2019

Journal Articles

[J1] Haefner, B., Ye, Z., Gao, M., Wu, T., Queau, Y., Cremers and D.,
Variational Uncalibrated Photometric Stereo under General Lighting,

[J2] Haefner, B., Peng, S., Verma, A., Queau, Y., Cremers and D.,
Photometric Depth Super-Resolution,

[J3] F. Pasa, V. Golkov, F. Pfeiffer, D. Cremers and D. Pfeiffer,
Efficient Deep Network Architectures for Fast Chest X-Ray Tuberculosis
Screening and Visualization,

[J4] R. Wang, N. Yang, J. Stueckler and D. Cremers,
DirectShape: Photometric Alignment of Shape Priors for Visual Vehicle Pose
and Shape Estimation,

[J5] J. Schuchardt, V. Golkov and D. Cremers,
Learning to Evolve,

A Non-invasive 3D Body Scanner and Software Tool towards Analysis of Scoliosis,

[J7] L. von Stumberg, P. Wenzel, Q. Khan and D. Cremers,
GN-Net: The Gauss-Newton Loss for Deep Direct SLAM,

[J8] M. Eisenberger, Z. Lähner and D. Cremers,
Smooth Shells: Multi-Scale Shape Registration with Functional Maps,

Conference and Workshop Papers

[C1] P. Swazinna, V. Golkov, I. Lipp, E. Sgarlata, V. Tomassini, D. K. Jones and D. Cremers,
Negative-Unlabeled Learning for Diffusion MRI,
2019.

[C2] T. Möllenhoff and D. Cremers,
Lifting Vectorial Variational Problems: A Natural Formulation based on Geometric Measure Theory and Discrete Exterior Calculus,
2019, Oral Presentation.

[C3] E. Laude, T. Wu and D. Cremers,
Optimization of Inf-Convolution Regularized Nonconvex Composite Problems,
International Conference on Artificial Intelligence and Statistics (AISTATS), 2019.
[C4] V. Usenko, N. Demmel, D. Schubert, J. Stueckler and D. Cremers,
Visual-Inertial Mapping with Non-Linear Factor Recovery,

2018
Journal Articles

[J1] J. Engel, V. Koltun and D. Cremers,
Direct Sparse Odometry,
March 2018.

[J2] N. Yang, R. Wang, X. Gao and D. Cremers,
Challenges in Monocular Visual Odometry: Photometric Calibration, Motion
Bias and Rolling Shutter Effect,

[J3] Queau, Y., Durix, B., Wu, T., Cremers, D., Lauze, F., Durou and J.-D.,
LED-based Photometric Stereo: Modeling, Calibration and Numerical Solu-
tion,

[J4] P. Bergmann, R. Wang and D. Cremers,
Online Photometric Calibration of Auto Exposure Video for Realtime Visual
Odometry and SLAM,
$\textit{IEEE Robotics and Automation Letters (RA-L)}$, 3: 627-634, April 2018, ICRA’18 Best
Vision Paper Award - Finalist.

[J5] E. Aljalbout, V. Golkov, Y. Siddiqui, M. Strobel and D. Cremers,
Clustering with Deep Learning: Taxonomy and New Methods,

[J6] A. Vasilev, V. Golkov, M. Meissner, I. Lipp, E. Sgarlata, V. Tomassini, D. K. Jones and
D. Cremers,
q-Space Novelty Detection with Variational Autoencoders,

[J7] L. Ma., J. Stueckler, T. Wu and D. Cremers,
Detailed Dense Inference with Convolutional Neural Networks via Discrete
Wavelet Transform,
Aug 2018.

[J8] Tjaden, Henning, Schwanecke, Ulrich, Schömer, Elmar, Cremers and Daniel,
A Region-based Gauss-Newton Approach to Real-Time Monocular Multiple
Object Tracking,

Conference and Workshop Papers

[C1] Caner Hazirbas, Sebastian Georg Soyer, Maximilian Christian Staab, Laura Leal-Taixe
and Daniel Cremers,
Deep Depth From Focus,
$\textit{Asian Conference on Computer Vision (ACCV)}$, December 2018.
[C2] E. Laude, T. Wu and D. Cremers, 
A Nonconvex Proximal Splitting Algorithm under Moreau-Yosida Regularization, 
*International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2018.

[C3] T. Möllenhoff, Z. Ye, T. Wu and D. Cremers, 
Combinatorial Preconditioners for Proximal Algorithms on Graphs, 
*International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2018.

D. K. Jones and D. Cremers, 
q-Space Novelty Detection in Short Diffusion MRI Scans of Multiple Sclerosis, 2018.

Pasa, F. Pfeiffer, G. J. Biessels, A. Leemans and D. Cremers, 
q-Space Deep Learning for Alzheimer’s Disease Diagnosis: Global Prediction and 
Weakly-Supervised Localization, 2018.

[C6] B. T. Do, V. Golkov, G. E. Gürel and D. Cremers, 
Precursor microRNA Identification Using Deep Convolutional Neural Networks, 
2018.

[C7] P. Haeusser, J. Plapp, V. Golkov, E. Aljalbout and D. Cremers, 
Associative Deep Clustering - Training a Classification Network with no Labels, 
*Proc. of the German Conference on Pattern Recognition (GCPR)*, October 2018.

[C8] Nikolaus Mayer, Eddy Ilg, Philipp Fischer, Caner Hazirbas, Daniel Cremers, Alexey Dosovitskiy and Thomas Brox, 
What Makes Good Synthetic Training Data for Learning Disparity and Optical Flow Estimation?, 
September 2018.

[C9] T. Frerix, T. Möllenhoff, M. Moeller and D. Cremers, 
Proximal Backpropagation, 

[C10] L. von Stumberg, V. Usenko and D. Cremers, 
Direct Sparse Visual-Inertial Odometry using Dynamic Marginalization, 
May 2018.

The TUM VI Benchmark for Evaluating Visual-Inertial Odometry, 
October 2018.

[C12] X. Gao, R. Wang, N. Demmel and D. Cremers, 
LDSO: Direct Sparse Odometry with Loop Closure, 
*iros*, October 2018.

[C13] Z. Lähner, D. Cremers and T. Tung, 
DeepWrinkles: Accurate and Realistic Clothing Modeling, 
September 2018, *Oral Presentation*. 

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[C14] D. Schubert, N. Demmel, V. Usenko, J. Stueckler and D. Cremers,
Direct Sparse Odometry With Rolling Shutter,
September 2018, Oral Presentation.

[C15] V. Usenko, N. Demmel and D. Cremers,
The Double Sphere Camera Model,

[C16] I. Chiotellis, F. Zimmermann, D. Cremers and R. Triebel,
Incremental Semi-Supervised Learning from Streams for Object Classification,

[C17] P. Wenzel, Q. Khan, D. Cremers and L. Leal-Taixe,
Modular Vehicle Control for Transferring Semantic Information Between Weather Conditions Using GANs,
Conference on Robot Learning (CoRL), 2018.

[C18] Haefner, B., Queue, Y., Möllenhoff, T., Cremers and D.,
Fight ill-posedness with ill-posedness: Single-shot variational depth super-resolution from shading,

2017

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[J1] V. Golkov, M. J. Skwark, A. Mirchev, G. Dikov, A. R. Geanes, J. Mendenhall, J. Meiler and D. Cremers,
3D Deep Learning for Biological Function Prediction from Physical Fields,

Genetic defects in s-spectrin and tau sensitize C. elegans axons to movement-induced damage via torque-tension coupling,

Tau Like Proteins Reduce Torque Generation in Microtubule Bundles,

[J4] J. Kukacka, V. Golkov and D. Cremers,
Regularization for Deep Learning: A Taxonomy,

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[C1] M. Jaimez, T. J. Cashman, A. Fitzgibbon, J. Gonzalez-Jimenez and D. Cremers,
An Efficient Background Term for 3D Reconstruction and Tracking with Smooth Subdivision Surface Models,
2017.
Author: Cremers

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[C2] L. Ma, J. Stueckler, C. Kerl and D. Cremers, 
Multi-View Deep Learning for Consistent Semantic Mapping with RGB-D Cameras, 
Vancouver, Canada, Sep 2017.

[C3] Vestner, M., Litman, R., Rodola, E., Bronstein, A., Cremers and D., 
Product Manifold Filter: Non-Rigid Shape Correspondence via Kernel Density Estimation in the Product Space, 
2017.

[C4] M. Dzitsiuk, J. Sturm, R. Maier, L. Ma and D. Cremers, 
De-noising, Stabilizing and Completing 3D Reconstructions On-the-go using Plane Priors, 

[C5] L. von Stumberg, V. Usenko, J. Engel, J. Stueckler and D. Cremers, 
From Monocular SLAM to Autonomous Drone Exploration, 
European Conference on Mobile Robots (ECMR), September 2017.

[C6] Florian Walch, Caner Hazirbas, Laura Leal-Taixe, Torsten Sattler, Sebastian Hilsenbeck and Daniel Cremers, 
Image-based localization using LSTMs for structured feature correlation, 
October 2017.

Establishment of an interdisciplinary workflow of machine learning-based Radiomics in sarcoma patients, 

[C8] Queau, Y., Pizenberg, M., Durou, J.-D., Cremers and D., 
Microgeometry capture and RGB albedo estimation by photometric stereo without demosaicing, 
International Conference on Quality Control by Artificial Vision (QCAV), 2017.

[C9] P. Haeusser, A. Mordvintsev and D. Cremers, 
Learning by Association - A versatile semi-supervised training method for neural networks, 
2017.

[C10] V. Usenko, L. von Stumberg, A. Pangerlic and D. Cremers, 
Real-Time Trajectory Replanning for MAVs using Uniform B-splines and a 3D Circular Buffer, 
Vancouver, Canada, Sep 2017.

[C11] Tim Meinhardt, Michael Moeller, Caner Hazirbas and Daniel Cremers, 
Learning Proximal Operators: Using Denoising Networks for Regularizing Inverse Imaging Problems, 
October 2017.

One-Shot Video Object Segmentation, 
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Dense Multi-view 3D-reconstruction Without Dense Correspondences,

[C14] P. Haeusser, T. Frerix, A. Mordvintsev and D. Cremers,
*Associative Domain Adaptation*,
2017.

*Efficient Deformable Shape Correspondence via Kernel Matching*,

[C16] R. Maier, K. Kim, D. Cremers, J. Kautz and M. Niessner,
*Intrinsic3D: High-Quality 3D Reconstruction by Joint Appearance and Geometry Optimization with Spatially-Varying Lighting*,

[C17] T. Möllenhoff and D. Cremers,
*Sublabel-Accurate Discretization of Nonconvex Free-Discontinuity Problems*,

[C18] Queau, Y., Melou, J., Castan, F., Cremers, D., Durou and J.-D.,
*A Variational Approach to Shape-from-shading Under Natural Illumination*,

[C19] F. Bernard, F. R. Schmidt, J. Thunberg and D. Cremers,
*A Combinatorial Solution to Non-Rigid 3D Shape-to-Image Matching*,

[C20] Peng, S., Haefner, B., Queau, Y., Cremers and D.,
*Depth Super-Resolution Meets Uncalibrated Photometric Stereo*,
*International Conference on Computer Vision Workshops (ICCVW)*, 2017, *Oral Presentation at ICCV Workshop on Color and Photometry in Computer Vision*.

**2016**

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[J1] L. Cosmo, E. Rodola, A. Albarelli, F. Memoli and D. Cremers,
*Consistent Partial Matching of Shape Collections via Sparse Modeling*,

*Anisotropic Diffusion Descriptors*,

[J3] V. Golkov, A. Dosovitskiy, J. I. Sperl, M. I. Menzel, M. Czisch, P. Sämann, T. Brox and D. Cremers,
*q-Space Deep Learning: Twelve-Fold Shorter and Model-Free Diffusion MRI Scans*,
35: 2016, *Special Issue on Deep Learning*. 
Author: Cremers

List of Publications

[J4] O. Litany, E. Rodola, A. M. Bronstein, M. M. Bronstein and D. Cremers, 
Non-Rigid Puzzles, 

[J5] Vestner, M., Litman, R., Bronstein, A., Rodola, E., Cremers and D., 
Bayesian Inference of Bijective Non-Rigid Shape Correspondence, 

Book Chapters

[BC1] Vestner, M., Rodola, E., Windheuser, T., Bulo, Rota Bulo, S., Cremers and D., 
Applying Random Forests to the Problem of Dense Non-rigid Shape Correspondence, 

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[C1] N.Mayer, E.Ilg, P.Haeusser, P.Fischer, D.Cremers, A.Dosovitskiy and T.Brox, 
A Large Dataset to Train Convolutional Networks for Disparity, Optical Flow, and Scene Flow Estimation, 
IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2016.

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Prague, Czech Republic, April 2016.

[C3] V. Golkov, M. J. Skwark, A. Golkov, A. Dosovitskiy, T. Brox, J. Meiler and D. Cremers, 
Protein Contact Prediction from Amino Acid Co-Evolution Using Convolutional Networks for Graph-Valued Images, 
Barcelona, Spain, December 2016.

[C4] Z. Lähner, E. Rodola, F. R. Schmidt, M. M. Bronstein and D. Cremers, 
Efficient Globally Optimal 2D-to-3D Deformable Shape Matching, 
May 2016.

[C5] A. Narr, R. Triebel and D. Cremers, 
Stream-based Active Learning for Efficient and Adaptive Classification of 3D Objects, 
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SHREC16: Matching of Deformable Shapes with Topological Noise, 
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Sublabel-Accurate Relaxation of Nonconvex Energies, 
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[C9] L. Ma, C. Kerl, J. Stueckler and D. Cremers,
CPA-SLAM: Consistent Plane-Model Alignment for Direct RGB-D SLAM,
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[C10] J. Engel, V. Usenko and D. Cremers,
A Photometrically Calibrated Benchmark For Monocular Visual Odometry,

[C11] J. Engel, V. Koltun and D. Cremers,
Direct Sparse Odometry,

[C12] E. Laude, T. Möllenhoff, M. Moeller, J. Lellmann and D. Cremers,
Sublabel-Accurate Convex Relaxation of Vectorial Multilabel Energies,
October 2016.

[C13] T. Windheuser and D. Cremers,
A Convex Solution to Spatially-Regularized Correspondence Problems,
October 2016.

[C14] S. Sharifzadeh, I. Chiotellis, R. Triebel and D. Cremers,
Learning to Drive using Inverse Reinforcement Learning and Deep Q-Networks,
NIPS Workshops, December 2016.

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[J1] J. Diebold, C. Nieuwenhuis and D. Cremers,
Midrange Geometric Interactions for Semantic Segmentation,
2015.

[J2] J. Diebold, S. Tari and D. Cremers,
The Role of Diffusion in Figure Hunt Games,

[J3] S. Madhogaria, P. M. Baggenstoss, M. Schikora, W. Koch and D. Cremers,
Car detection by fusion of HOG and causal MRF,

[J4] M. Klodt, K. Herzog, R. Töpfer and D. Cremers,
Field phenotyping of grapevine growth using dense stereo reconstruction,

[J5] E. Rodola, A. Albarelli, D. Cremers and A. Torsello,
A Simple and Effective Relevance-based Point Sampling for 3D Shapes,

[J6] R. Mecca, E. Rodola and D. Cremers,
Realistic Photometric Stereo Using Partial Differential Irradiance Equation Ratios,

[J7] T. Möllenhoff, E. Strekalovskiy, M. Möller and D. Cremers,
The Primal-Dual Hybrid Gradient Method for Semiconvex Splittings,
Book Chapters


Conference and Workshop Papers


[C18] E. Rodola, M. Moeller and D. Cremers, *Point-wise Map Recovery and Refinement from Functional Correspondence*, Aachen, Germany, 2015, Received the Best Paper Award.


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List of Publications

[C22] J. Stühmer, S. Nowozin, A. Fitzgibbon, R. Szeliski, T. Perry, S. Acharya, D. Cremers and J. Shotton,
Model-Based Tracking at 300Hz using Raw Time-of-Flight Observations,
Santiago, Chile, 2015.

2014
Journal Articles

[J1] B. Goldluecke, M. Aubry, K. Kolev and D. Cremers,
A Super-resolution Framework for High-Accuracy Multiview Reconstruction,

[J2] E. Strekalovskiy, A. Chambolle and D. Cremers,
Convex Relaxation of Vectorial Problems with Coupled Regularization,

[J3] J. Engel, J. Sturm and D. Cremers,
Scale-Aware Navigation of a Low-Cost Quadrocopter with a Monocular Camera,

[J4] E. Rodola, S. Rota Bulo and D. Cremers,
Robust Region Detection via Consensus Segmentation of Deformable Shapes,

Books

[B1] D. Cremers, I. Reid, H. Saito and M.-S. Yang (Editors),
Computer Vision: ACCV 2014,
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Book Chapters

Joint Super-Resolution Using Only One Anisotropic Low-Resolution Image per q-Space Coordinate,
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Conference and Workshop Papers

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2014.

Semi-Joint Reconstruction for Diffusion MRI Denoising Imposing Similarity of Edges in Similar Diffusion-Weighted Images,
2014.
Improved Diffusion Kurtosis Imaging and Direct Propagator Estimation Using
6-D Compressed Sensing,
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[C4] D. Weikersdorfer, D. B. Adrian, D. Cremers and J. Conrad,
Event-based 3D SLAM with a depth-augmented dynamic vision sensor,
2014.

[C5] F. Steinbruecker, J. Sturm and D. Cremers,
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Hongkong, China, 2014.

[C6] E. Rodola, S. Rota Bulo, T. Windheuser, M. Vestner and D. Cremers,
Dense Non-Rigid Shape Correspondence Using Random Forests,
2014.

[C7] Y. Kee, M. Souiai, D. Cremers and J. Kim,
Sequential Convex Relaxation for Mutual-Information-Based Unsupervised
Figure-Ground Segmentation,
2014.

[C8] H. Alvarez, L.M. Paz, J. Sturm and D. Cremers,
Collision Avoidance for Quadrotors with a Monocular Camera,

[C9] J. Engel, T. Schöps and D. Cremers,
LSD-SLAM: Large-Scale Direct Monocular SLAM,
September 2014, Oral Presentation.

[C10] T. Schöps, J. Engel and D. Cremers,
Semi-Dense Visual Odometry for AR on a Smartphone,
September 2014, Best Short Paper Award.

[C11] T. Windheuser, M. Vestner, E. Rodola, R. Triebel and D. Cremers,
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2014.

[C12] M. Strobel, J. Diebold and D. Cremers,
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[C13] R. Maier, J. Sturm and D. Cremers,
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[C14] T. Gurdan, M. R. Oswald, D. Gurdan and D. Cremers,
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Münster, Germany, Vol. 36, September 2014.

[C15] M. R. Oswald and D. Cremers,
Surface Normal Integration for Convex Space-time Multi-view Reconstruction,
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[C16] C. Nieuwenhuis, S. Hawe, M. Kleinsteuber and D. Cremers,
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2014.

[C17] M. R. Oswald, J. Stühmer and D. Cremers,
Generalized Connectivity Constraints for Spatio-temporal 3D Reconstruction,

[C18] E. Strekalovskiy and D. Cremers,
Real-Time Minimization of the Piecewise Smooth Mumford-Shah Functional,

[C19] A. Kanezaki, E. Rodola, D. Cremers and T. Harada,
[Taiou tenshuugou ruijido gakushuu wo mochiita goutai-higoutai buttai kenshutsu],

[C20] M. Andreux, E. Rodola, M. Aubry and D. Cremers,
Anisotropic Laplace-Beltrami Operators for Shape Analysis,
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[C21] O. Dunkley, J. Engel, J. Sturm and D. Cremers,
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[C22] R. Triebel, J. Stühmer, M. Souiai and D. Cremers,
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[C23] S. Debnath, S. S. Baishya, R. Triebel, V. Dutt and D. Cremers,
Environment-adaptive Learning: How Clustering Helps to Obtain Good Training Data,

[C24] A. Kanezaki, E. Rodola, D. Cremers and T. Harada,
Learning Similarities for Rigid and Non-Rigid Object Detection,
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[C25] D. Bender, M. Schikora, J. Sturm and D. Cremers,
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[C26] C. Kerl, M. Souiai, J. Sturm and D. Cremers,
Towards Illumination-invariant 3D Reconstruction using ToF RGB-D Cameras,
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[C27] F. R. Schmidt, T. Windheuser, U. Schlickewei and D. Cremers,
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2013

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[J1] C. Nieuwenhuis and D. Cremers,
Spatially Varying Color Distributions for Interactive Multi-Label Segmentation,

[J2] C. Nieuwenhuis, E. Toeppe and D. Cremers,
A Survey and Comparison of Discrete and Continuous Multi-label Optimization Approaches for the Potts Model,

[J3] B. Goldluecke, E. Strekalovskiy and D. Cremers,
Tight Convex Relaxations for Vector-Valued Labeling,

[J4] F. Endres, J. Hess, J. Sturm, D. Cremers and W. Burgard,
3D Mapping with an RGB-D Camera,

[J5] Liu, Z., Beetz, M., Cremers, D., Gall, J., Li, W., Pangercic, D., Sturm, J., Tai and Y.-W.,
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[C1] M. Souiai, C. Nieuwenhuis, E. Strekalovskiy and D. Cremers,
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[C2] J. Bergbauer, C. Nieuwenhuis, M. Souiai and D. Cremers,
Proximity Priors for Variational Semantic Segmentation and Recognition,
ICCV Workshop on Graphical Models for Scene Understanding, 2013.

[C3] V. Golkov, T. Sprenger, A. Menini, M.I. Menzel, D. Cremers and J.I. Sperl,
Effects of Low-Rank Constraints, Line-Process Denoising, and q-Space Compressed Sensing on Diffusion MR Image Reconstruction and Kurtosis Tensor Estimation,
2013, Oral Presentation.

Line-Process-Based Joint SENSE Reconstruction of Diffusion Images with Intensity Inhomogeneity Correction and Noise Non-Stationarity Correction,
2013, Certificate of Merit Award.
[C5] V. Golkov, M.I. Menzel, T. Sprenger, A. Menini, D. Cremers and J.I. Sperl, 
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Noise Reduction in Accelerated Diffusion Spectrum Imaging through Integration of SENSE Reconstruction into Joint Reconstruction in Combination with q-Space Compressed Sensing, 2013.

[C8] C. Kerl, J. Sturm and D. Cremers, 
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May 2013, Best Vision Paper Award - Finalist.

[C9] E. Toeppe, C. Nieuwenhuis and D. Cremers, 
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[C10] D. Weikersdorfer, A. Schick and D. Cremers, 

[C11] E. Bylow, J. Sturm, C. Kerl, F. Kahl and D. Cremers, 
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[C12] E. Bylow, J. Sturm, C. Kerl, F. Kahl and D. Cremers, 
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Demo Track of the RGB-D Workshop on Advanced Reasoning with Depth Cameras at the Robotics: Science and Systems Conference (RSS), June 2013.

[C13] M. Souiai, E. Strekalovskiy, C. Nieuwenhuis and D. Cremers, 

[C14] F. Stangl, M. Souiai and D. Cremers, 
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[C15] T. Möllenhoff, C. Nieuwenhuis, E. Toeppe and D. Cremers, 

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[C17] T. Naseer, J. Sturm and D. Cremers,
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[C18] M. Klodt, J. Sturm and D. Cremers,
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Dense Tracking and Mapping with a Quadrocopter,
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[C20] 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.

[C21] J. Sturm, E. Bylow, F. Kahl and D. Cremers,
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German Conference on Pattern Recognition (GCPR), Saarbrücken, Germany, September 2013.

[C22] E. Rodola, T. Harada, Y. Kuniyoshi and D. Cremers,
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