

ANDREAS GEIGER

MPI Tübingen | Spemannstrasse 41 | 72076 Tübingen | Germany
(+49) 7071 601 1830 | andreas.geiger@tue.mpg.de | www.cvlibs.net

EMPLOYMENT

- ETH Zürich, Switzerland** *from September 2016*
Visiting Professor, Computer Vision and Geometry Group
Employment: 50% ETHZ / 50% MPI Tübingen
- MPI for Intelligent Systems, Tübingen, Germany** *from June 2016*
Independent Max-Planck Research Group Leader (W2), Autonomous Vision Group
- 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

- 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

- 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

- 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)

INDUSTRIAL EXPERIENCE

- Institut Dr. Foerster** *March - April 2006*
Software Developer
Reutlingen, Germany
Algorithms for numerical optimization of dipole magnet models for unexploded ordnance detection.
- ZF-Lenksysteme AG / KDT** *March - May 2005*
Software Developer
Filderstadt, Germany
Software for the analysis and development of the ZF Servotronic-F steering system.
- OPUS CAD/CAM Software** *June - October 2003*
Software Developer
Kirchheim unter Teck, Germany
Algorithms for automatic 3D path planning of cutter tool paths.

STUDENT SUPERVISION

- 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*
Semantic 3D Instance Segmentation
- 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*
Learning 3D Reconstruction
- N Dinesh Reddy, Ph.D. Intern (IIIT Hyderabad)** *March 2016 - now*
Learning 3D Reconstruction
- Joël Janai, Ph.D. Student (MPI Tübingen)** *July 2015 - now*
Efficient Representations for 3D Reconstruction and Recognition
- 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
- Philip Lenz, Ph.D. Student (KIT)** *August 2011 - November 2014*
Globally Optimal Multi-Object Tracking
- Miriam Schönbein, Ph.D. Student (KIT)** *November 2012 - July 2014*
Non-Central Omnidirectional Cameras and Applications

Philipp Bender, Master Thesis Visual Interpretation of Pedestrian Behavior in inner-city Traffic Scenes	<i>May - November 2011</i>
Bernhard Schuster, Master Thesis Automatic Multiple Camera Calibration	<i>April - October 2011</i>
Michael Ranjbar, Master Thesis Real-time Parallelization of an efficient Stereo Matching Algorithm using CUDA	<i>February - July 2011</i>
Gabriela Lopez, Bachelor Thesis A comparative Study of Kalman Filters for non-linear State Estimation	<i>October 2010 - April 2011</i>
Sören Bevier, Master Thesis A voting-based Method for Pedestrian Detection	<i>June - December 2010</i>
Daniel Wilde, Master Thesis A Comparison of Algorithms for Visual Detection of Road Markings	<i>November 2008 - May 2009</i>

AWARDS AND SCHOLARSHIPS

3DV Best Paper Award, € 600 International Conference on 3D Vision, Lyon, France	<i>October 2015</i>
GCPR Best Paper Award, € 1,500 German Conference on Pattern Recognition, Aachen, Germany	<i>October 2015</i>
Associate Member of the Max Planck ETH Center for Learning Systems MPI for Intelligent Systems in Tübingen and ETH Zürich	<i>2015-2016</i>
Elected Ombudsperson at the Intelligent Systems Institute Tübingen Max Planck Institute for Intelligent Systems, Tübingen, Germany	<i>2015-2018</i>
KIT Doctoral Award (Best Ph.D. Thesis), € 2,000 Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany	<i>February 2015</i>
Ernst-Schoemperlen Award (Research in Mobility Systems), € 5,000 Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany	<i>November 2014</i>
CVPR Best Paper Runner Up Award, \$3,000 International Conference on Computer Vision and Pattern Recognition, Portland, USA	<i>June 2013</i>
1st place in the GCDC competition with Team AnnieWAY Grand Cooperative Driving Challenge (GCDC), Helmond, Netherlands	<i>May 2011</i>
IV Best Dissertation Proposal Award Intelligent Vehicles Symposium, San Diego, USA	<i>June 2010</i>
DAAD and MIT scholarships, € 10,000 Massachusetts Institute of Technology	<i>February - July 2008</i>
ERASMUS scholarship, € 1,000 Ecole Polytechnique Fédérale de Lausanne	<i>September 2005 - February 2006</i>
Award of the German Physical Association	<i>June 2002</i>
Ferry Porsche Award	<i>June 2002</i>

INVITED TALKS

ECCV Workshop on Multi-target Tracking: Amsterdam, Netherlands	<i>9.10.2016</i>
ETH Zürich: Computer Vision and Geometry Lab	<i>12.05.2016</i>
University Hannover: Ringvorlesung Navigation und Umweltrobotik	<i>11.05.2016</i>
TU Dresden: Computer Vision Lab	<i>22.04.2016</i>
MPI Tübingen: Special Symposium on Intelligent Systems	<i>16.03.2016</i>
Scenes from Video Workshop: Colchagua Valley, Chile	<i>17.12.2015</i>
ICCV Workshop on Autonomous Driving: Santiago, Chile	<i>12.12.2015</i>

Google Research: Mountain View, USA	25.11.2015
Robert Bosch GmbH: Leonberg, Germany	23.11.2015
Dagstuhl Seminar: Dagstuhl, Germany	09.11.2015
Daimler AG: Böblingen, Germany	27.08.2015
RSS Workshop on SLAM: Rome, Italy	17.07.2015
RWTH Aachen: GCPR PC Meeting	09.07.2015
CVPR Workshop on Performance Metrics: Boston, USA	11.06.2015
Karlsruhe Institute of Technology: Department of Economics and Management	30.04.2015
MPI Tübingen: ETH/MPI Vision Workshop	25.11.2014
MPI Stuttgart: Tag der offenen Tür	05.04.2014
ETH Zürich: Photogrammetry and Remote Sensing Lab	27.03.2014
Robert Bosch GmbH: Fahrzeugsicherheits- und Assistenzsysteme, Stuttgart	18.06.2013
Karlsruhe Institute of Technology: Ringvorlesung des Graduiertenkolleg 1194	03.05.2013
University of Illinois at Urbana-Champaign: Department of Computer Science	30.11.2012
New York University: Vision, Learning and Graphics Group	29.11.2012
Carnegie Mellon University: The Robotics Institute	28.11.2012
MIT: Computer Science and Artificial Intelligence Laboratory	27.11.2012
MPI Tübingen: Perceiving Systems Department	05.11.2012
TU Darmstadt: Interactive Graphics Systems Group	01.11.2012
RWTH Aachen: UMIC Research Centre Computer Vision Group	26.10.2012
ETH Zürich: Computer Vision and Geometry Lab	22.10.2012
University of Oxford: Robotics Research Group	24.09.2012
CVPR Workshop on Point Cloud Processing: Providence, USA	16.06.2012
Toyota Technological Institute at Chicago	19.07.2011
Robert Bosch GmbH: Computer Vision Systems, Hildesheim	14.01.2011
MPI Saarbrücken: Computer Vision and Multimodal Computing Department	06.12.2010
ETH Zürich: Computer Vision and Geometry Lab	27.05.2010

PROFESSIONAL SERVICE

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

ASSOCIATE EDITOR: IEEE TPAMI 2016-now

AREA CHAIR: ECCV 2016

SESSION CHAIR: ICRA 2012, GCPR 2015

ORGANIZATION OF WORKSHOPS AND SPECIAL SESSIONS

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

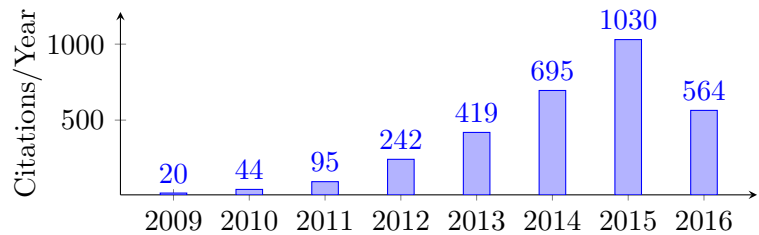
GCPR 2013: Special Session on Robust Optical Flow *September 2013*
Jointly with Andrés Bruhns, Uwe Franke and Daniel Kondermann

PUBLICATIONS

SCIENTIFIC IMPACT

CITATION INDICES

Citations: 3138
h-Index: 21
i10-Index: 27
Source: scholar.google.com
Accessed: 26.07.2016



PUBLICATIONS

All publications are peer-reviewed conference or journal publications and top tier in the respective field (computer vision, machine learning, robotics, intelligent vehicles). 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. The three **most important publications** are marked in red. **Award papers** are marked in blue.

JOURNAL PAPERS

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

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 Lager, 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.