Publications


Publications

[C7] J. Engel, V. Usenko and D. Cremers,
A Photometrically Calibrated Benchmark For Monocular Visual Odometry,

[C8] J. Engel, V. Koltun and D. Cremers,
Direct Sparse Odometry,

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

[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. Tpfer 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,

[C1] M. Moeller, J. Diebold, G. Gilboa and D. Cremers,
Learning Nonlinear Spectral Filters for Color Image Reconstruction,
IEEE International Conference on Computer Vision (ICCV), 2015.

[C2] J. Diebold, N. Demmel, C. Hazrba, M. Miller and D. Cremers,
Interactive Multi-label Segmentation of RGB-D Images,
Scale Space and Variational Methods in Computer Vision (SSVM), 2015.

[C3] C. Hazrba, J. Diebold and D. Cremers,
Optimizing the Relevance-Redundancy Tradeoff for Efficient Semantic Segmentation,
Scale Space and Variational Methods in Computer Vision (SSVM), 2015, Oral Presentation.


[C15] Y. Tao, R. Triebel and D. Cremers,  
Semi-supervised Online Learning for Efficient Classification of Objects in 3D Data Streams,  

[C16] R. Maier, J. Stueckler and D. Cremers,  
Super-Resolution Keyframe Fusion for 3D Modeling with High-Quality Textures,  

[C17] V. Usenko, J. Engel, J. Stueckler and D. Cremers,  
Reconstructing Street-Scenes in Real-Time From a Driving Car,  

[C18] M. Jaimez, M. Souiai, J. Stueckler, J. Gonzalez-Jimenez and D. Cremers,  
Motion Cooperation: Smooth Piece-Wise Rigid Scene Flow from RGB-D Images,  

[C19] E. Rodola, M. Moeller and D. Cremers,  
Point-wise Map Recovery and Refinement from Functional Correspondence,  
*Proceedings Vision, Modeling and Visualization (VMV)*, Aachen, Germany, 2015, Received the Best Paper Award.

[C20] C. Kerl, J. Stueckler and D. Cremers,  
Dense Continuous-Time Tracking and Mapping with Rolling Shutter RGB-D Cameras,  
*IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015.

[C21] M. Souiai, M. R. Oswald, Y. Kee, J. Kim, M. Pollefeys and D. Cremers,  
Entropy Minimization for Convex Relaxation Approaches,  
*IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015.

[C22] F. Stark, C. Hazrba, R. Triebel and D. Cremers,  
CAPTCHA Recognition with Active Deep Learning,  
*GCPR Workshop on New Challenges in Neural Computation*, Aachen, Germany, 2015.

Model-Based Tracking at 300Hz using Raw Time-of-Flight Observations,  
*IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015.

q-Space Deep Learning for Twelve-Fold Shorter and Model-Free Diffusion MRI Scans,  
*Medical Image Computing and Computer Assisted Intervention (MICCAI)*, Munich, Germany, October 2015.
<table>
<thead>
<tr>
<th>Publications</th>
<th>List of Publications</th>
</tr>
</thead>
</table>
| **[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,  
| **[J4]** E. Rodola, S. Rota Bulo and D. Cremers,  
| **[B1]** D. Cremers, I. Reid, H. Saito and M.-S. Yang (Editors),  
| **[C1]** V. Golkov, M.I. Menzel, T. Sprenger, M. Souiai, A. Haase, D. Cremers and J.I. Sperl,  
| **[C2]** V. Golkov, M.I. Menzel, T. Sprenger, A. Haase, D. Cremers and J.I. Sperl,  
| **[C3]** V. Golkov, M.I. Menzel, T. Sprenger, M. Souiai, A. Haase, D. Cremers and J.I. Sperl,  
| **[C4]** V. Golkov, J.I. Sperl, M.I. Menzel, T. Sprenger, E.T. Tan, L. Marinelli, C.J. Hardy, A. Haase and D. Cremers,  
| **[C5]** D. Weikersdorfer, D. B. Adrian, D. Cremers and J. Conrad,  
Publications


[C8] Y. Kee, M. Souiai, D. Cremers and J. Kim, *Sequential Convex Relaxation for Mutual-Information-Based Unsupervised Figure-Ground Segmentation*, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2014.


[C19] E. Strekalovskiy and D. Cremers, 
Real-Time Minimization of the Piecewise Smooth Mumford-Shah Functional, 

[C20] A. Kanezaki, E. Rodola, D. Cremers and T. Harada, 
[Taiou tenshugou ruijido gakushuu wo mochiita goutai-higoutai buttai kenshutsu], 

[C21] M. Andreux, E. Rodola, M. Aubry and D. Cremers, 
Anisotropic Laplace-Beltrami Operators for Shape Analysis, 
Sixth Workshop on Non-Rigid Shape Analysis and Deformable Image Alignment (NORDIA), 2014.

[C22] O. Dunkley, J. Engel, J. Sturm and D. Cremers, 
Visual-Inertial Navigation for a Camera-Equipped 25g Nano-Quadrotor, 

[C23] R. Triebel, J. Stühmer, M. Souiai and D. Cremers, 
Active Online Learning for Interactive Segmentation Using Sparse Gaussian Processes, 
German Conference on Pattern Recognition, 2014.

[C24] S. Debnath, S. S. Baishya, R. Triebel, V. Dutt and D. Cremers, 
Environment-adaptive Learning: How Clustering Helps to Obtain Good Training Data, 

[C25] A. Kanezaki, E. Rodola, D. Cremers and T. Harada, 
Learning Similarities for Rigid and Non-Rigid Object Detection, 
International Conference on 3D Vision (3DV), 2014.

[C26] D. Bender, M. Schikora, J. Sturm and D. Cremers, 
INS-Camera Calibration without Ground Control Points, 
9th IEEE ISIF Workshop on Sensor Data Fusion: Trends, Solutions, Applications (SDF), 2014.

[C27] C. Kerl, M. Souiai, J. Sturm and D. Cremers, 
Towards Illumination-invariant 3D Reconstruction using ToF RGB-D Cameras, 
International Conference on 3D Vision (3DV), 2014.

[C28] F. R. Schmidt, T. Windheuser, U. Schlickewei and D. Cremers, 
Dense Elastic 3D Shape Matching, 

[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.,
Introduction to the special issue on visual understanding and applications with RGB-D cameras,

[BC1] M. Klodt, F. Steinbruecker and D. Cremers,
Moment Constraints in Convex Optimization for Segmentation and Tracking,

[C1] M. Souiai, C. Nieuwenhuis, E. Strekalovskiy and D. Cremers,
Convex Optimization for Scene Understanding,
*ICCV Workshop on Graphical Models for Scene Understanding*, 2013.

[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,

Line-Process-Based Joint SENSE Reconstruction of Diffusion Images with Intensity Inhomogeneity Correction and Noise Non-Stationarity Correction,
*European Society for Magnetic Resonance in Medicine and Biology (ESMRMB) Annual Meeting*, 2013, *Certificate of Merit Award*.

[C5] V. Golkov, M.I. Menzel, T. Sprenger, A. Menini, D. Cremers and J.I. Sperl,
Reconstruction, Regularization, and Quality in Diffusion MRI Using the Example of Accelerated Diffusion Spectrum Imaging,
*16th Annual Meeting of the German Chapter of the ISMRM*, 2013, *Oral Presentation*.
"Noise Reduction in Accelerated Diffusion Spectrum Imaging through Integration of SENSE Reconstruction into Joint Reconstruction in Combination with q-Space Compressed Sensing,"

[C7] C. Kerl, J. Sturm and D. Cremers,
"Robust Odometry Estimation for RGB-D Cameras,"
Int. Conf. on Robotics and Automation, May 2013, Best Vision Paper Award - Finalist.

[C8] E. Toeppe, C. Nieuwenhuis and D. Cremers,
"Volume Constraints for Single View Reconstruction,"
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Portland, USA, 2013.

[C9] D. Weikersdorfer, A. Schick and D. Cremers,
"Depth-adative Supervoxels for RGB-D Video Segmentation,"

[C10] E. Bylow, J. Sturm, C. Kerl, F. Kahl and D. Cremers,
"Real-Time Camera Tracking and 3D Reconstruction Using Signed Distance Functions,"

[C11] 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.

[C12] M. Souiai, E. Strekalovskiy, C. Nieuwenhuis and D. Cremers,

[C13] F. Stangl, M. Souiai and D. Cremers,
"Performance Evaluation of Narrow Band Methods for Variational Stereo,"
35th German Conference on Pattern Recognition (GCPR), 2013.

[C14] T. Möllenhoff, C. Nieuwenhuis, E. Toeppe and D. Cremers,
"Efficient Convex Optimization for Minimal Partition Problems with Volume Constraints,"

[C15] C. Kerl, J. Sturm and D. Cremers,
"Dense Visual SLAM for RGB-D Cameras,"

[C16] T. Naseer, J. Sturm and D. Cremers,
"FollowMe: Person Following and Gesture Recognition with a Quadrocopter,"
[C17] 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.

[C18] 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.

[C19] 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.

[C20] 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.

[C21] E. Rodola, T. Harada, Y. Kuniyoshi and D. Cremers, 
Efficient Shape Matching using Vector Extrapolation, 

[C22] 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.

[C23] E. Rodola, A. Torsello, T. Harada, Y. Kuniyoshi and D. Cremers, 
Elastic Net Constraints for Shape Matching, 
*IEEE International Conference on Computer Vision (ICCV)*, Sydney, Australia, December 2013.

[C24] J. Lellmann, E. Strekalovskiy, S. Koetter and D. Cremers, 
Total Variation Regularization for Functions with Values in a Manifold, 
*IEEE International Conference on Computer Vision (ICCV)*, Sydney, Australia, December 2013.

[C25] C. Nieuwenhuis, E. Strekalovskiy and D. Cremers, 
Proportion Priors for Image Sequence Segmentation, 
*IEEE International Conference on Computer Vision (ICCV)*, Sydney, Australia, December 2013.

[C26] J. Stühmer, P. Schröder and D. Cremers, 
Tree Shape Priors with Connectivity Constraints using Convex Relaxation on General Graphs, 
*IEEE International Conference on Computer Vision (ICCV)*, Sydney, Australia, December 2013, Oral Presentation.

[C27] G. Kuschk and D. Cremers, 
Fast and Accurate Large-scale Stereo Reconstruction using Variational Methods, 
*ICCV Workshop on Big Data in 3D Computer Vision*, Sydney, Australia, December 2013.
[C28] M. R. Oswald and D. Cremers,
A Convex Relaxation Approach to Space Time Multi-view 3D Reconstruction,
ICCV Workshop on Dynamic Shape Capture and Analysis (4DMOD), 2013.

[C29] 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.

[C30] 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 IE-EE. Int. Conf. on Intelligent Robots and Systems (IROS), Nov. 2013.

[C31] D. Cremers, E. Rodola and T. Windheuser,
Relaxations for Minimizing Metric Distortion and Elastic Energies for 3D Shape Matching,

[R1] M. Souiai, E. Strekalovskiy, C. Nieuwenhuis and D. Cremers,
Label Configuration Priors for Continuous Multi-Label Optimization,

[J1] A. Chambolle, D. Cremers and T. Pock,
A Convex Approach to Minimal Partitions,

[J2] T. Schoenemann and D. Cremers,
A Coding Cost Framework for Super-resolution Motion Layer Decomposition,

[J3] T. Schoenemann, F. Kahl, S. Masnou and D. Cremers,
A linear framework for region-based image segmentation and inpainting involving curvature penalization,

[J4] D. Cremers,
Optimal Solutions for Semantic Image Decomposition,

[J5] S. Chen, D. Cremers and R. J. Radke,
Image segmentation with one shape prior - A template-based formulation,

[J6] B. Goldluecke, E. Strekalovskiy and D. Cremers,
The Natural Total Variation Which Arises from Geometric Measure Theory,

[J7] K. Kolev, T. Brox and D. Cremers,
Fast Joint Estimation of Silhouettes and Dense 3D Geometry from Multiple Images,
An image classification approach to analyze the suppression of plant immunity
by the human pathogen Salmonella Typhimurium,

[J9] D. Cremers and E. Strekalovskiy,
**Total Cyclic Variation and Generalizations,**

[BC1] M. Schikora, W. Koch, R. L. Streit and D. Cremers,
*A Sequential Monte Carlo Method for Multi-Target Tracking with the Intensity Filter,*

[C1] F. Endres, J. Hess, N. Engelhard, J. Sturm, D. Cremers and W. Burgard,
**An Evaluation of the RGB-D SLAM System,**

[C2] T. Ruehr, J. Sturm, D. Pangercic, M. Beetz and D. Cremers,
*A Generalized Framework for Opening Doors and Drawers in Kitchen Environments,*

[C3] M. Schikora, A. Gning, L. Mihaylova, D. Cremers, W. Koch and R. Streit,
**Box-Particle Intensity Filter,**

[C4] M. Schikora, A. Gning, L. Mihaylova, D. Cremers and W. Koch,
**Box-Particle PHD Filter for Multi-Target Tracking,**
*15th International Conference on Information Fusion (FUSION)*, Singapore, July 2012.

[C5] L. Zhang, J. Sturm, D. Cremers and D. Lee,
**Real-Time Human Motion Tracking using Multiple Depth Cameras,**

[C6] E. Strekalovskiy, C. Nieuwenhuis and D. Cremers,
**Nonmetric Priors for Continuous Multilabel Optimization,**

[C7] T. Windheuser, H. Ishikawa and D. Cremers,
**Generalized Roof Duality for Multi-Label Optimization: Optimal Lower
Bounds and Persistency,**

[C8] T. Windheuser, H. Ishikawa and D. Cremers,
**QPBO [QPBO arugorizumu no tachika ni yoru hiretsu mojura eneru saishka],**
*Meeting on Image Recognition and Understanding*, Fukuoka, Japan, August 2012.
Publications

[C9] M. R. Oswald, E. Toeppe and D. Cremers,
Fast and Globally Optimal Single View Reconstruction of Curved Objects,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Providence, Rhode Island, 534-541, June 2012.

[C10] E. Strekalovskiy, A. Chambolle and D. Cremers,
A Convex Representation for the Vectorial Mumford-Shah Functional,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Providence, Rhode Island, June 2012.

[C11] J. Engel, J. Sturm and D. Cremers,
Camera-Based Navigation of a Low-Cost Quadrocopter,

[C12] J. Sturm, N. Engelhard, F. Endres, W. Burgard and D. Cremers,
A Benchmark for the Evaluation of RGB-D SLAM Systems,

[C13] J. Engel, J. Sturm and D. Cremers,
Accurate Figure Flying with a Quadrocopter Using Onboard Visual and Inertial Sensing,

[C14] J. Sturm, W. Burgard and D. Cremers,
Evaluating Egomotion and Structure-from-Motion Approaches Using the TUM RGB-D Benchmark,

[C15] N. Ufer, M. Souiai and D. Cremers,
Wehrli 2.0: An Algorithm for Tidying up Art,

[C16] G. M. Garca, D. A. Klein, J. Stueckler, S. Frintrop and A. B. Cremers,
Adaptive Multi-cue 3D Tracking of Arbitrary Objects,

[J1] T. Windheuser, U. Schlickewei, F. R. Schmidt and D. Cremers,
Large-Scale Integer Linear Programming for Orientation-Preserving 3D Shape Matching,

[J2] D. Cremers and K. Kolev,
Multiview Stereo and Silhouette Consistency via Convex Functionals over Convex Domains,


Publications

[C4] E. Strekalovskiy and D. Cremers,
Total Variation for Cyclic Structures: Convex Relaxation and Efficient Minimization,

[C5] B. Goldluecke and D. Cremers,
Introducing Total Curvature for Image Processing,
*IEEE International Conference on Computer Vision (ICCV)*, 2011.

[C6] E. Strekalovskiy, B. Goldluecke and D. Cremers,
Tight Convex Relaxations for Vector-Valued Labeling Problems,
*IEEE International Conference on Computer Vision (ICCV)*, 2011.

[C7] M. Aubry, K. Kolev, B. Goldluecke and D. Cremers,
Decoupling Photometry and Geometry in Dense Variational Camera Calibration,
*IEEE International Conference on Computer Vision (ICCV)*, 2011.

[C8] E. Strekalovskiy and D. Cremers,
Generalized Ordering Constraints for Multilabel Optimization,
*IEEE International Conference on Computer Vision (ICCV)*, 2011.

Towards a benchmark for RGB-D SLAM evaluation,

[C10] C. Nieuwenhuis, E. Toeppe and D. Cremers,
Space-Varying Color Distributions for Interactive Multiregion Segmentation: Discrete versus Continuous Approaches,

[C11] M. Klodt and D. Cremers,
A Convex Framework for Image Segmentation with Moment Constraints,
*IEEE International Conference on Computer Vision (ICCV)*, 2011.

[C12] M. Aubry, U. Schlickewei and D. Cremers,
The Wave Kernel Signature: A Quantum Mechanical Approach To Shape Analysis,
*IEEE International Conference on Computer Vision (ICCV) - Workshop on Dynamic Shape Capture and Analysis (4DMOD)*, 2011.

[C13] 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.
[C14] M. Schikora, M. Oispuu, W. Koch and D. Cremers,  
Multiple Source Localization Based on Biased Bearings Using the Intensity Filter - Approach and Experimental Results,  
4th IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing, San Juan, Puerto Rico, December 2011.

[C15] S. Madhogaria, M. Schikora, W. Koch and D. Cremers,  
Pixel-based Classification Method for Detecting Unhealthy Regions in Leaf Images,  
6th IEEE ISIF Workshop on Sensor Data Fusion: Trends, Solutions, Applications (SDF), Berlin, Germany, September 2011.

[C16] M. Schikora, W. Koch, R.L. Streit and D. Cremers,  
Sequential Monte Carlo Method for the iFilter,  
14th International Conference on Information Fusion (FUSION), Chicago, IL, USA, July 2011.

[C17] M. Schikora, W. Koch and D. Cremers,  
Multi-object tracking via high accuracy optical flow and finite set statistics,  
International Conference on Acoustics, Speech and Signal Processing (ICASSP), Prag, Czech Republic, Mai 2011.

[C18] E. Toeppe, M. R. Oswald, D. Cremers and C. Rother,  
Silhouette-Based Variational Methods for Single View Reconstruction,  

[C19] M. R. Oswald, E. Toeppe, C. Nieuwenhuis and D. Cremers,  
A Survey on Geometry Recovery from a Single Image with Focus on Curved Object Reconstruction,  

[J1] T. Pock, D. Cremers, H. Bischof and A. Chambolle,  
Global Solutions of Variational Models with Convex Regularization,  

[J2] T. Schoenemann and D. Cremers,  
A Combinatorial Solution for Model-based Image Segmentation and Real-time Tracking,  


[BC1] A. Chambolle, V. Caselles, D. Cremers, M. Novaga and T. Pock,  
An Introduction to Total Variation for Image Analysis,  
Publications

[C1] M. Schikora, A. Schikora, K.-H. Kogel, W. Koch and D. Cremers,
Probabilistic Classification of Disease Symptoms caused by Salmonella on Arabidopsis Plants,
5th IEEE ISIF Workshop on Sensor Data Fusion: Trends, Solutions, Applications (SDF),
Leipzig, Germany, September 2010.

[C2] M. Schikora, D. Bender, D. Cremers and W. Koch,
Passive Multi-Object Localization and Tracking Using Bearing Data,

[C3] M. Schikora, D. Bender, W. Koch and D. Cremers,
Multi-target multi-sensor localization and tracking using passive antenna and optical sensors on UAVs,

[C4] E. Toeppe, M. R. Oswald, D. Cremers and C. Rother,
Image-based 3D Modeling via Cheeger Sets,
Asian Conference on Computer Vision, Queenstown, New Zealand, 53-64, November 2010,
Received Honorable Mention Award.

[C5] K. Kolev, T. Pock and D. Cremers,
Anisotropic Minimal Surfaces Integrating Photoconsistency and Normal Information for Multiview Stereo,
European Conference on Computer Vision (ECCV), Heraklion, Greece, September 2010.

[C6] J. Stühmer, S. Gumhold and D. Cremers,
Real-Time Dense Geometry from a Handheld Camera,
Pattern Recognition (Proc. DAGM), Darmstadt, Germany, 11-20, September 2010.

[C7] J. Stühmer, S. Gumhold and D. Cremers,
Parallel Generalized Thresholding Scheme for Live Dense Geometry from a Handheld Camera,
ECCV Workshop on Computer Vision on GPUs (CVGPU), Heraklion, Greece, September 2010.

[C8] B. Goldluecke and D. Cremers,
An Approach to Vectorial Total Variation based on Geometric Measure Theory,

[C9] B. Goldluecke and D. Cremers,
Convex Relaxation for Multilabel Problems with Product Label Spaces,

[C10] C. Nieuwenhuis, B. Berkels, M. Rumpf and D. Cremers,
Interactive Motion Segmentation,
[J1] T. Brox and D. Cremers,
On local region models and a statistical interpretation of the piecewise smooth Mumford-Shah functional,

[J2] T. Brox, B. Rosenhahn, J. Gall and D. Cremers,
Combined region- and motion-based 3D tracking of rigid and articulated objects,

[J3] K. Kolev, M. Klodt, T. Brox and D. Cremers,
Continuous Global Optimization in Multiview 3D Reconstruction,

B-Spline Modeling of Road Surfaces with an Application to Free Space Estimation,

[B1] D. Cremers, Y. Boykov, A. Blake and F. R. Schmidt (Editors),
Energy Minimization Methods for Computer Vision and Pattern Recognition (EMMCVPR),
Springer 2009.

Statistical and Geometrical Approaches to Visual Motion Analysis,
Springer 2009.

[C1] M. R. Oswald, E. Toeppe, K. Kolev and D. Cremers,
Non-Parametric Single View Reconstruction of Curved Objects using Convex Optimization,
*Pattern Recognition (Proc. DAGM)*, Jena, Germany, 171-180, September 2009, Received a DAGM Paper Award.

[C2] F. R. Schmidt and D. Cremers,
A Closed-Form Solution for Image Sequence Segmentation with Dynamical Shape Priors,
*Pattern Recognition (Proc. DAGM)*, Jena, Germany, September 2009.

[C3] F. R. Schmidt, E. Toeppe and D. Cremers,
Efficient Planar Graph Cuts with Applications in Computer Vision,
*IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Miami, Florida, 351-356, June 2009, Received a CVPR Doctoral Spotlight Award.

[C4] T. Pock, A. Chambolle, H. Bischof and D. Cremers,
A Convex Relaxation Approach for Computing Minimal Partitions,
[C5] K. Kolev and D. Cremers, 
Continuous Ratio Optimization via Convex Relaxation with Applications to Multiview 3D Reconstruction, 

[C6] A. Wedel, C. Rabe, A. Meissner, U. Franke and D. Cremers, 
Detection and Segmentation of Independently Moving Objects from Dense Scene Flow, 

[C7] B. Goldluecke and D. Cremers, 
A Superresolution Framework for High-Accuracy Multiview Reconstruction, 
*Pattern Recognition (Proc. DAGM)*, Jena, Germany, 2009, Received DAGM Best Paper Award.

[C8] B. Goldluecke and D. Cremers, 
Superresolution Texture Maps for Multiview Reconstruction, 

[C9] A. Sellent, M. Eisemann, B. Goldluecke, T. Pock, D. Cremers and M. Magnor, 
Variational Optical Flow from Alternate Exposure Images, 

[C10] T. Pock, D. Cremers, H. Bischof and A. Chambolle, 
An Algorithm for Minimizing the Piecewise Smooth Mumford-Shah Functional, 

[C11] A. Wedel, D. Cremers, T. Pock and H. Bischof, 
Structure- and Motion-adaptive Regularization for High Accuracy Optic Flow, 

[C12] T. Schoenemann, F. Kahl and D. Cremers, 
Curvature Regularity for Region-based Image Segmentation and Inpainting: A Linear Programming Relaxation, 

[C13] T. Windheuser, T. Schoenemann and D. Cremers, 
Beyond Connecting the Dots: A Polynomial-time Algorithm for Segmentation and Boundary Estimation with Imprecise User Input, 

[C14] F. Steinbrüecker, T. Pock and D. Cremers, 
Large Displacement Optical Flow Computation without Warping, 

[C15] D. Mitzel, T. Pock, T. Schoenemann and D. Cremers, 
Video Super Resolution using Duality Based TV-L1 Optical Flow, 
*Pattern Recognition (Proc. DAGM)*, Jena, Germany, 2009.

[C16] F. Steinbrüecker, T. Pock and D. Cremers, 
Advanced Data Terms for Variational Optic Flow Estimation, 
[J1] T. Brox, O. Kleinschmidt and D. Cremers,
**Efficient Nonlocal Means for Denoising of Textural Patterns,**

[J2] D. Cremers,
**Nonlinear Dynamical Shape Priors for Level Set Segmentation,**

[J3] H. Jin, D. Cremers, D. Wang, A. Yezzi, E. Prados and S. Soatto,
**3-D Reconstruction of Shaded Objects from Multiple Images Under Unknown Illumination,**

[C1] T. Schoenemann, F. R. Schmidt and D. Cremers,
**Image Segmentation with Elastic Shape Priors via Global Geodesics in Product Spaces,**

[C2] M. Unger, T. Pock, D. Cremers and H. Bischof,
**TVSeg - Interactive Total Variation Based Image Segmentation,**

[C3] T. Pock, T. Schoenemann, G. Graber, H. Bischof and D. Cremers,
**A Convex Formulation of Continuous Multi-Label Problems,**

[C4] W. Trobin, T. Pock, D. Cremers and H. Bischof,
**Continuous Energy Minimization via Repeated Binary Fusion,**

[C5] K. Kolev and D. Cremers,
**Integration of Multiview Stereo and Silhouettes via Convex Functionals on Convex Domains,**

**Efficient Dense Scene Flow from Sparse or Dense Stereo Data,**

[C7] A. Wedel, T. Pock, J. Braun, U. Franke and D. Cremers,
**Duality TV-L1 Flow with Fundamental Matrix Prior,**

[C8] M. Klodt, T. Schoenemann, K. Kolev, M. Schikora and D. Cremers,
**An Experimental Comparison of Discrete and Continuous Shape Optimization Methods,**

[C9] T. Pock, M. Unger, D. Cremers and H. Bischof,
**Fast and Exact Solution of Total Variation Models on the GPU,**
*CVPR Workshop on Visual Computer Vision on GPU’s,* June 2008.
Publications

[C10] A. Wedel, T. Pock, C. Zach, D. Cremers and H. Bischof,  
An Improved Algorithm for TV-L1 Optical Flow,  

[C11] W. Trobin, T. Pock, D. Cremers and H. Bischof,  
An Unbiased Second-Order Prior for High-Accuracy Motion Estimation,  
Pattern Recognition (Proc. DAGM), Munich, Germany, Springer, LNCS, June 2008.

[C12] D. Cremers, F. R. Schmidt and F. Barthel,  
Shape Priors in Variational Image Segmentation: Convexity, Lipschitz Continuity and Globally Optimal Solutions,  

Markerless Motion Capture of Man-Machine Interaction,  

[C14] T. Schoenemann and D. Cremers,  
Matching Non-rigidly Deformable Shapes Across Images: A Globally Optimal Solution,  

[C15] T. Schoenemann and D. Cremers,  
Globally Optimal Shape-based Tracking in Real-time,  

[C16] T. Schoenemann and D. Cremers,  
High Resolution Motion Layer Decomposition using Dual-space Graph Cuts,  

[C17] B. Rosenhahn, T. Brox, D. Cremers and H.-P. Seidel,  
Modeling and Tracking Line-Constrained Mechanical Systems,  

[C18] O. Kleinschmidt, T. Brox and D. Cremers,  
Nonlocal texture filtering with efficient tree structures and invariant patch similarity measures,  
Int. Workshop on Local and Nonlocal Approximation, Lausanne, Switzerland, August 2008.

[R1] A. Chambolle, D. Cremers and T. Pock,  
A Convex Approach for Computing Minimal Partitions,  
[J1] D. Cremers, 
Computer Lernen Sehen, 

[J2] D. Cremers, M. Rousson and R. Deriche, 
A review of statistical approaches to level set segmentation: integrating color, texture, motion and shape, 

Energy Minimization Methods for Computer Vision and Pattern Recognition (EMMCVPR), 

[BC1] T. Brox, B. Rosenhahn and D. Cremers, 
Contours, optic flow, and prior knowledge: cues for capturing 3D human motion in videos, 

[BC2] D. Cremers and M. Rousson, 
Efficient kernel density estimation of shape and intensity priors for level set segmentation, 

[C1] K. Kolev, M. Klodt, T. Brox and D. Cremers, 
Propagated Photoconsistency and Convexity in Variational Multiview 3D Reconstruction, 

[C2] K. Kolev, M. Klodt, T. Brox, S. Esedoglu and D. Cremers, 
Continuous Global Optimization in Multiview 3D Reconstruction, 

[C3] T. Brox, B. Rosenhahn, D. Cremers and H.-P. Seidel, 
Nonparametric density estimation with adaptive anisotropic kernels for human motion tracking, 

[C4] T. Schoenemann and D. Cremers, 
Globally Optimal Image Segmentation with an Elastic Shape Prior, 

[C5] T. Schoenemann and D. Cremers, 
Introducing Curvature into Globally Optimal Image Segmentation: Minimum Ratio Cycles on Product Graphs, 
Publications


[R1] T. Brox, O. Kleinschmidt and D. Cremers, 
Iterated and Efficient Nonlocal Means for Denoising of Textural Patterns, 

[J1] D. Cremers, 
Dynamical statistical shape priors for level set based tracking, 

[J2] D. Cremers, S. J. Osher and S. Soatto, 
Kernel density estimation and intrinsic alignment for shape priors in level set segmentation, 

[J3] D. Cremers, N. Sochen and C. Schnörr, 
A multiphase dynamic labeling model for variational recognition-driven image segmentation, 

[J4] S. Manay, D. Cremers, B.-W. Hong, A. Yezzi and S. Soatto, 
Integral invariants for shape matching, 

[BC1] D. Cremers and T. Kohlberger, 
Probabilistic kernel PCA and its application to statistical shape modeling and inference, 

[BC2] S. Manay, D. Cremers, B. W. Hong, A. Yezzi and S. Soatto, 
Integral Invariants and Shape Matching, 
Statistical analysis of shapes (modeling and simulation in science, engineering and technology), Birkhauser, 137-167, May 2006.

[C1] F. R. Schmidt, M. Clausen and D. Cremers, 
Shape Matching by Variational Computation of Geodesics on a Manifold, 

[C2] T. Schoenemann and D. Cremers, 
Near Real-time Motion Segmentation using Graph Cuts, 

[C3] T. Brox, B. Rosenhahn, U. Kersting and D. Cremers, 
Nonparametric density estimation for human pose tracking, 
[C4] K. Kolev, T. Brox and D. Cremers,
Robust variational segmentation of 3D objects from multiple views,
K. Franke et al.(Ed.), *Pattern Recognition (Proc. DAGM)*, Berlin, Germany, Springer,

[C5] A. Wedel, U. Franke, J. Klappstein, T. Brox and D. Cremers,
Realtime depth estimation and obstacle detection from monocular video,
K. Franke et al.(Ed.), *Pattern Recognition (Proc. DAGM)*, Berlin, Germany, Springer,

[C6] Y. Boykov, V. Kolmogorov, D. Cremers and A. Delong,
An integral solution to surface evolution PDEs via Geo-Cuts,
A. Leonardis, H. Bischof and A. Pinz(Eds.), *European Conference on Computer Vision (ECCV)*,

[C7] B. Rosenhahn, T. Brox, D. Cremers and H.-P. Seidel,
A comparison of shape matching methods for contour based pose estimation,

[C8] T. Brox, B. Rosenhahn, D. Cremers and H.-P. Seidel,
High accuracy optical flow serves 3-D pose tracking: exploiting contour and
flow based constraints,
A. Leonardis, H. Bischof and A. Pinz(Eds.), *European Conference on Computer Vision (ECCV)*,

[C9] D. Cremers and L. Grady,
Statistical priors for combinatorial optimization: efficient solutions via Graph Cuts,
A. Leonardis, H. Bischof and A. Pinz(Eds.), *European Conference on Computer Vision (ECCV)*,

[C10] D. Cremers, C. Guetter and C. Xu,
Nonparametric priors on the space of joint intensity distributions for non-rigid
multi-modal image registration,

[C11] O. Fluck, S. Aharon, D. Cremers and M. Rousson,
GPU histogram computation,
*ACM SIGGRAPH posters and demos*, 2006.

[C12] T. Kohlberger, D. Cremers, M. Rousson and R. Ramaraj,
4D shape priors for level set segmentation of the left myocardium in SPECT sequences,
## Publications

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>[J1]</td>
<td>Motion Competition: A variational framework for piecewise parametric motion segmentation</td>
<td>D. Cremers and S. Soatto</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>[BC1]</td>
<td>Variational segmentation with shape priors</td>
<td>M. Bergtholdt, D. Cremers and C. Schnörr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>[C1]</td>
<td>Dynamical statistical shape priors for level set based tracking</td>
<td>D. Cremers and G. Funka-Lea</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>[C2]</td>
<td>One-shot integral invariant shape priors for variational segmentation</td>
<td>S. Manay, D. Cremers, A. J. Yezzi and S. Soatto</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>[C3]</td>
<td>Efficient kernel density estimation of shape and intensity priors for level set segmentation</td>
<td>M. Rousson and D. Cremers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>[C2]</td>
<td>Bayesian Approaches to Motion-based Image and Video Segmentation</td>
<td>D. Cremers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>[C2]</td>
<td>Kernel density estimation and intrinsic alignment for knowledge-driven segmentation: Teaching level sets to walk</td>
<td>D. Cremers, S. J. Osher and S. Soatto</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
</table>
[J1] D. Cremers, T. Kohlberger and C. Schnörr,
Shape Statistics in Kernel Space for Variational Image Segmentation,

[J2] D. Cremers and C. Schnörr,
Statistical shape knowledge in variational motion segmentation,

[J3] J. Keuchel, C. Schnörr, C. Schellewald and D. Cremers,
Binary partitioning, perceptual grouping, and restoration with semidefinite programming,

[C1] D. Cremers,
A variational framework for image segmentation combining motion estimation and shape regularization,

[C2] D. Cremers,
A multiphase level set framework for variational motion segmentation,

[C3] D. Cremers and S. Soatto,
A pseudo-distance for shape priors in level set segmentation,

[C4] D. Cremers and S. Soatto,
Variational space-time motion segmentation,

[C5] D. Cremers, N. Sochen and C. Schnörr,
Towards Recognition-based Variational Segmentation Using Shape Priors and Dynamic Labeling,

[C6] D. Cremers and A. L. Yuille,
A generative model based approach to motion segmentation,

[C7] G. Doretto, D. Cremers, P. Favaro and S. Soatto,
Dynamic texture segmentation,
Publications

[J1] D. Cremers and A. V. M. Herz,
Travelling waves of exitation in neural field models: Equivalence of rate descriptions and integrate-and-fire dynamics,

[J2] D. Cremers, F. Tischhäuser, J. Weickert and C. Schnörr,
Diffusion Snakes: Introducing statistical shape knowledge into the Mumford–Shah functional,

[C1] J. Keuchel, C. Schnörr, C. Schellewald and D. Cremers,
Unsupervised Image Partitioning with Semidefinite Programming,

[C2] D. Cremers, T. Kohlberger and C. Schnörr,
Nonlinear shape statistics in Mumford–Shah based segmentation,

[C3] D. Cremers and C. Schnörr,
Motion Competition: variational integration of motion segmentation and shape regularization,

[C4] D. Cremers and C. Schnörr,
Statistical shape knowledge in variational motion segmentation,
A. Pece, Y. N. Wu and R. Larsen(Eds.), *1st Internat. Workshop on Generative-Model-Based Vision*, Copenhagen, Univ. of Copenhagen, June, 2 2002.

[PhD1] D. Cremers,
Statistical shape knowledge in variational image segmentation,
Department of Mathematics and Computer Science, University of Mannheim, Germany, 2002.

[C1] D. Cremers, T. Kohlberger and C. Schnörr,
Nonlinear shape statistics via kernel spaces,

Convex Relaxations for Binary Image Partitioning and Perceptual Grouping,
Radig, B., Florczyk and S.(Eds.), *Pattern Recognition*, Munich, Germany; Springer, LNCS, Vol. 2191, 353-360, Sept. 2001, Received a DAGM Paper Award.

[C3] D. Cremers, C. Schnörr and J. Weickert,
Diffusion Snakes: Combining statistical shape knowledge and image information in a variational framework,
N. Paragios(Ed.), *IEEE First Int. Workshop on Variational and Level Set Methods*, Vancouver, 137-144, 2001, Best Student Paper Award.
[C1] D. Cremers, C. Schnörr, J. Weickert and C. Schellewald,
Learning of translation invariant shape knowledge for steering diffusion snakes,

[C2] D. Cremers, C. Schnörr, J. Weickert and C. Schellewald,
Diffusion Snakes using statistical shape knowledge,

[R1] D. Cremers, C. Schnörr, J. Weickert and C. Schellewald,
Diffusion Snakes using statistical shape knowledge,

[J1] D. Cremers and A. Mielke,
Flow equations for the Hénon-Heiles Hamiltonian,