Author: Cremers

List of Publications

2020
Conference and Workshop Papers

[C1] Sang, L., Haefner, B., Cremers and D.,
Inferring Super-Resolution Depth from a Moving Light-Source Enhanced RGB-D Sensor: A Variational Approach,

2019
Journal Articles

[J1] F. Pasa, V. Golkov, F. Pfeiffer, D. Cremers and D. Pfeiffer,
Efficient Deep Network Architectures for Fast Chest X-Ray Tuberculosis Screening and Visualization,

[J2] R. Wang, N. Yang, J. Stueckler and D. Cremers,
DirectShape: Photometric Alignment of Shape Priors for Visual Vehicle Pose and Shape Estimation,

[J3] J. Schuchardt, V. Golkov and D. Cremers,
Learning to Evolve,

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

[J5] L. von Stumberg, P. Wenzel, Q. Khan and D. Cremers,
GN-Net: The Gauss-Newton Loss for Multi-Weather Relocalization,

[J6] M. Eisenberger, Z. Lähner and D. Cremers,
Smooth Shells: Multi-Scale Shape Registration with Functional Maps,

[J7] Haefner, B., Peng, S., Verma, A., Queau, Y., Cremers and D.,
Photometric Depth Super-Resolution,

[J8] Brahimi, M., Queau, Y., Haefner, B., Cremers and D.,
On well-posedness of uncalibrated photometric stereo under general lighting,

Conference and Workshop Papers
[C1] 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,*
*MICCAI 2019 International Workshop on Computational Diffusion MRI,* 2019, Oral Presentation.

[C2] P. Swazinna, V. Golkov, I. Lipp, E. Sgarlata, V. Tomassini, D. K. Jones and D. Cremers,
*Negative-Unlabeled Learning for Diffusion MRI,* 2019.

[C3] T. Möllenhoff and D. Cremers,

[C4] V. Usenko, N. Demmel, D. Schubert, J. Stueckler and D. Cremers,
*Visual-Inertial Mapping with Non-Linear Factor Recovery,*

[C5] Haefner, B., Ye, Z., Gao, M., Wu, T., Queau, Y., Cremers and D.,
*Variational Uncalibrated Photometric Stereo under General Lighting,*
*International Conference on Computer Vision (ICCV),* Seoul, South Korea, October 2019.

[C6] Q. Khan, P. Wenzel, D. Cremers and L. Leal-Taixe,
*Towards Generalizing Sensorimotor Control Across Weather Conditions,*

[C7] M. Moeller, T. Möllenhoff and D. Cremers,
*Controlling Neural Networks via Energy Dissipation,*
*International Conference on Computer Vision (ICCV),* Seoul, South Korea, 10 2019.

[C8] S. Weiss, R. Maier, R. Westermann, D. Cremers and N. Thuerey,
*Sparse Surface Constraints for Combining Physics-based Elasticity Simulation and Correspondence-Free Object Reconstruction,*

[C9] D. Schubert, N. Demmel, L. von Stumberg, V. Usenko and D. Cremers,

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 Solution,*
[J4] P. Bergmann, R. Wang and D. Cremers,
Online Photometric Calibration of Auto Exposure Video for Realtime Visual Odometry and SLAM,

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

[J6] L. Ma., J. Stueckler, T. Wu and D. Cremers,
Detailed Dense Inference with Convolutional Neural Networks via Discrete Wavelet Transform,
Aug 2018.

[J7] 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*,
*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.

q-Space Novelty Detection in Short Diffusion MRI Scans of Multiple Sclerosis, 2018.


[C6] B. T. Do, V. Golkov, G. E. Gürel and D. Cremers,
[C7] P. Haeusser, J. Plapp, V. Golkov, E. Aljalbout and D. Cremers, 
Associative Deep Clustering - Training a Classification Network with no La-
bes, 
*Proc. of the German Conference on Pattern Recognition (GCPR)*, October 2018.

[C8] Nikolaus Mayer, Eddy Ilg, Philipp Fischer, Caner Hazirbas, Daniel Cremers, Alexey Do-
sovitskiy 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.

[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., Queau, Y., Möllenhoff, T., Cremers and D., 
Fight ill-posedness with ill-posedness: Single-shot variational depth super-
resolution from shading, 
*IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018, Spotlight Presentation.
2017

Journal Articles

[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.

[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,

[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. Pangercic 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,
Honolulu, USA, 2017.

[C13] Queau, Y., Melou, J., Durou, J.-D., Cremers and D.,
Dense Multi-view 3D-reconstruction Without Dense Correspondences,

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

Efficient Deformable Shape Correspondence via Kernel Matching,
International Conference on 3D Vision (3DV), Qingdao, China, October 2017, Oral Presentation.

[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,
International Conference on Computer Vision (ICCV), Venice, Italy, October 2017.

[C17] T. Möllenhoff and D. Cremers,
Sublabel-Accurate Discretization of Nonconvex Free-Discontinuity Problems,
International Conference on Computer Vision (ICCV), Venice, Italy, October 2017.
Author: Cremers

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[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
Journal Articles

[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.

[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,

Conference and Workshop Papers

[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.
Model-Free Novelty-Based Diffusion MRI, 
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, 
May 2016.

R. Klein and Y. Sahillioglu, 
SHREC16: Matching of Deformable Shapes with Topological Noise, 
May 2016.

SHREC16: Partial Matching of Deformable Shapes, 
May 2016.

[C8] T. Möllenhoff, E. Laude, M. Moeller, J. Lellmann and D. Cremers, 
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, 
May 2016.

[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.
2015
Journal Articles

[J1] J. Diebold, C. Nieuwenhuis and D. Cremers, 

[J2] J. Diebold, S. Tari and D. Cremers, 
The Role of Diffusion in Figure Hunt Games, 52(1): 108-123, 2015.

[J3] S. Madhogaria, P. M. Baggenstoss, M. Schikora, W. Koch and D. Cremers, 

[J4] M. Klodt, K. Herzog, R. Töpfer and D. Cremers, 

[J5] E. Rodola, A. Albarelli, D. Cremers and A. Torsello, 

[J6] R. Mecca, E. Rodola and D. Cremers, 

[J7] T. Möllenhoff, E. Strekalovskiy, M. Möller and D. Cremers, 

Book Chapters

[BC1] V. Golkov, J. M. Portegies, A. Golkov, R. Duits and D. Cremers, 
Holistic Image Reconstruction for Diffusion MRI, Computational Diffusion MRI, Munich, Germany, Springer, October 2015, Book Chapter, and Oral Presentation at MICCAI 2015 Workshop on Computational Diffusion MRI.

Conference and Workshop Papers

[C1] M. Moeller, J. Diebold, G. Gilboa and D. Cremers, 

[C2] J. Diebold, N. Demmel, C. Hazirbas, M. Möller and D. Cremers, 

[C3] C. Hazirbas, J. Diebold and D. Cremers, 
[C4] T. Möllenhoff, E. Strekalovskiy, M. Möller and D. Cremers,
Low Rank Priors for Color Image Regularization,
2015.

[C5] M. Jaimez, M. Souiai, J. Gonzalez-Jimenez and D. Cremers,
A Primal-Dual Framework for Real-Time Dense RGB-D Scene Flow,
Proc. of the IEEE Int. Conf. on Robotics and Automation (ICRA), 2015.

[C6] J. Stühmer and D. Cremers,
A Fast Projection Method for Connectivity Constraints in Image Segmentation,
X.-C. Tai, E. Bae, T. F. Chan and M. Lysaker(Eds.), , 2015.

[C7] R. Mecca, E. Rodola and D. Cremers,
Analysis of Surface Parametrizations for Modern Photometric Stereo Modeling,
International Conference on Quality Control by Artificial Vision (QCAV), 2015.

[C8] F. Bergamasco, A. Albarelli, L. Cosmo, A. Torsello, E. Rodola and D. Cremers,
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2015.

[C9] D. Mund, R. Triebel and D. Cremers,
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P. A. Gomez, A. Haase, T. Brox and D. Cremers,
q-Space Deep Learning for Twelve-Fold Shorter and Model-Free Diffusion MRI Scans,
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[C11] A. Dosovitskiy, P. Fischer, E. Ilg, P. Haeusser, C. Hazirbas, V. Golkov, P. van der Smagt,
D. Cremers and T. Brox,
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December 2015.

V. Evers, M. Fiore, H. Hung, O. A. Islas Ramirez, M. Joosse, H. Kambhaita, T. Kucner,
Rafi, M. van Rooij and L. Zhang,
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[C13] J. Engel, J. Stueckler and D. Cremers,
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2015.

[C14] D. Caruso, J. Engel and D. Cremers,
Large-Scale Direct SLAM for Omnidirectional Cameras,
2015.
[C15] Y. Tao, R. Triebel and D. Cremers,
Semi-supervised Online Learning for Efficient Classification of Objects in 3D Data Streams,
2015.

[C16] R. Maier, J. Stueckler and D. Cremers,
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[C17] M. Jaimez, M. Souiai, J. Stueckler, J. Gonzalez-Jimenez and D. Cremers,
Motion Cooperation: Smooth Piece-Wise Rigid Scene Flow from RGB-D Images,

[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.

[C19] C. Kerl, J. Stueckler and D. Cremers,
Dense Continuous-Time Tracking and Mapping with Rolling Shutter RGB-D Cameras,
Santiago, Chile, 2015.

[C20] M. Souiai, M. R. Oswald, Y. Kee, J. Kim, M. Pollefeys and D. Cremers,
Entropy Minimization for Convex Relaxation Approaches, Santiago, Chile, 2015.

[C21] F. Stark, C. Hazirbas, R. Triebel and D. Cremers,
CAPTCHA Recognition with Active Deep Learning,
GCPR Workshop on New Challenges in Neural Computation, Aachen, Germany, 2015.

[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,

[J2] E. Strekalovskiy, A. Chambolle and D. Cremers,

[J3] J. Engel, J. Sturm and D. Cremers,
Author: Cremers

List of Publications

[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,
Springer 2014.

Book Chapters

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


[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,
Volumetric 3D Mapping in Real-Time on a CPU, 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,
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September 2014, Oral Presentation.

[C10] T. Schöps, J. Engel and D. Cremers,
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September 2014, Best Short Paper Award.

[C11] T. Windheuser, M. Vestner, E. Rodola, R. Triebel and D. Cremers,
Optimal Intrinsic Descriptors for Non-Rigid Shape Analysis,
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,
Spatial and Temporal Interpolation of Multi-View Image Sequences,
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[C15] M. R. Oswald and D. Cremers,
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[C16] C. Nieuwenhuis, S. Hawe, M. Kleinsteuber and D. Cremers,
Co-Sparse Textural Similarity for Interactive Segmentation,
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Generalized Connectivity Constraints for Spatio-temporal 3D Reconstruction,

[C18] E. Strekalovskiy and D. Cremers,
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[C19] A. Kanezaki, E. Rodola, D. Cremers and T. Harada,
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[C20] M. Andreux, E. Rodola, M. Aubry and D. Cremers,
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[C21] O. Dunkley, J. Engel, J. Sturm and D. Cremers,
Visual-Inertial Navigation for a Camera-Equipped 25g Nano-Quadrotor,

[C22] R. Triebel, J. Stuhmer, M. Souiai and D. Cremers,
Active Online Learning for Interactive Segmentation Using Sparse Gaussian Processes,
German Conference on Pattern Recognition, 2014.

[C23] S. Debnath, S. S. Baishya, R. Triebel, V. Dutt and D. Cremers,
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[C24] A. Kanezaki, E. Rodola, D. Cremers and T. Harada,
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[C25] D. Bender, M. Schikora, J. Sturm and D. Cremers,
INS-Camera Calibration without Ground Control Points,
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[C26] C. Kerl, M. Souiai, J. Sturm and D. Cremers,
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[C27] F. R. Schmidt, T. Windheuser, U. Schlickewei and D. Cremers,
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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. Goldhauce, E. Strekalovskiy and D. Cremers,
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[J4] F. Endres, J. Hess, J. Sturm, D. Cremers and W. Burgard,
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[C9] E. Toeppe, C. Nieuwenhuis and D. Cremers, 
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[C12] E. Bylow, J. Sturm, C. Kerl, F. Kahl and D. Cremers, 
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[J7] K. Kolev, T. Brox and D. Cremers,
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