Author: J. Sturm

List of Publications

Journal Articles

[J1] J. Engel, J. Sturm and D. Cremers,
Scale-Aware Navigation of a Low-Cost Quadrocopter with a Monocular Camera,

[J2] F. Endres, J. Hess, J. Sturm, D. Cremers and W. Burgard,
3D Mapping with an RGB-D Camera,

[J3] Z. Liu, M. Beetz, D. Cremers, J. Gall, W. Li, D. Pangercic, J. Sturm and Y.-W. Tai,
Introduction to the special issue on visual understanding and applications with RGB-D cameras,

[J4] F. Endres, J. Hess, N. Engelhard, J. Sturm and W. Burgard,
Online-6D-SLAM für RGB-D-Sensoren,
at - Automatisierungstechnik, 60: 270-278, May 2012.

[J5] S. Chitta, J. Sturm, M. Piccoli and W. Burgard,
Tactile Sensing for Mobile Manipulation,
IEEE Transactions on Robotics (T-RO), 2011.

A Probabilistic Framework for Learning Kinematic Models of Articulated Objects,
Journal on Artificial Intelligence Research (JAIR), 41: 477-626, August 2011.

[J7] J. Sturm, C. Plagemann and W. Burgard,
Body schema learning for robotic manipulators from visual self-perception,

[J8] J. Sturm and A. Visser,
An appearance-based visual compass for mobile robots,

Books

[B1] J. Sturm,
Approaches to Probabilistic Model Learning for Mobile Manipulation Robots,
Springer 2013.

Book Chapters

[BC1] J. Sturm, C. Plagemann and W. Burgard,
Body Schema Learning,

Conference and Workshop Papers
[C1] M. Dzitsiuk, J. Sturm, R. Maier, L. Ma and D. Cremers,
De-noising, Stabilizing and Completing 3D Reconstructions On-the-go using Plane Priors,

[C2] F. Steinbruecker, J. Sturm and D. Cremers,
Volumetric 3D Mapping in Real-Time on a CPU,

[C3] H. Alvarez, L.M. Paz, J. Sturm and D. Cremers,
Collision Avoidance for Quadrotors with a Monocular Camera,

[C4] R. Maier, J. Sturm and D. Cremers,
Submap-based Bundle Adjustment for 3D Reconstruction from RGB-D Data,
*German Conference on Pattern Recognition (GCPR)*, Münster, Germany, September 2014, Oral Presentation.

[C5] O. Dunkley, J. Engel, J. Sturm and D. Cremers,
Visual-Inertial Navigation for a Camera-Equipped 25g Nano-Quadrotor,

[C6] D. Bender, M. Schikora, J. Sturm and D. Cremers,
INS-Camera Calibration without Ground Control Points,

[C7] C. Kerl, M. Souiai, J. Sturm and D. Cremers,
Towards Illumination-invariant 3D Reconstruction using ToF RGB-D Cameras,

[C8] C. Kerl, J. Sturm and D. Cremers,
Robust Odometry Estimation for RGB-D Cameras,

[C9] E. Bylow, J. Sturm, C. Kerl, F. Kahl and D. Cremers,
Real-Time Camera Tracking and 3D Reconstruction Using Signed Distance Functions,

[C10] E. Bylow, J. Sturm, C. Kerl, F. Kahl and D. Cremers,
Direct Camera Pose Tracking and Mapping With Signed Distance Functions,
*Demo Track of the RGB-D Workshop on Advanced Reasoning with Depth Cameras at the Robotics: Science and Systems Conference (RSS)*, June 2013.

[C11] J. Sturm and W. Burgard,
Learning Probabilistic Models for Mobile Manipulation Robots,
*Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, Track on Best papers in Sister Conferences, 2013.

[C12] C. Kerl, J. Sturm and D. Cremers,
Dense Visual SLAM for RGB-D Cameras,
[C13] T. Naseer, J. Sturm and D. Cremers, 
FollowMe: Person Following and Gesture Recognition with a Quadrocopter, 

[C14] M. Klodt, J. Sturm and D. Cremers, 
Scale-Aware Object Tracking with Convex Shape Constraints on RGB-D Images, 
German Conference on Pattern Recognition (GCPR), Saarbrücken, Germany, September 2013.

[C15] J. Sturm, E. Bylow, F. Kahl and D. Cremers, 
Dense Tracking and Mapping with a Quadrocopter, 
Unmanned Aerial Vehicle in Geomatics (UAV-g), Rostock, Germany, September 2013.

[C16] D. Bender, M. Schikora, J. Sturm and D. Cremers, 
Graph-based bundle adjustment for INS-camera calibration, 
Unmanned Aerial Vehicle in Geomatics (UAV-g), Rostock, Germany, September 2013, 
Best research paper award.

[C17] J. Sturm, E. Bylow, F. Kahl and D. Cremers, 
CopyMe3D: Scanning and Printing Persons in 3D, 
German Conference on Pattern Recognition (GCPR), Saarbrücken, Germany, September 2013.

[C18] J. Engel, J. Sturm and D. Cremers, 
Semi-Dense Visual Odometry for a Monocular Camera, 
IEEE International Conference on Computer Vision (ICCV), Sydney, Australia, December 2013.

[C19] F. Steinbruecker, C. Kerl, J. Sturm and D. Cremers, 
Large-Scale Multi-Resolution Surface Reconstruction from RGB-D Sequences, 
IEEE International Conference on Computer Vision (ICCV), Sydney, Australia, 2013.

[C20] T. Naseer, J. Sturm and D. Cremers, 
Interactive Person Following and Gesture Recognition with a Flying Robot, 
Proc. of the Assistance and Service Robotics Workshop (ASROB) at the IEEE Int. Conf. on Intelligent Robots and Systems (IROS), Nov. 2013.

[C21] F. Endres, J. Hess, N. Engelhard, J. Sturm, D. Cremers and W. Burgard, 
An Evaluation of the RGB-D SLAM System, 

[C22] T. Ruehr, J. Sturm, D. Pangerlic, M. Beetz and D. Cremers, 
A Generalized Framework for Opening Doors and Drawers in Kitchen Environments, 

[C23] L. Zhang, J. Sturm, D. Cremers and D. Lee, 
Real-Time Human Motion Tracking using Multiple Depth Cameras, 

[C24] J. Engel, J. Sturm and D. Cremers, 
Camera-Based Navigation of a Low-Cost Quadrocopter, 
[C25] J. Sturm, N. Engelhard, F. Endres, W. Burgard and D. Cremers,  
A Benchmark for the Evaluation of RGB-D SLAM Systems,  

[C26] J. Engel, J. Sturm and D. Cremers,  
Accurate Figure Flying with a Quadrocopter Using Onboard Visual and Inertial Sensing,  

[C27] J. Sturm, W. Burgard and D. Cremers,  
Evaluating Egomotion and Structure-from-Motion Approaches Using the TUM RGB-D Benchmark,  

[C28] J. Hess, J. Sturm and W. Burgard,  
Learning the State Transition Model to Efficiently Clean Surfaces with Mobile Manipulation Robots,  
Proc. of the Workshop on Manipulation under Uncertainty at the IEEE Int. Conf. on Robotics and Automation (ICRA), Shanghai, China, May 2011.

[C29] N. Engelhard, F. Endres, J. Hess, J. Sturm and W. Burgard,  
Real-time 3D visual SLAM with a hand-held camera,  

Towards a benchmark for RGB-D SLAM evaluation,  

[C31] F. Steinbruecker, J. Sturm and D. Cremers,  
Real-Time Visual Odometry from Dense RGB-D Images,  
Workshop on Live Dense Reconstruction with Moving Cameras at the Intl. Conf. on Computer Vision (ICCV), 2011.

Mobile Manipulation of Kitchen Containers,  
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[C33] J. Sturm, K. Konolige, C. Stachniss and W. Burgard,  
3D Pose Estimation, Tracking and Model Learning of Articulated Objects from Dense Depth Video using Projected Texture Stereo,  
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[C34] J. Sturm, K. Konolige, C. Stachniss and W. Burgard,
Vision-based Detection for Learning Articulation Models of Cabinet Doors and Drawers in Household Environments,

[C35] S. Chitta, M. Piccoli and J. Sturm,
Tactile Object Class and Internal State Recognition for Mobile Manipulation,

[C36] J. Sturm, A. Jain, C. Stachniss, C. C. Kemp and W. Burgard,
Operating Articulated Objects Based on Experience,

[C37] C. Eppner, J. Sturm, M. Bennewitz, C. Stachniss and W. Burgard,
Imitation Learning with Generalized Task Descriptions,

[C38] H. Schulz, L. Ott, J. Sturm and W. Burgard,
Learning Kinematics from Direct Self-Observation Using Nearest-Neighbor Methods,
*Proc. of the German Workshop on Robotics*, June 2009.

Towards Understanding Articulated Objects,

[C40] J. Sturm, V. Pradeep, C. Stachniss, C. Plagemann, K. Konolige and W. Burgard,
Learning Kinematic Models for Articulated Objects,
*Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, July 2009.

[C41] D. Meyer-Delius, J. Sturm and W. Burgard,
Regression-Based Online Situation Recognition for Vehicular Traffic Scenarios,

[C42] A. Schneider, J. Sturm, C. Stachniss, M. Reisert, H. Burkhardt and W. Burgard,
Object Identification with Tactile Sensors Using Bag-of-Features,

[C43] J. Sturm, C. Plagemann and W. Burgard,
Unsupervised Body Scheme Learning through Self-Perception,

[C44] J. Sturm, C. Plagemann and W. Burgard,
Adaptive Body Scheme Models for Robust Robotic Manipulation,

[C45] J. Sturm, C. Plagemann and W. Burgard,
Body Scheme Learning and Life-Long Adaptation for Robotic Manipulation,
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[C46] D. A. van Sand M. de Greef, J. Sturm and A. Visser,
Autonomous Color Learning in an Artificial Environment,

[C47] J. Sturm, P. van Rossum and A. Visser,
Panoramic Localization in the 4-Legged League,

[C48] A. Visser, J. Sturm and F.C.A. Groen,
Robot companion localization at home and in the office,

[C49] A. Visser, P. van Rossum, J. Westra, J. Sturm and D. A. van Sand M. de Greef,
Dutch AIBO Team at RoboCup 2006,

[C50] N. Wijngaards, F. Dignum, P. Jonker, T. de Ridder, A. Visser, S. Leijnen and J. Sturm,
Dutch AIBO Team at RoboCup 2005,

PhDThesis

[PhD1] J. Sturm,
Approaches to Probabilistic Model Learning for Mobile Manipulation Robots,
University of Freiburg, Germany, May 2011, Received the Artificial Intelligence Dissertation Award 2011 (ECCAI) and the Wolfgang-Genter-Award 2011 (University of Freiburg); Finalist at the Georges-Giralt-Award 2012 (EURON); Selected for the Best Paper Track at IJCAI 2013.

MastersThesis

[M1] J. Sturm,
An appearance-based Visual Compass for Mobile Robots,
University of Amsterdam, the Netherlands, Dec. 2006.

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[R1] A. Visser, J. Sturm, P. van Rossum, J. Westra and T. Bink,
Dutch Aibo Team: Technical Report RoboCup 2006,

[R2] J. Sturm, A. Visser and N. Wijngaards,
Dutch Aibo Team: Technical Report RoboCup 2005,