technology (with Trevor Darrell)
- Visiting Student** *September 2005 - February 2006*  
Ecole Polytechnique Fédérale de Lausanne (with Pascal Fua and Vincent Lepetit)

## TEACHING EXPERIENCE

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- ETH Zürich: Computer Vision** *September 2017 - December 2017*  
Lecturer (170 students), Class website: <https://www.cvg.ethz.ch/teaching/compvis/>
- ETH Zürich: 3D Vision** *February 2017 - June 2017*  
Lecturer (50 students), Class website: <https://www.cvg.ethz.ch/teaching/3dvision/>
- ETH Zürich: Computer Vision** *September 2016 - December 2016*  
Lecturer (120 students), Class website: <https://www.cvg.ethz.ch/teaching/compvis/>
- University Tübingen: Graphical Models in Computer Vision** *April 2016 - July 2016*  
Lecturer (30 students), Class website: <http://cv.is.tue.mpg.de>
- University Tübingen: Graphical Models in Computer Vision** *October 2014 - March 2015*  
Lecturer (30 students), Class website: <http://cv.is.tue.mpg.de>
- KIT: Measurement and Control Systems** *April 2009 - March 2010*  
Interim Lecturer and Teaching Assistant (600 students)
- KIT: Measurement Systems: Practical Courses** *September 2008 - March 2010*  
Teaching Assistant (groups of 6 students)

## STUDENT SUPERVISION

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- Carolin Schmitt, Ph.D. Student (MPI Tübingen)** *July 2017 - now*  
Learning Models for inferring Geometry, Materials and Light from RGB-D Videos
- Despoina Paschalidou Coors, Ph.D. Student (MPI Tübingen)** *April 2017 - now*  
Learning Deep Models with Primitive-Based Representations
- David Stutz, Master Thesis (RWTH Aachen)** *January 2017 - August 2017*  
Weakly Supervised Learning of 3D Shape Completion from Point Clouds
- Yiyi Liao, Ph.D. Intern (Zhejiang University)** *October 2016 - now*  
Deep Layered Models for Semantic 3D to 2D Label Transfer in Dynamic Urban Scenes
- Benjamin Coors, Ph.D. Student (Robert Bosch GmbH)** *September 2016 - now*  
Invariances in Deep Learning
- Aseem Behl, Ph.D. Student (MPI Tübingen)** *August 2016 - now*  
Deep Semantic Scene Flow
- Lars Mescheder, Ph.D. Student (MPI Tübingen)** *August 2016 - now*  
Accurate Reconstruction of Lights, Materials and 3D Geometry from RGB, Depth and Motion
- Gernot Riegler, Ph.D. Intern (TU Graz)** *July 2016 - December 2016*  
Deep Models for 3D Classification, Pose Estimation, Segmentation and Reconstruction
- N Dinesh Reddy, Ph.D. Intern (IIIT Hyderabad)** *March 2016 - September 2016*  
Deep Models for 3D Reconstruction
- Joël Janai, Ph.D. Student (MPI Tübingen)** *July 2015 - now*  
Learning Optical Flow from Slow Motion Videos
- Fatma Güney, Ph.D. Student (MPI Tübingen)** *August 2013 - now*  
Semantic 3D Scene Understanding from Videos
- Jun Xie, Ph.D. Intern (University of Washington)** *June 2014 - December 2014*  
Large-scale Instance-Level Semantic Annotation
- Chen Zhou, Ph.D. Intern (Peking University)** *May 2014 - November 2014*  
3D Reconstruction from Fisheye Video Sequences
- Moritz Menze, Ph.D. Intern (University of Hannover)** *March 2014 - August 2014*  
3D Scene Flow Estimation

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| <b>Philip Lenz, Ph.D. Student (KIT)</b><br>Globally Optimal Multi-Object Tracking                                       | <i>August 2011 - November 2014</i> |
| <b>Miriam Schönbein, Ph.D. Student (KIT)</b><br>Non-Central Omnidirectional Cameras and Applications                    | <i>November 2012 - July 2014</i>   |
| <b>Philipp Bender, Master Thesis</b><br>Visual Interpretation of Pedestrian Behavior in inner-city Traffic Scenes       | <i>May - November 2011</i>         |
| <b>Bernhard Schuster, Master Thesis</b><br>Automatic Multiple Camera Calibration  | <i>April - October 2011</i>        |
| <b>Michael Ranjbar, Master Thesis</b><br>Real-time Parallelization of an efficient Stereo Matching Algorithm using CUDA | <i>February - July 2011</i>        |
| <b>Gabriela Lopez, Bachelor Thesis</b><br>A comparative Study of Kalman Filters for non-linear State Estimation         | <i>October 2010 - April 2011</i>   |
| <b>Sören Bevier, Master Thesis</b><br>A voting-based Method for Pedestrian Detection                                    | <i>June - December 2010</i>        |
| <b>Daniel Wilde, Master Thesis</b><br>A Comparison of Algorithms for Visual Detection of Road Markings                  | <i>November 2008 - May 2009</i>    |

## AWARDS AND SCHOLARSHIPS

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| <b>Outstanding Reviewer Award</b><br>Neural Information and Processing Systems, Long Beach, USA  | <i>December 2017</i>  |
| <b>3DV Best Student Paper Award</b><br>International Conference on 3D Vision, Qingdao, China   | <i>October 2017</i>   |
| <b>German Pattern Recognition Prize, € 5,000</b><br>German Conference on Pattern Recognition, Basel, Switzerland                             | <i>September 2017</i> |
| <b>Heinz Maier-Leibnitz Prize, € 20,000</b><br>Deutsche Forschungsgemeinschaft (DFG)   | <i>May 2017</i>       |
| <b>Outstanding Reviewer Award</b><br>International Conference on Computer Vision and Pattern Recognition, Las Vegas, USA                     | <i>June 2016</i>      |
| <b>3DV Best Paper Award, € 600</b><br>International Conference on 3D Vision, Lyon, France  | <i>October 2015</i>   |
| <b>GCPR Best Paper Award, € 1,500</b><br>German Conference on Pattern Recognition, Aachen, Germany   | <i>October 2015</i>   |
| <b>Associate Member of the Max Planck ETH Center for Learning Systems</b><br>MPI for Intelligent Systems in Tübingen and ETH Zürich          | <i>2015-2016</i>      |
| <b>Elected Ombudsperson at the Intelligent Systems Institute Tübingen</b><br>Max Planck Institute for Intelligent Systems, Tübingen, Germany | <i>2015-2018</i>      |
| <b>KIT Doctoral Award (Best Ph.D. Thesis), € 2,000</b><br>Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany                        | <i>February 2015</i>  |
| <b>Ernst-Schoemperlen Prize (Research in Mobility Systems), € 5,000</b><br>Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany       | <i>November 2014</i>  |
| <b>CVPR Best Paper Runner Up Award, \$3,000</b><br>International Conference on Computer Vision and Pattern Recognition, Portland, USA        | <i>June 2013</i>      |
| <b>1st place in the GCDC competition with Team AnnieWAY</b><br>Grand Cooperative Driving Challenge (GCDC), Helmond, Netherlands              | <i>May 2011</i>       |

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| <b>IV Best Dissertation Proposal Award</b><br>Intelligent Vehicles Symposium, San Diego, USA | <i>June 2010</i>                      |
| <b>DAAD and MIT scholarships, €10,000</b><br>Massachusetts Institute of Technology           | <i>February - July 2008</i>           |
| <b>ERASMUS scholarship, €1,000</b><br>Ecole Polytechnique Fédérale de Lausanne               | <i>September 2005 - February 2006</i> |
| <b>Award of the German Physical Association</b>  | <i>June 2002</i>                      |
| <b>Ferry Porsche Award</b>   | <i>June 2002</i>                      |

## INVITED TALKS

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| <b>IST Austria:</b> Klosterneuburg, Austria  | <i>30.11.2017</i> |
| <b>TU Graz:</b> Graz, Austria  | <i>24.11.2017</i> |
| <b>ICCV Workshop on Learning to See from 3D Data:</b> Venice, Italy                | <i>28.10.2017</i> |
| <b>ICCV Workshop on Dynamic Scene Understanding:</b> Venice, Italy                 | <i>23.10.2017</i> |
| <b>Bosch Chassis Control Systems:</b> Leonberg, Germany                            | <i>19.10.2017</i> |
| <b>NVIDIA GTC Europe:</b> Munich, Germany  | <i>12.10.2017</i> |
| <b>Microsoft Research Cambridge:</b> Cambridge, England                            | <i>26.09.2017</i> |
| <b>GCPR Award Lecture:</b> Basel, Switzerland                                      | <i>12.09.2017</i> |
| <b>BMVC Tutorial Lecture:</b> London, England                                      | <i>04.09.2017</i> |
| <b>Intel NIS Network:</b> Munich, Germany  | <i>30.08.2017</i> |
| <b>Disney Research Zürich:</b> Zürich, Switzerland                                 | <i>25.09.2017</i> |
| <b>Summer School on Cooperative Interacting Automobiles:</b> Schwäb.-Gmünd         | <i>09.08.2017</i> |
| <b>CVPR Workshop on Autonomous Driving:</b> Honolulu, Hawaii, USA                  | <i>20.07.2017</i> |
| <b>Summer School on Learning Systems:</b> ETH Zürich, Switzerland                  | <i>06.07.2017</i> |
| <b>Robert Bosch GmbH:</b> Bosch CC Leadership Meeting, Budapest, Hungary           | <i>10.05.2017</i> |
| <b>TU München:</b> Computer Vision Group   | <i>31.03.2017</i> |
| <b>University of Maryland:</b> CVPR Area Chair Workshop                            | <i>27.02.2017</i> |
| <b>Princeton University:</b> Computer Graphics and Vision Lab                      | <i>24.02.2017</i> |
| <b>National University of Singapore:</b> Singapore                                 | <i>25.11.2016</i> |
| <b>ETH Zürich:</b> Faculty Lunch Seminar   | <i>24.10.2016</i> |
| <b>ECCV Workshop on Multi-target Tracking:</b> Amsterdam, Netherlands              | <i>09.10.2016</i> |
| <b>ETH Zürich:</b> Computer Vision and Geometry Lab                                | <i>12.05.2016</i> |
| <b>University Hannover:</b> Ringvorlesung Navigation und Umweltrobotik             | <i>11.05.2016</i> |
| <b>TU Dresden:</b> Computer Vision Lab   | <i>22.04.2016</i> |
| <b>MPI Tübingen:</b> Special Symposium on Intelligent Systems                      | <i>16.03.2016</i> |
| <b>Scenes from Video Workshop:</b> Colchagua Valley, Chile                         | <i>17.12.2015</i> |
| <b>ICCV Workshop on Autonomous Driving:</b> Santiago, Chile                        | <i>12.12.2015</i> |
| <b>Google Research:</b> Mountain View, USA   | <i>25.11.2015</i> |
| <b>Robert Bosch GmbH:</b> Leonberg, Germany  | <i>23.11.2015</i> |
| <b>Dagstuhl Seminar:</b> Dagstuhl, Germany   | <i>09.11.2015</i> |
| <b>Daimler AG:</b> Böblingen, Germany  | <i>27.08.2015</i> |
| <b>RSS Workshop on SLAM:</b> Rome, Italy   | <i>17.07.2015</i> |
| <b>RWTH Aachen:</b> GCPR PC Meeting  | <i>09.07.2015</i> |
| <b>CVPR Workshop on Performance Metrics:</b> Boston, USA                           | <i>11.06.2015</i> |
| <b>Karlsruhe Institute of Technology:</b> Department of Economics and Management   | <i>30.04.2015</i> |
| <b>MPI Tübingen:</b> ETH/MPI Vision Workshop                                       | <i>25.11.2014</i> |
| <b>MPI Stuttgart:</b> Tag der offenen Tür  | <i>05.04.2014</i> |
| <b>ETH Zürich:</b> Photogrammetry and Remote Sensing Lab                           | <i>27.03.2014</i> |
| <b>Robert Bosch GmbH:</b> Fahrzeugsicherheits- und Assistenzsysteme, Stuttgart     | <i>18.06.2013</i> |
| <b>Karlsruhe Institute of Technology:</b> Ringvorlesung des Graduiertenkolleg 1194 | <i>03.05.2013</i> |
| <b>University of Illinois at Urbana-Champaign:</b> Department of Computer Science  | <i>30.11.2012</i> |
| <b>New York University:</b> Vision, Learning and Graphics Group                    | <i>29.11.2012</i> |
| <b>Carnegie Mellon University:</b> The Robotics Institute                          | <i>28.11.2012</i> |
| <b>MIT:</b> Computer Science and Artificial Intelligence Laboratory                | <i>27.11.2012</i> |

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| <b>MPI Tübingen:</b> Perceiving Systems Department                          | <i>05.11.2012</i> |
| <b>TU Darmstadt:</b> Interactive Graphics Systems Group                     | <i>01.11.2012</i> |
| <b>RWTH Aachen:</b> UMIC Research Centre Computer Vision Group              | <i>26.10.2012</i> |
| <b>ETH Zürich:</b> Computer Vision and Geometry Lab                         | <i>22.10.2012</i> |
| <b>University of Oxford:</b> Robotics Research Group                        | <i>24.09.2012</i> |
| <b>CVPR Workshop on Point Cloud Processing:</b> Providence, USA             | <i>16.06.2012</i> |
| <b>Toyota Technological Institute at Chicago</b>                            | <i>19.07.2011</i> |
| <b>Robert Bosch GmbH:</b> Computer Vision Systems, Hildesheim               | <i>14.01.2011</i> |
| <b>MPI Saarbrücken:</b> Computer Vision and Multimodal Computing Department | <i>06.12.2010</i> |
| <b>ETH Zürich:</b> Computer Vision and Geometry Lab                         | <i>27.05.2010</i> |

## PROFESSIONAL SERVICE

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**ASSOCIATE EDITOR:** PAMI 2016-now, IJCV 2017-now

**AREA CHAIR:** ECCV 2016, CVPR 2017, CVPR 2018

**SESSION CHAIR:** ICRA 2012, GCPR 2015

**PROGRAM COMMITTEE:** NIPS 2012-now, ACCV 2012-now, IV 2010-now, ICCV 2013-now, ECCV 2014-now, CVPR 2013-now, GCPR 2015-now

**REVIEWER:** NIPS, CVPR, ECCV, ICCV, GCPR, ACCV, PAMI, IJCV, IJRR, ICRA, IROS, IV, ITSC, TITS

## ORGANIZATION OF WORKSHOPS AND SPECIAL SESSIONS

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**CVPR 2018: Robust Vision Challenge** (in preparation) *June 2018*  
Jointly with C. Rother, M. Niessner, M. Pollefeys, D. Scharstein, T. Sattler

**ECCV 2014: Reconstruction Meets Recognition Challenge** *September 2014*  
Jointly with R. Urtasun, R. Fergus, D. Hoiem, A. Torralba, P. Lenz, N. Silberman, J. Xiao, S. Fidler

**ACCV 2014: Intelligent Vehicle With Vision Technology** *September 2014*  
Jointly with Xue Mei, Michael James, Yi-Ping Hung, Fatih Porikli and Danil Prokhorov

**IV 2014: Workshop on Benchmarking Lane Detection Algorithms** *June 2014*  
Jointly with Chunzhao Guo, José M. Álvarez and Jannick Fritsch

**ICCV 2013: Reconstruction Meets Recognition Challenge** *December 2013*  
Jointly with R. Urtasun, R. Fergus, D. Hoiem, A. Torralba, P. Lenz, N. Silberman, J. Xiao, S. Fidler

**GCPR 2013: Special Session on Robust Optical Flow** *September 2013*  
Jointly with Andrés Bruhns, Uwe Franke and Daniel Kondermann

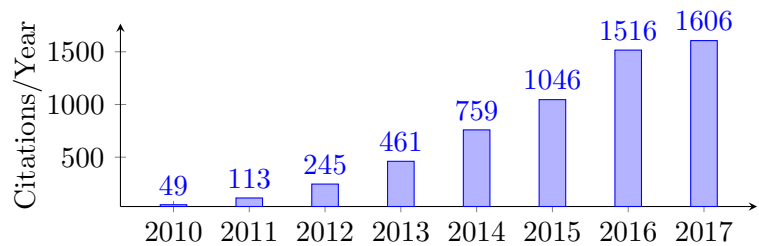
# PUBLICATIONS

## SCIENTIFIC IMPACT

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### CITATION INDICES

Citations: 5868  
h-Index: 25  
i10-Index: 39  
Source: scholar.google.com  
Accessed: 21.11.2017



## PUBLICATIONS

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All publications are peer-reviewed conference or journal publications and top tier in the respective field (computer vision, machine learning, robotics, intelligent vehicles). ICML, NIPS, ICCV, ECCV and CVPR are highly competitive with acceptance rates of less than 30%. CVPR is the most highly cited IEEE conference with the highest impact in Engineering and Computer Science. CVPR, NIPS, ECCV, ICML and ICCV are the five most impactful conferences in computer science<sup>1</sup>. The **most important publications** as well as **award papers** are marked with an asterisk.

### JOURNAL PAPERS

Moritz Menze, Christian Heipke, and Andreas Geiger. Object scene flow. *ISPRS Journal of Photogrammetry and Remote Sensing (JPRS)*, paper in preparation, 2017.

Joel Janai, Fatma Güney, Aseem Behl, and Andreas Geiger. Computer vision for autonomous vehicles: Problems, datasets and state-of-the-art. *ISPRS Journal of Photogrammetry and Remote Sensing (JPRS)*, invited paper in preparation, 2017.

\* Marcus A. Brubaker, Andreas Geiger, and Raquel Urtasun. Map-based probabilistic visual self-localization. *IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI)*, 38(4):652–665, 2016.

\* Andreas Geiger, Martin Lauer, Christian Wojek, Christoph Stiller, and Raquel Urtasun. 3D traffic scene understanding from movable platforms. *IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI)*, 36(5):1012–1025, 2014.

Andreas Geiger, Philip Lenz, Christoph Stiller, and Raquel Urtasun. Vision meets robotics: The KITTI dataset. *International Journal of Robotics Research (IJRR)*, 32(11):1231–1237, 2013.

Andreas Geiger, Martin Lauer, Frank Moosmann, Benjamin Ranft, Holger Rapp, Christoph Stiller, and Julius Ziegler. Team annieway’s entry to the grand cooperative driving challenge 2011. *IEEE Trans. on Intelligent Transportation Systems (TITS)*, 13(3):1008–1017, September 2012.

### CONFERENCE PAPERS

Aseem Behl, Omid Hosseini Jafari, Siva Karthik Mustikovela, Hassan Abu Alhaija, Carsten Rother, and Andreas Geiger. Bounding boxes, segmentations and object coordinates: How important is recognition for 3d scene flow estimation in autonomous driving scenarios? In *Proc. of the IEEE International Conf. on Computer Vision (ICCV)*, 2017.

Gernot Riegler, Ali Osman Ulusoy, Horst Bischof, and Andreas Geiger. OctNetFusion: Learning depth fusion from data. In *Proc. of the International Conf. on 3D Vision (3DV)*, 2017.

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<sup>1</sup><http://www.guide2research.com/topconf/>

- Jonas Uhrig, Nick Schneider, Lukas Schneider, Uwe Franke, Thomas Brox, and Andreas Geiger. Sparsity Invariant CNNs. In *Proc. of the International Conf. on 3D Vision (3DV)*, 2017.
- Peidong Liu, Lionel Heng, Torsten Sattler, Andreas Geiger, and Marc Pollefeys. Direct visual odometry for a fisheye-stereo camera. In *Proc. IEEE International Conf. on Intelligent Robots and Systems (IROS)*, 2017.
- Hassan Abu Alhaija, Siva Karthik Mustikovela, Lars Mescheder, Andreas Geiger, and Carsten Rother. Augmented reality meets deep learning for car instance segmentation in urban scenes. In *Proc. of the British Machine Vision Conf. (BMVC)*, 2017.
- Lars Mescheder, Sebastian Nowozin, and Andreas Geiger. The numerics of GANs. In *Advances in Neural Information Processing Systems (NIPS)*, 2017.
- Lars Mescheder, Sebastian Nowozin, and Andreas Geiger. Adversarial Variational Bayes: Unifying variational autoencoders and generative adversarial networks. In *Proc. of the International Conf. on Machine learning (ICML)*, 2017.
- Federico Camposeco, Torsten Sattler, Andrea Cohen, Andreas Geiger, and Marc Pollefeys. Toroidal constraints for two point localization under high outlier ratios. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2017.
- Thomas Schöps, Johannes Schönberger, Silvano Galliani, Torsten Sattler, Konrad Schindler, Marc Pollefeys, and Andreas Geiger. A multi-view stereo benchmark with high-resolution images and multi-camera videos. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2017.
- Ali Osman Ulusoy, Michael Black, and Andreas Geiger. Semantic multi-view stereo: Jointly estimating objects and voxels. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2017.
- \* Joel Janai, Fatma Güney, Jonas Wulff, Michael Black, and Andreas Geiger. Slow flow: Exploiting high-speed cameras for accurate and diverse optical flow reference data. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2017.
- \* Gernot Riegler, Ali Osman Ulusoy, and Andreas Geiger. Octnet: Learning deep 3d representations at high resolutions. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2017.
- Fatma Güney and Andreas Geiger. Deep discrete flow. In *Proc. of the Asian Conf. on Computer Vision (ACCV)*, 2016.
- Jun Xie, Martin Kiefel, Ming-Ting Sun, and Andreas Geiger. Semantic instance annotation of street scenes by 3d to 2d label transfer. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2016.
- Ali Osman Ulusoy, Michael Black, and Andreas Geiger. Patches, planes and probabilities: A non-local prior for volumetric 3d reconstruction. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2016.
- Chen Zhou, Fatma Güney, Yizhou Wang, and Andreas Geiger. Exploiting object similarity in 3d reconstruction. In *Proc. of the IEEE International Conf. on Computer Vision (ICCV)*, 2015.
- Philip Lenz, Andreas Geiger, and Raquel Urtasun. Followme: Efficient online min-cost flow tracking

- with bounded memory and computation. In *Proc. of the IEEE International Conf. on Computer Vision (ICCV)*, 2015.
- \* Ali Osman Ulusoy, Andreas Geiger, and Michael J. Black. Towards probabilistic volumetric reconstruction using ray potentials. In *Proc. of the International Conf. on 3D Vision (3DV)*, 2015.
- \* Andreas Geiger and Chaohui Wang. Joint 3d object and layout inference from a single rgb-d image. In *Proc. of the German Conference on Pattern Recognition (GCPR)*, 2015.
- Moritz Menze, Christian Heipke, and Andreas Geiger. Discrete optimization for optical flow. In *Proc. of the German Conference on Pattern Recognition (GCPR)*, 2015.
- \* Fatma Güney and Andreas Geiger. Displets: Resolving stereo ambiguities using object knowledge. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2015.
- Moritz Menze and Andreas Geiger. Object scene flow for autonomous vehicles. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2015.
- Miriam Schönbein and Andreas Geiger. Omnidirectional 3d reconstruction in augmented manhattan worlds. In *Proc. IEEE International Conf. on Intelligent Robots and Systems (IROS)*, 2014.
- Miriam Schönbein, Tobias Strauss, and Andreas Geiger. Calibrating and centering quasi-central catadioptric cameras. In *Proc. IEEE International Conf. on Robotics and Automation (ICRA)*, 2014.
- Martin Roser, Matthew Dunbabin, and Andreas Geiger. Simultaneous underwater visibility assessment, enhancement and improved stereo. In *Proc. IEEE International Conf. on Robotics and Automation (ICRA)*, 2014.
- Hongyi Zhang, Andreas Geiger, and Raquel Urtasun. Understanding high-level semantics by modeling traffic patterns. In *Proc. of the IEEE International Conf. on Computer Vision (ICCV)*, 2013.
- \* Marcus A. Brubaker, Andreas Geiger, and Raquel Urtasun. Lost! leveraging the crowd for probabilistic visual self-localization. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2013.
- Jannik Fritsch, Tobias Kuehnl, and Andreas Geiger. A new performance measure and evaluation benchmark for road detection algorithms. In *Proc. IEEE Conf. on Intelligent Transportation Systems (ITSC)*, 2013.
- \* Andreas Geiger, Philip Lenz, and Raquel Urtasun. Are we ready for autonomous driving? The KITTI vision benchmark suite. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2012.
- Henning Lategahn, Andreas Geiger, Bernd Kitt, and Christoph Stiller. Motion-without-structure: Real-time multipose optimization for accurate visual odometry. In *Proc. IEEE Intelligent Vehicles Symposium (IV)*, 2012.
- Andreas Geiger, Frank Moosmann, Omer Car, and Bernhard Schuster. Automatic calibration of range and camera sensors using a single shot. In *Proc. IEEE International Conf. on Robotics and Automation (ICRA)*, 2012.
- Andreas Geiger, Christian Wojek, and Raquel Urtasun. Joint 3d estimation of objects and scene layout. In *Advances in Neural Information Processing Systems (NIPS)*, 2011.



Andreas Geiger, Martin Lauer, and Raquel Urtasun. A generative model for 3d urban scene understanding from movable platforms. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2011.

Andreas Geiger, Julius Ziegler, and Christoph Stiller. StereoScan: Dense 3D reconstruction in real-time. In *Proc. IEEE Intelligent Vehicles Symposium (IV)*, 2011.

Philip Lenz, Julius Ziegler, Andreas Geiger, and Martin Roser. Sparse scene flow segmentation for moving object detection in urban environments. In *Proc. IEEE Intelligent Vehicles Symposium (IV)*, 2011.

Henning Lategahn, Andreas Geiger, and Bernd Kitt. Visual slam for autonomous ground vehicles. In *Proc. IEEE International Conf. on Robotics and Automation (ICRA)*, 2011.

Andreas Geiger, Martin Roser, and Raquel Urtasun. Efficient large-scale stereo matching. In *Proc. of the Asian Conf. on Computer Vision (ACCV)*, 2010.

Andreas Geiger and Bernd Kitt. Objectflow: A descriptor for classifying traffic motion. In *Proc. IEEE Intelligent Vehicles Symposium (IV)*, 2010.

Bernd Kitt, Andreas Geiger, and Henning Lategahn. Visual odometry based on stereo image sequences with ransac-based outlier rejection scheme. In *Proc. IEEE Intelligent Vehicles Symposium (IV)*, 2010.

Andreas Geiger, Raquel Urtasun, and Trevor Darrell. Rank priors for continuous non-linear dimensionality reduction. In *Proc. IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2009.

Andreas Geiger. Monocular road mosaicing for urban environments. In *Proc. IEEE Intelligent Vehicles Symposium (IV)*, 2009.

Raquel Urtasun, David Fleet, Andreas Geiger, Jovan Popovic, Trevor Darrell, and Neil Lawrence. Topologically-constrained latent variable models. In *Proc. of the International Conf. on Machine Learning (ICML)*, 2008.

Julien Pilet, Andreas Geiger, Pascal Laguerre, Vincent Lepetit, and Pascal Fua. An all-in-one solution to geometric and photometric calibration. In *Proc. of the International Symposium on Mixed and Augmented Reality (ISMAR)*, 2006.

## **WORKSHOP PAPERS**

Moritz Menze, Christian Heipke, and Andreas Geiger. Joint 3d estimation of vehicles and scene flow. In *Proc. of the ISPRS Workshop on Image Sequence Analysis (ISA)*, 2015.

Martin Roser, Julian Kurz, and Andreas Geiger. Realistic modeling of water droplets for monocular adherent raindrop recognition using Bezier curves. In *Proc. of the Asian Conf. on Computer Vision (ACCV) Workshops*, 2010.

Martin Roser and Andreas Geiger. Video-based raindrop detection for improved image registration. In *Proc. of the IEEE International Conf. on Computer Vision (ICCV) Workshops*, 2009.

## **BOOKS**

H. Winner, S. Hakuli, F. Lotz, C. Singer, Andreas Geiger, et al. *Handbook of Driver Assistance Systems*. Springer Vieweg, 2015.

## **PHD THESIS**

Andreas Geiger. *Probabilistic Models for 3D Urban Scene Understanding from Movable Platforms*.  
PhD thesis, KIT, 2013.