2022

Journal Articles

[J1] C Tomani and D Cremers,
Challenger: Training with Attribution Maps,
arXiv preprint, 2022.

[J2] L. von Stumberg and D. Cremers,
DM-VIO: Delayed Marginalization Visual-Inertial Odometry,
IEEE Robotics and Automation Letters (RA-L) 38; International Conference on Robotics and Automation (ICRA), 7(2): 1408-1415, 2022.

[J3] C. Brunner, A. Duensing, C. Schröder, M. Mittermair, V. Golkov, M. Pollanka, D. Cremers and R. Kienberger,
Deep Learning in Attosecond Metrology,
Optics Express, 30(9): 15669-15684, 2022, **Editor's Pick**.

[J4] T Yenamandra, A Tewari, N Yang, F Bernard, C Theobalt and D Cremers,
HDSDF: Hybrid Directional and Signed Distance Functions for Fast Inverse Rendering,
2022.

Conference and Workshop Papers

[C1] J. Veraart and 100 coauthors,
A data-driven variability assessment of brain diffusion MRI preprocessing pipelines,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2022, **Oral Presentation**.

[C2] C Sommer, L Sang, D Schubert and D Cremers,
Gradient-SDF: A Semi-Implicit Surface Representation for 3D Reconstruction,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022.

[C3] Z Ye, T Yenamandra, F Bernard and D Cremers,
Joint Deep Multi-Graph Matching and 3D Geometry Learning from Inhomogeneous 2D Image Collections,
AAAI, 2022.

[C4] D Muhle, L Koestler, N Demmel, F Bernard and D Cremers,
The Probabilistic Normal Epipolar Constraint for Frame-To-Frame Rotation Optimization under Uncertain Feature Positions,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022.

[C5] S Weber, N Demmel, T Chon Chan and D Cremers,
Power Bundle Adjustment for Large-Scale 3D Reconstruction,
submission, 2022.

[C6] F Müller, Q Khan and D Cremers,
Lateral Ego-Vehicle Control Without Supervision Using Point Clouds,
Pattern Recognition and Artificial Intelligence, Springer International Publishing, 477-488, 2022.

[C7] L Hang, Q Khan, V Tresp and D Cremers,
Biologically Inspired Neural Path Finding,
Brain Informatics (Accepted), Springer, 2022.

[C8] D Das, Q Khan and D Cremers,
Ventriloquist-Net: Leveraging Speech Cues for Emotive Talking Head Generation,
IEEE International Conference on Image Processing (Accepted), 2022.

2021

Journal Articles

[J1] H. Bauermeister, E. Laude, T. Moellenhoff, M. Moeller and D. Cremers,
Lifting the convex conjugate in Lagrangian relaxations: A Tractable Approach for Continuous Markov Random Fields,
arXiv preprint, 2021.

[J2] P. Müller, V. Golkov, V. Tomassini and D. Cremers,
Rotation-Equivariant Deep Learning for Diffusion MRI,
arXiv preprint, 2021.

[J3] C Tomani, D Cremers and F Buettner,
Parameterized Temperature Scaling for Boosting the Expressive Power in Post-Hoc Uncertainty Calibration,
arXiv preprint, 2021.

[J4] J. Chui, S. Klenk and D. Cremers,
Event-Based Feature Tracking in Continuous Time with Sliding Window Optimization,
arXiv preprint, 2021.

[J5] M. Mozes, M. Schmitt, V. Golkov, H. Schütze and D. Cremers,
Scene Graph Generation for Better Image Captioning?,
arXiv preprint, 2021.

Conference and Workshop Papers

[C1] B. Haefner, S. Green, A. Oursland, D. Andersen, M. Goesele, D. Cremers, R. Newcombe and T. Whelan,
Recovering Real-world Reflectance Properties and Shading from HDR Imagery,
International Conference on 3D Vision (3DV), 2021.

[C2] T Frerix, D Kochkov, J Smith, D Cremers, M Brenner and S Hoyer,
Variational Data Assimilation with a Learned Inverse Observation Operator,
Proceedings of the 38th International Conference on Machine Learning (ICML), 2021.

[C3] M. Eisenberger, D. Novotny, G. Kerchenbaum, P. Labatut, N. Neverova, D. Cremers and A. Vedaldi,
NeuroMorph: Unsupervised Shape Interpolation and Correspondence in One Go,
IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2021.

[C4] M. C. Mukkamala, F. Westerkamp, E. Laude, D. Cremers and P. Ochs,
Bregman Proximal Gradient Algorithms for Deep Matrix Factorization,
Elmoataz, Abderrahim, Fadili, Jalal, Quéau, Yvain, Rabin, Julien, Simon and Loïc(Eds.),
Scale Space and Variational Methods in Computer Vision, Cham, Springer International Publishing, 204-215, 2021.

[C5] Z. Ye, B. Haefner, Y. Queau, T. Möllenhoff and D. Cremers,
Sublabel-Accurate Multilabeling Meets Product Label Spaces,
German Conference on Pattern Recognition (GCPR), 2021.

[C6] F. Wimbauer, N. Yang, L. von Stumberg, N. Zeller and D Cremers,
MonoRec: Semi-Supervised Dense Reconstruction in Dynamic Environments from a Single Moving Camera,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021.

[C7] T Yenamandra, A Tewari, F Bernard, HP Seidel, M Elgharib, D Cremers and C Theobalt,
i3DMM: Deep Implicit 3D Morphable Model of Human Heads,
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), June 2021, **Oral Presentation**.

[C8] M Gao, Z Lähner, J Thunberg, D Cremers and F Bernard,
Isometric Multi-Shape Matching,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021, **Oral Presentation**.

[C9] M Naeyaert, V Golkov, D Cremers, J Sijbers and M Verhoye,
Faster and better HARDI using FSE and holistic reconstruction,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2021.

[C10] P. Müller, V. Golkov, V. Tomassini and D. Cremers,
Rotation-Equivariant Deep Learning for Diffusion MRI (short version),
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2021.

[C11] Q. Khan, P. Wenzel and D. Cremers,
Self-Supervised Steering Angle Prediction for Vehicle Control Using Visual Odometry,
International Conference on Artificial Intelligence and Statistics (AISTATS), 2021.

[C12] M. Gladkova, R. Wang, N. Zeller and D. Cremers,
Tight Integration of Feature-based Relocalization in Monocular Direct Visual Odometry,
Proc. of the IEEE International Conference on Robotics and Automation (ICRA), 2021.

[C13] Y. Xia, Y. Xu, S. Li, R. Wang, J. Du, D. Cremers and U. Stilla,
SOE-Net: A Self-Attention and Orientation Encoding Network for Point Cloud based Place Recognition,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021, **Oral Presentation**.

[C14] P. Wenzel, T. Schön, L. Leal-Taixe and D. Cremers,
Vision-Based Mobile Robotics Obstacle Avoidance With Deep Reinforcement Learning,
Proceedings of the IEEE International Conference on Robotics and Automation (ICRA), 2021.

[C15] N Demmel, C Sommer, D Cremers and V Usenko,
Square Root Bundle Adjustment for Large-Scale Reconstruction,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021.

[C16] C Tomani, S Gruber, ME Erdem, D Cremers and F Buettner,
Post-hoc Uncertainty Calibration for Domain Drift Scenarios,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021, **Oral Presentation**.

[C17] N Demmel, D Schubert, C Sommer, D Cremers and V Usenko,
Square Root Marginalization for Sliding-Window Bundle Adjustment,
IEEE International Conference on Computer Vision (ICCV), 2021.

[C18] MW Wudenka, MG Müller, N Demmel, A Wedler, R Triebel, D Cremers and W Stuerzl,
Towards Robust Monocular Visual Odometry for Flying Robots on Planetary Missions,
International Conference on Intelligent Robots and Systems (IROS), 2021.

[C19] S Klenk, J Chui, N Demmel and D Cremers,
TUM-VIE: The TUM Stereo Visual-Inertial Event Dataset,
International Conference on Intelligent Robots and Systems (IROS), 2021.

[C20] L Koestler, N Yang, N Zeller and D Cremers,
TANDEM: Tracking and Dense Mapping in Real-time using Deep Multi-view Stereo,
Conference on Robot Learning (CoRL), 2021, **3DV'21 Best Demo Award**.

[C21] S Weber, N Demmel and D Cremers,
Multidirectional Conjugate Gradients for Scalable Bundle Adjustment,
German Conference on Pattern Recognition (GCPR), 2021, **Oral Presentation**.

2020

Journal Articles

[J1] E. Laude, P. Ochs and D. Cremers,
Bregman Proximal Mappings and Bregman-Moreau Envelopes under Relative Prox-Regularity,
Journal of Optimization Theory and Applications, 184(3): 724-761, 2020.

[J2] B. Haefner, S. Peng, A. Verma, Y. Queau and D. Cremers,
Photometric Depth Super-Resolution,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 42(10): 2453-2464, 2020.

[J3] V. Golkov, A. Becker, D. T. Plop, D. 38;268uturilo, N. Davoudi, J. Mendenhall, R. Moretti, J. Meiler and D. Cremers,
Deep Learning for Virtual Screening: Five Reasons to Use ROC Cost Functions,
arXiv preprint arXiv:2007.07029, 2020.

[J4] V. Usenko, N. Demmel, D. Schubert, J. Stueckler and D. Cremers,
Visual-Inertial Mapping with Non-Linear Factor Recovery,
IEEE Robotics and Automation Letters (RA-L) 38; Int. Conference on Intelligent Robotics and Automation (ICRA), 5(2): 422-429, 2020.

[J5] L. von Stumberg, P. Wenzel, Q. Khan and D. Cremers,
GN-Net: The Gauss-Newton Loss for Multi-Weather Relocalization,
IEEE Robotics and Automation Letters (RA-L), 5(2): 890-897, 2020.

[J6] C. Sommer, Y. Sun, L. J. Guibas, D. Cremers and T. Birdal,
From Planes to Corners: Multi-Purpose Primitive Detection in Unorganized 3D Point Clouds,
IEEE Robotics and Automation Letters (RA-L) 38; International Conference on Robotics and Automation (ICRA), 5(2): 1764-1771, 2020.

[J7] M. Naeyaert, J. Aelterman, J. Van Audekerke, V. Golkov, D. Cremers, A. Pizurica, J. Sijbers and M. Verhoye,
Accelerating in vivo fast spin echo high angular resolution diffusion imaging with an isotropic resolution in mice through compressed sensing,
Magnetic Resonance in Medicine, 85(3): 1397-1413, 2020.

[J8] G Fabbro, V Golkov, T Kemp and D Cremers,
Speech Synthesis and Control Using Differentiable DSP,
arXiv preprint arXiv:2010.15084, 2020.

[J9] I Chiotellis and D Cremers,
Neural Online Graph Exploration,
arXiv preprint arXiv:2012.03345, 2020.

Conference and Workshop Papers

[C1] 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,
International Conference on 3D Vision (3DV), 2020.

[C2] L. Sang, B. Haefner and D. Cremers,
Inferring Super-Resolution Depth from a Moving Light-Source Enhanced RGB-D Sensor: A Variational Approach,
IEEE Winter Conference on Applications of Computer Vision (WACV), Colorado, USA, March 2020, **Spotlight Presentation**.

[C3] T Frerix, M Niesner and D Cremers,
Homogeneous Linear Inequality Constraints for Neural Network Activations,
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, 2020.

[C4] R. Wang, N. Yang, J. Stueckler and D. Cremers,
DirectShape: Photometric Alignment of Shape Priors for Visual Vehicle Pose and Shape Estimation,
Proc. of the IEEE International Conference on Robotics and Automation (ICRA), 2020.

[C5] M. Eisenberger, Z. Lähner and D. Cremers,
Smooth Shells: Multi-Scale Shape Registration with Functional Maps,
IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2020, **Oral Presentation**.

[C6] M. Eisenberger and D. Cremers,
Hamiltonian Dynamics for Real-World Shape Interpolation,
European Conference on Computer Vision (ECCV), 2020, **Spotlight Presentation**.

[C7] M. Eisenberger, A. Toker, L. Leal-Taixe and D. Cremers,
Deep Shells: Unsupervised Shape Correspondence with Optimal Transport,
34th Conference on Neural Information Processing Systems (NeurIPS), 2020.

[C8] S. Weiss, R. Maier, D. Cremers, R. Westermann and N. Thuerey,
Correspondence-Free Material Reconstruction using Sparse Surface Constraints,
IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2020.

[C9] C. Sommer, V. Usenko, D. Schubert, N. Demmel and D. Cremers,
Efficient Derivative Computation for Cumulative B-Splines on Lie Groups,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020, **Oral Presentation**.

[C10] N. Yang, L. von Stumberg, R. Wang and D. Cremers,
D3VO: Deep Depth, Deep Pose and Deep Uncertainty for Monocular Visual Odometry,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020, **Oral Presentation**.

[C11] Z. Ye, T. Möllenhoff, T. Wu and D. Cremers,
Optimization of Graph Total Variation via Active-Set-based Combinatorial Reconditioning,
International Conference on Artificial Intelligence and Statistics (AISTATS), 2020.

[C12] J Liu, I Chiotellis, R Triebel and D Cremers,
Effective Version Space Reduction for Convolutional Neural Networks,
European Conference on Machine Learning and Data Mining (ECML-PKDD), 2020.

[C13] J. Du, R. Wang and D. Cremers,
DH3D: Deep Hierarchical 3D Descriptors for Robust Large-Scale 6DoF Relocalization,
European Conference on Computer Vision (ECCV), 2020, **Spotlight Presentation**.

[C14] C. Sommer, Y. Sun, E. Bylow and D. Cremers,
PrimiTect: Fast Continuous Hough Voting for Primitive Detection,
International Conference on Robotics and Automation (ICRA), 2020.

[C15] L. Koestler, N. Yang, R. Wang and D. Cremers,
Learning Monocular 3D Vehicle Detection without 3D Bounding Box Labels,
Proceedings of the German Conference on Pattern Recognition (GCPR), 2020.

[C16] P. Wenzel, R. Wang, N. Yang, Q. Cheng, Q. Khan, L. von Stumberg, N. Zeller and D. Cremers,
4Seasons: A Cross-Season Dataset for Multi-Weather SLAM in Autonomous Driving,
Proceedings of the German Conference on Pattern Recognition (GCPR), 2020.

[C17] B Holzschuh, Z Lähner and D Cremers,
Simulated Annealing for 3D Shape Correspondence,
International Conference on 3D Vision (3DV), 2020, **Oral Presentation**.

[C18] M Aygün, Z Lähner and D Cremers,
Unsupervised Dense Shape Correspondence using Heat Kernels,
International Conference on 3D Vision (3DV), 2020.

[C19] N Demmel, M Gao, E Laude, T Wu and D Cremers,
Distributed Photometric Bundle Adjustment,
International Conference on 3D Vision (3DV), 2020, **Oral Presentation**.

[C20] L. von Stumberg, P. Wenzel, N. Yang and D. Cremers,
LM-Reloc: Levenberg-Marquardt Based Direct Visual Relocalization,
International Conference on 3D Vision (3DV), 2020.

2019

Journal Articles

[J1] K.-K. Maninis, S. Caelles, Y. Chen, J. PTand L. Leal-Taixe, D. Cremers and L. V Gool,
Video Object Segmentation without Temporal Information,
IEEE Trans. Pattern Anal. Mach. Intell., 41(6): 1515-1530, 2019.

[J2] H Tjaden, U Schwanecke, E Schömer and D Cremers,
A Region-based Gauss-Newton Approach to Real-Time Monocular Multiple Object Tracking,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 41(8): 1797-1812, 2019.

[J3] S. Roy, A.T.D. Gruenwald, A. Alves-Pinto, R. Maier, D. Cremers, D. Pfeiffer and R. Lampe,
A Non-invasive 3D Body Scanner and Software Tool towards Analysis of Scoliosis,
BioMed Research International (BMRI), May 2019.

[J4] F. Pasa, V. Golkov, F. Pfeiffer, D. Cremers and D. Pfeiffer,
Efficient Deep Network Architectures for Fast Chest X-Ray Tuberculosis Screening and Visualization,
Scientific Reports, 9(1): 6268, 2019.

[J5] J. Schuchardt, V. Golkov and D. Cremers,
Learning to Evolve,
arXiv preprint arXiv:1905.03389, 2019.

[J6] L. Della Libera, V. Golkov, Y. Zhu, A. Mielke and D. Cremers,
Deep Learning for 2D and 3D Rotatable Data: An Overview of Methods,
arXiv preprint arXiv:1910.14594, 2019.

Conference and Workshop Papers

[C1] R. Dyke, C. Stride, Y.-K. Lai, P. L. Rosin, M. Aubry, A. Boyarski, A. M. Bronstein, M. M. Bronstein, D. Cremers, M. Fisher, T. Groueix, D. Guo, V. G. Kim, R. Kimmel, Z. Lähner, K. Li, O. Litany, T. Remez, E. Rodola, B. C. Russell, Y. Sahillioglu, R. Slossberg, G. K. L. Tam, M. Vestner, Z. Wu and J. Yang,
Shape Correspondence with Isometric and Non-Isometric Deformations,
Silvia Biasotti, Guillaume Lavoué and Remco C. Veltkamp(Eds.), *12th Eurographics Workshop on 3D Object Retrieval, 3DOR@Eurographics 2019, Genoa, Italy, May 5-6, 2019*, Eurographics Association, 111-119, 2019.

[C2] B. Haefner, Y. Queau and D. Cremers,
Photometric Segmentation: Simultaneous Photometric Stereo and Masking,
International Conference on 3D Vision (3DV), Quebec City, Canada, September 2019, **Spotlight Presentation**.

[C3] B. Haefner, Z. Ye, M. Gao, T. Wu, Y. Queau and D. Cremers,
Variational Uncalibrated Photometric Stereo under General Lighting,
International Conference on Computer Vision (ICCV), Seoul, South Korea, October 2019.

[C4] 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**.

[C5] P. Swazinna, V. Golkov, I. Lipp, E. Sgarlata, V. Tomassini, D. K. Jones and D. Cremers,
Negative-Unlabeled Learning for Diffusion MRI,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2019.

[C6] D. Schubert, N. Demmel, L. von Stumberg, V. Usenko and D. Cremers,
Rolling-Shutter Modelling for Visual-Inertial Odometry,
International Conference on Intelligent Robots and Systems (IROS), November 2019.

[C7] M. Eisenberger, Z. Lähner and D. Cremers,
Divergence-Free Shape Correspondence by Deformation,
Computer Graphics Forum, Vol. 38, 1-12, July 2019.

[C8] E. Laude, T. Wu and D. Cremers,
Optimization of Inf-Convolution Regularized Nonconvex Composite Problems,
International Conference on Artificial Intelligence and Statistics (AISTATS), 2019.

[C9] T. Möllenhoff and D. Cremers,
Lifting Vectorial Variational Problems: A Natural Formulation based on Geometric Measure Theory and Discrete Exterior Calculus,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019, **Oral Presentation**.

[C10] T. Möllenhoff and D. Cremers,
Flat Metric Minimization with Applications in Generative Modeling,
International Conference on Machine Learning (ICML), 6 2019, **Full Oral Presentation**.

[C11] Q. Khan, P. Wenzel, D. Cremers and L. Leal-Taixe,
Towards Generalizing Sensorimotor Control Across Weather Conditions,
Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2019.

[C12] M. Moeller, T. Möllenhoff and D. Cremers,
Controlling Neural Networks via Energy Dissipation,
International Conference on Computer Vision (ICCV), Seoul, South Korea, 10 2019.

[C13] E. Jung, N. Yang and D. Cremers,
Multi-Frame GAN: Image Enhancement for Stereo Visual Odometry in Low Light,
Conference on Robot Learning (CoRL), 2019, **Full Oral Presentation**.

[C14] 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,
arXiv preprint arXiv:1910.01812, 2019.

[C15] P. Brechet, T. Wu, T. Möllenhoff and D. Cremers,
Informative GANs via Structured Regularization of Optimal Transport,
NeurIPS Workshop on Optimal Transport and Machine Learning, 2019.

2018

Journal Articles

[J1] J. Engel, V. Koltun and D. Cremers,
Direct Sparse Odometry,
IEEE Transactions on Pattern Analysis and Machine Intelligence, mar 2018.

[J2] N. Yang, R. Wang, X. Gao and D. Cremers,
Challenges in Monocular Visual Odometry: Photometric Calibration, Motion Bias and Rolling Shutter Effect,
In IEEE Robotics and Automation Letters (RA-L) 38; Int. Conference on Intelligent Robots and Systems (IROS), 3: 2878-2885, Oct 2018.

[J3] Y. Queau, B. Durix, T. Wu, D. Cremers, F. Lauze and J.-D. Durou,
LED-based Photometric Stereo: Modeling, Calibration and Numerical Solution,
Journal of Mathematical Imaging and Vision, 60(3): 313-340, 2018.

[J4] B Bringmann, D Cremers and F Krahmer,
The homotopy method revisited: Computing solution paths of L1-regularized problems,
Math. Comput., 87(313): 2343-2364, 2018.

[J5] J. Melou, Y. Queau, J.-D. Durou, F. Castan and D. Cremers,
Variational Reflectance Estimation from Multi-view Images,
Journal of Mathematical Imaging and Vision, 60(9): 1527-1546, 2018.

[J6] P. Bergmann, R. Wang and D. Cremers,
Online Photometric Calibration of Auto Exposure Video for Realtime Visual Odometry and SLAM,
IEEE Robotics and Automation Letters (RA-L), 3: 627-634, April 2018, **ICRA'18 Best Vision Paper Award - Finalist**.

[J7] E. Aljalbout, V. Golkov, Y. Siddiqui, M. Strobel and D. Cremers,
Clustering with Deep Learning: Taxonomy and New Methods,
arXiv preprint arXiv:1801.07648, 2018.

[J8] N Mayer, E Ilg, P Fischer, C Hazirbas, D Cremers, A Dosovitskiy and T Brox,
What Makes Good Synthetic Training Data for Learning Disparity and Optical Flow Estimation?,
41(8): 1797-1812, September 2018.

[J9] H. Matsuki, L. von Stumberg, V. Usenko, J. Stueckler and D. Cremers,
Omnidirectional DSO: Direct Sparse Odometry with Fisheye Cameras,
IEEE Robotics and Automation Letters 38; Int. Conference on Intelligent Robots and Systems (IROS), 2018.

[J10] L. Ma, J. Stueckler, T. Wu and D. Cremers,
Detailed Dense Inference with Convolutional Neural Networks via Discrete Wavelet Transform,
Aug 2018.

Conference and Workshop Papers

[C1] R. Henschel, L. Leal-Taixe, D. Cremers and B. Rosenhahn,
Fusion of Head and Full-Body Detectors for Multi-Object Tracking,
2018 IEEE Conference on Computer Vision and Pattern Recognition Workshops, CVPR Workshops 2018, Salt Lake City, UT, USA, June 18-22, 2018, IEEE Computer Society, 1428-1437, 2018.

[C2] C. Sommer and D. Cremers,
Joint Representation of Primitive and Non-primitive Objects for 3D Vision,
2018 International Conference on 3D Vision, 3DV 2018, Verona, Italy, September 5-8, 2018, IEEE Computer Society, 160-169, 2018.

[C3] C. Hazirbas, S. G. Soyer, M. C. Staab, L. Leal-Taixe and D. Cremers,
Deep Depth From Focus,
Asian Conference on Computer Vision (ACCV), December 2018.

[C4] B. Haefner, Y. Queau, T. Möllenhoff and D. Cremers,
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**.

[C5] E. Laude, J.-H. Lange, J. Schüpfer, C. Domokos, L. Leal-Taixe, F. R. Schmidt, B. Andres and D. Cremers,
Discrete-Continuous ADMM for Transductive Inference in Higher-Order MRFs,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018.

[C6] C Domokos, FR. Schmidt and D Cremers,
MRF Optimization with Separable Convex Prior on Partially Ordered Labels,
Vittorio Ferrari, Martial Hebert, Cristian Sminchisescu and Yair Weiss(Eds.), *Computer Vision - ECCV 2018 - 15th European Conference, Munich, Germany, September 8-14, 2018, Proceedings, Part VIII*, Springer, Lecture Notes in Computer Science, Vol. 11212, 341-356, 2018.

[C7] 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.

[C8] 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.

[C9] R Scona, M Jaimez, YR. Petillot, M Fallon and D Cremers,
StaticFusion: Background Reconstruction for Dense RGB-D SLAM in Dynamic Environments,
2018 IEEE International Conference on Robotics and Automation, ICRA 2018, Brisbane, Australia, May 21-25, 2018, IEEE, 1-9, 2018.

[C10] V. Golkov, A. Vasilev, F. Pasa, I. Lipp, W. Boubaker, E. Sgarlata, F. Pfeiffer, V. Tomassini, D. K. Jones and D. Cremers,
q-Space Novelty Detection in Short Diffusion MRI Scans of Multiple Sclerosis,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2018.

[C11] V. Golkov, P. Swazinna, M. M. Schmitt, Q. A. Khan, C. M. W. Tax, M. Serahlazau, F. 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,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2018.

[C12] B. T. Do, V. Golkov, G. E. Gürel and D. Cremers,
Precursor microRNA Identification Using Deep Convolutional Neural Networks,
bioRxiv preprint, 2018.

[C13] 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.

[C14] T. Frerix, T. Möllenhoff, M. Moeller and D. Cremers,
Proximal Backpropagation,
International Conference on Learning Representations (ICLR), 2018.

[C15] L. von Stumberg, V. Usenko and D. Cremers,
Direct Sparse Visual-Inertial Odometry using Dynamic Marginalization,
International Conference on Robotics and Automation (ICRA), May 2018.

[C16] D. Schubert, T. Goll, N. Demmel, V. Usenko, J. Stueckler and D. Cremers,
The TUM VI Benchmark for Evaluating Visual-Inertial Odometry,
International Conference on Intelligent Robots and Systems (IROS), October 2018.

[C17] X. Gao, R. Wang, N. Demmel and D. Cremers,
LDSO: Direct Sparse Odometry with Loop Closure,
International Conference on Intelligent Robots and Systems (IROS), October 2018.

[C18] Z. Lähner, D. Cremers and T. Tung,
DeepWrinkles: Accurate and Realistic Clothing Modeling,
European Conference on Computer Vision (ECCV), September 2018, **Oral Presentation**.

[C19] N. Yang, R. Wang, J. Stueckler and D. Cremers,
Deep Virtual Stereo Odometry: Leveraging Deep Depth Prediction for Monocular Direct Sparse Odometry,
European Conference on Computer Vision (ECCV), September 2018, **Oral Presentation**.

[C20] D. Schubert, N. Demmel, V. Usenko, J. Stueckler and D. Cremers,
Direct Sparse Odometry With Rolling Shutter,
European Conference on Computer Vision (ECCV), September 2018, **Oral Presentation**.

[C21] V. Usenko, N. Demmel and D. Cremers,
The Double Sphere Camera Model,
Proc. of the Int. Conference on 3D Vision (3DV), September 2018.

[C22] I. Chiotellis, F. Zimmermann, D. Cremers and R. Triebel,
Incremental Semi-Supervised Learning from Streams for Object Classification,
International Conference on Intelligent Robots and Systems (IROS), Madrid, Spain, Oct. 2018.

[C23] V. Estellers, F. Schmidt and D. Cremers,
Robust Fitting of Subdivision Surfaces for Smooth Shape Analysis,
Proc. of the Int. Conference on 3D Vision (3DV), September 2018, **Received the Best Paper Award at 3DV 2018**.

[C24] 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.

2017

Journal Articles

[J1] G. Kuschk, P. d'Angelo, D. Gaudrie, P. Reinartz and D. Cremers,
Spatially Regularized Fusion of Multiresolution Digital Surface Models,
IEEE Trans. Geosci. Remote. Sens., 55(3): 1477-1488, 2017.

[J2] D. Cremers, L. Leal-Taixe and R. Vidal,
Deep Learning for Computer Vision (Dagstuhl Seminar 17391),
Dagstuhl Reports, 7(9): 109-125, 2017.

[J3] Y. Kee, Y. Lee, M. Souiai, D. Cremers and J. Kim,
Sequential Convex Programming for Computing Information-Theoretic Minimal Partitions: Nonconvex Nonsmooth Optimization,
SIAM J. Imaging Sci., 10(4): 1845-1877, 2017.

[J4] D Cremers,
Computer Vision für 3-D-Rekonstruktion - Vom Nischenthema zum Mainstream,
Informatik Spektrum, 40(2): 205-209, 2017.

[J5] E. Rodola, L. Cosmo, M. M. Bronstein, A. Torsello and D. Cremers,
Partial Functional Correspondence,
Computer Graphics Forum, 36(1): 222-236, 2017.

[J6] L. Cosmo, E. Rodola, A. Albarelli, F. Memoli and D. Cremers,
Consistent Partial Matching of Shape Collections via Sparse Modeling,
Computer Graphics Forum, 36(1): 209-221, 2017.

[J7] M. Krieg, J. Stühmer, J. G. Cueva, R. Fetter, K. Spilker, D. Cremers, K. Shen, A. R. Dunn and M. B. Goodman,
Genetic defects in s-spectrin and tau sensitize C. elegans axons to movement-induced damage via torque-tension coupling,
eLife, 6: e20172, 2017.

[J8] M. Krieg, J. Stühmer, J. G. Cueva, R. Fetter, K. Spilker, D. Cremers, K. Shen, A. R. Dunn and M. B. Goodman,
Tau Like Proteins Reduce Torque Generation in Microtubule Bundles,
Biophysical Journal, 112(3): 29a-30a, 2017.

[J9] E Rodola, M Möller and D Cremers,
Regularized Pointwise Map Recovery from Functional Correspondence,
Comput. Graph. Forum, 36(8): 700-711, 2017.

[J10] J. Kukacka, V. Golkov and D. Cremers,
Regularization for Deep Learning: A Taxonomy,
arXiv preprint arXiv:1710.10686, 2017.

Conference and Workshop Papers

[C1] M. Benning, M. Möller, R. Z. Nossek, M. Burger, D. Cremers and G. Gilboa,
Nonlinear Spectral Image Fusion,
F. Lauze, Y. Dong and A. Dahl(Eds.), *Scale Space and Variational Methods in Computer Vision - 6th International Conference, SSVM 2017, Kolding, Denmark, June 4-8, 2017, Proceedings*, Springer, Lecture Notes in Computer Science, Vol. 10302, 41-53, 2017.

[C2] D. Bender, W. Koch and D. Cremers,
Map-based drone homing using shortcuts,
2017 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems, MFI 2017, Daegu, Korea (South), November 16-18, 2017, IEEE, 505-511, 2017.

[C3] G. Kuschk, A. Bozic and D. Cremers,
Real-time variational stereo reconstruction with applications to large-scale dense SLAM,
IEEE Intelligent Vehicles Symposium, IV 2017, Los Angeles, CA, USA, June 11-14, 2017, IEEE, 1348-1355, 2017.

[C4] M. Jaimez, C. Kerl, J. Gonzalez-Jimenez and D. Cremers,
Fast Odometry and Scene Flow from RGB-D Cameras based on Geometric Clustering,
Proc. of the IEEE Int. Conf. on Robotics and Automation (ICRA), 2017.

[C5] 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,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017.

[C6] L. Ma, J. Stueckler, C. Kerl and D. Cremers,
Multi-View Deep Learning for Consistent Semantic Mapping with RGB-D Cameras,
International Conference on Intelligent Robots and Systems (IROS), Vancouver, Canada, Sep 2017.

[C7] M. Vestner, R. Litman, E. Rodola, A. Bronstein and D. Cremers,
Product Manifold Filter: Non-Rigid Shape Correspondence via Kernel Density Estimation in the Product Space,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017.

[C8] M. Dzitsiuk, J. Sturm, R. Maier, L. Ma and D. Cremers,
De-noising, Stabilizing and Completing 3D Reconstructions On-the-go using Plane Priors,
International Conference on Robotics and Automation (ICRA), May 2017.

[C9] 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.

[C10] F. Walch, C. Hazirbas, L. Leal-Taixe, T. Sattler, S. Hilsenbeck and D. Cremers,
Image-based localization using LSTMs for structured feature correlation,
IEEE International Conference on Computer Vision (ICCV), October 2017.

[C11] J.C. Peeken, C. Knie, V. Golkov, K. Kessel, F. Pasa, Q. Khan, M. Seroglazov, J. Kukacka, T. Goldberg, L. Richter, J. Reeb, B. Rost, F. Pfeiffer, D. Cremers, F. Nüsslin and S.E. Combs,
Establishment of an interdisciplinary workflow of machine learning-based Radiomics in sarcoma patients,
23. Jahrestagung der Deutschen Gesellschaft für Radioonkologie (DEGRO), 2017.

[C12] Y. Queau, M. Pizenberg, J.-D. Durou and D. Cremers,
Microgeometry capture and RGB albedo estimation by photometric stereo without demosaicing,
International Conference on Quality Control by Artificial Vision (QCAV), 2017.

[C13] P. Haeusser, A. Mordvintsev and D. Cremers,
Learning by Association - A versatile semi-supervised training method for neural networks,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017.

[C14] M. Slavcheva, M. Baust, D. Cremers and S. Ilic,
KillingFusion: Non-rigid 3D Reconstruction without Correspondences,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017.

[C15] 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,
International Conference on Intelligent Robots and Systems (IROS), Vancouver, Canada, Sep 2017, **Best Paper Award - Finalist ()**.

[C16] Y. Queau, T. Wu, F. Lauze, J.-D. Durou and D. Cremers,
A Non-Convex Variational Approach to Photometric Stereo under Inaccurate Lighting,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Honlulu, USA, 2017.

[C17] T. Meinhardt, M. Moeller, C. Hazirbas and D. Cremers,
Learning Proximal Operators: Using Denoising Networks for Regularizing Inverse Imaging Problems,
IEEE International Conference on Computer Vision (ICCV), October 2017.

[C18] S. Caelles, K.-K. Maninis, J. Pont-Tuset, L. Leal-Taixe, D. Cremers and L. V Gool,
One-Shot Video Object Segmentation,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Honolulu, USA, 2017.

[C19] Y. Queau, J. Melou, J.-D. Durou and D. Cremers,
Dense Multi-view 3D-reconstruction Without Dense Correspondences,
ArXiv preprint 1704.00337, 2017.

[C20] P. Haeusser, T. Frerix, A. Mordvintsev and D. Cremers,
Associative Domain Adaptation,
IEEE International Conference on Computer Vision (ICCV), 2017.

[C21] Y. Queau, M. Pizenberg, D. Cremers and J.-D. Durou,
Stereophotometrie microscopique sans demosaiquage,
GRETSI, Juan-les-Pins, USA, 2017.

[C22] M. Vestner, Z. Lähner, A. Boyarski, O. Litany, R. Slossberg, T. Remez, E. Rodola, A. M. Bronstein, M. M. Bronstein, R. Kimmel and D. Cremers,
Efficient Deformable Shape Correspondence via Kernel Matching,
International Conference on 3D Vision (3DV), Qingdao, China, October 2017, **Oral Presentation**.

[C23] R. Maier, R. Schaller and D. Cremers,
Efficient Online Surface Correction for Real-time Large-Scale 3D Reconstruction,
British Machine Vision Conference (BMVC), London, United Kingdom, September 2017.

[C24] J. Geiping, H. Dirks and D. Cremers,
Multiframe Motion Coupling for Video Super Resolution,
Marcello Pelillo and Edwin R. Hancock(Eds.), *Energy Minimization Methods in Computer Vision and Pattern Recognition - 11th International Conference, EMMCVPR 2017, Venice, Italy, October 30 - November 1, 2017, Revised Selected Papers*, Springer, Lecture Notes in Computer Science, Vol. 10746, 123-138, 2017.

[C25] 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.

[C26] S. Peng, B. Haefner, Y. Queau and D. Cremers,
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**.

[C27] R. Wang, M. Schwörer and D. Cremers,
Stereo DSO: Large-Scale Direct Sparse Visual Odometry with Stereo Cameras,
International Conference on Computer Vision (ICCV), Venice, Italy, October 2017.

[C28] T. Möllenhoff and D. Cremers,
Sublabel-Accurate Discretization of Nonconvex Free-Discontinuity Problems,
International Conference on Computer Vision (ICCV), Venice, Italy, October 2017.

[C29] Y. Queau, J. Melou, F. Castan, D. Cremers and J.-D. Durou,
A Variational Approach to Shape-from-shading Under Natural Illumination,
Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCV-PR), 2017.

[C30] F. Bernard, F. R. Schmidt, J. Thunberg and D. Cremers,
A Combinatorial Solution to Non-Rigid 3D Shape-to-Image Matching,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017.

2016

Journal Articles

[J1] J. Diebold, C. Nieuwenhuis and D. Cremers,
Midrange Geometric Interactions for Semantic Segmentation,
International Journal of Computer Vision, 117(3): 199-225, 2016.

[J2] J. Duran, M. Möller, C. Sbert and D. Cremers,
Collaborative Total Variation: A General Framework for Vectorial TV Models,
SIAM J. Imaging Sci., 9(1): 116-151, 2016.

[J3] M. Burger, G. Gilboa, M. Möller, L. Eckardt and D. Cremers,
Spectral Decompositions Using One-Homogeneous Functionals,
SIAM J. Imaging Sci., 9(3): 1374-1408, 2016.

[J4] D. Boscaini, J. Masci, E. Rodola, M. M. Bronstein and D. Cremers,
Anisotropic Diffusion Descriptors,
Computer Graphics Forum - Proc. EUROGRAPHICS, 35(2): 431-441, 2016.

[J5] 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,
IEEE Transactions on Medical Imaging, 35: 2016, **Special Issue on Deep Learning**.

[J6] O. Litany, E. Rodola, A. M. Bronstein, M. M. Bronstein and D. Cremers,
Non-Rigid Puzzles,
Computer Graphics Forum, 35(5): 135-143, 2016, **Received the Best Paper Award at SGP 2016**.

[J7] M. Vestner, R. Litman, A. Bronstein, E. Rodola and D. Cremers,
Bayesian Inference of Bijective Non-Rigid Shape Correspondence,
arXiv preprint arXiv:1607.03425, 2016.

Book Chapters

[BC1] M. Vestner, E. Rodola, T. Windheuser, RBS. Bulo and D. Cremers,
Applying Random Forests to the Problem of Dense Non-rigid Shape Correspondence,
Perspectives in Shape Analysis, Springer, 231-248, 2016.

Conference and Workshop Papers

[C1] L. Cosmo, A. Albarelli, F. Bergamasco, A. Torsello, E. Rodola and D. Cremers,
A game-theoretical approach for joint matching of multiple feature throughout unordered images,
23rd International Conference on Pattern Recognition, ICPR 2016, Cancún, Mexico, December 4-8, 2016, IEEE, 3715-3720, 2016.

[C2] N. Mayer, E. Ilg, P. Häusser, P. Fischer, D. Cremers, A. Dosovitskiy and T. Brox,
A Large Dataset to Train Convolutional Networks for Disparity, Optical Flow, and Scene Flow Estimation,
2016 IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2016, Las Vegas, NV, USA, June 27-30, 2016, IEEE Computer Society, 4040-4048, 2016.

[C3] V. Golkov, T. Sprenger, J. I. Sperl, M. I. Menzel, M. Czisch, P. Sämann and D. Cremers,
Model-Free Novelty-Based Diffusion MRI,
IEEE International Symposium on Biomedical Imaging (ISBI), Prague, Czech Republic, apr 2016.

[C4] 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,
Annual Conference on Neural Information Processing Systems (NIPS), Barcelona, Spain, dec 2016, **Oral Presentation (acceptance rate: under 2%)**.

[C5] Z. Lähner, E. Rodola, F. R. Schmidt, M. M. Bronstein and D. Cremers,
Efficient Globally Optimal 2D-to-3D Deformable Shape Matching,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), May 2016.

[C6] V. Usenko, J. Engel, J. Stueckler and D. Cremers,
Direct Visual-Inertial Odometry with Stereo Cameras,
International Conference on Robotics and Automation (ICRA), May 2016.

[C7] A. Narr, R. Triebel and D. Cremers,
Stream-based Active Learning for Efficient and Adaptive Classification of 3D Objects,
International Conference on Robotics and Automation (ICRA), May 2016.

[C8] Z. Lähner, E. Rodola, M. M. Bronstein, D. Cremers, O. Burghard, L. Cosmo, A. Dieckmann, R. Klein and Y. Sahillioglu,
SHREC'16: Matching of Deformable Shapes with Topological Noise,
Proc. of Eurographics Workshop on 3D Object Retrieval (3DOR), May 2016.

[C9] L. Cosmo, E. Rodola, M. M. Bronstein, A. Torsello, D. Cremers and Y. Sahillioglu,
SHREC'16: Partial Matching of Deformable Shapes,
Proc. of Eurographics Workshop on 3D Object Retrieval (3DOR), May 2016.

[C10] T. Möllenhoff, E. Laude, M. Moeller, J. Lellmann and D. Cremers,
Sublabel-Accurate Relaxation of Nonconvex Energies,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016, **Oral Presentation, Received the Best Paper Honorable Mention Award at CVPR 2016**.

[C11] L. Ma, C. Kerl, J. Stueckler and D. Cremers,
CPA-SLAM: Consistent Plane-Model Alignment for Direct RGB-D SLAM,
International Conference on Robotics and Automation (ICRA), May 2016.

[C12] J. Engel, V. Usenko and D. Cremers,
A Photometrically Calibrated Benchmark For Monocular Visual Odometry,
arXiv:1607.02555, July 2016.

[C13] J. Engel, V. Koltun and D. Cremers,
Direct Sparse Odometry,
arXiv:1607.02565, July 2016.

[C14] E. Laude, T. Möllenhoff, M. Moeller, J. Lellmann and D. Cremers,
Sublabel-Accurate Convex Relaxation of Vectorial Multilabel Energies,
European Conference on Computer Vision (ECCV), October 2016.

[C15] D. Bender, D. Cremers and W. Koch,
A position free boresight calibration for INS-camera systems,
2016 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems, MFI 2016, Baden-Baden, Germany, September 19-21, 2016, IEEE, 52-57, 2016.

[C16] I. Chiotellis, R. Triebel, T. Windheuser and D. Cremers,
Non-Rigid 3D Shape Retrieval via Large Margin Nearest Neighbor Embedding,
European Conference on Computer Vision (ECCV), October 2016.

[C17] T. Windheuser and D. Cremers,
A Convex Solution to Spatially-Regularized Correspondence Problems,
European Conference on Computer Vision (ECCV), October 2016.

[C18] S. Sharifzadeh, I. Chiotellis, R. Triebel and D. Cremers,
Learning to Drive using Inverse Reinforcement Learning and Deep Q-Networks,
NIPS Workshops, December 2016.

[C19] D. Bender, F. Rouatbi, M. Schikora, D. Cremers and W. Koch,
Scaling the world of monocular SLAM with INS-measurements for UAS navigation,
19th International Conference on Information Fusion, FUSION 2016, Heidelberg, Germany, July 5-8, 2016, IEEE, 1493-1500, 2016.

2015

Journal Articles

[J1] J. Diebold, S. Tari and D. Cremers,
The Role of Diffusion in Figure Hunt Games,
Journal of Mathematical Imaging and Vision, 52(1): 108-123, 2015.

[J2] S. Madhogaria, P. M. Baggenstoss, M. Schikora, W. Koch and D. Cremers,
Car detection by fusion of HOG and causal MRF,
IEEE T. on Aerospace and Electronic Systems, 51(1): 575-590, 2015.

[J3] M. Klodt, K. Herzog, R. Töpfer and D. Cremers,
Field phenotyping of grapevine growth using dense stereo reconstruction,
BMC Bioinformatics, 16(143): May 2015.

[J4] E. Rodola, A. Albarelli, D. Cremers and A. Torsello,
A Simple and Effective Relevance-based Point Sampling for 3D Shapes,
Pattern Recognition Letters, 59(1): 41-47, 2015.

[J5] R. Mecca, E. Rodola and D. Cremers,
Realistic Photometric Stereo Using Partial Differential Irradiance Equation Ratios,
Computers and Graphics, 51: 8-16, Oct. 2015.

[J6] T. Möllenhoff, E. Strekalovskiy, M. Möller and D. Cremers,
The Primal-Dual Hybrid Gradient Method for Semiconvex Splittings,
SIAM Journal on Imaging Sciences, 8(2): 827-857, 2015.

[J7] Y. Kee, H. Lee, J. Yim, D. Cremers and J. Kim,
Entropy Minimization for Groupwise Planar Shape Co-alignment and its Applications,
IEEE Signal Process. Lett., 22(11): 1922-1926, 2015.

[J8] M. Möller, M. Benning, C. Schönlieb and D. Cremers,
Variational Depth From Focus Reconstruction,
IEEE Trans. Image Process., 24(12): 5369-5378, 2015.

Book Chapters

[BC1] D. Cremers,
Image Segmentation with Shape Priors: Explicit Versus Implicit Representations,
O. Scherzer(Ed.), *Handbook of Mathematical Methods in Imaging*, Springer, 1909-1944, 2015.

[BC2] V. Golkov, J. M. Portegies, A. Golkov, R. Duits and D. Cremers,
Holistic Image Reconstruction for Diffusion MRI,
Computational Diffusion MRI, Munich, Germany, Springer, oct 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,
Learning Nonlinear Spectral Filters for Color Image Reconstruction,
IEEE International Conference on Computer Vision (ICCV), 2015.

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

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

[C4] T. Möllenhoff, E. Strekalovskiy, M. Möller and D. Cremers,
Low Rank Priors for Color Image Regularization,
Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), 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.), *Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR)*, LNCS, 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,
Adopting an Unconstrained Ray Model in Light-field Cameras for 3D Shape Reconstruction,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015.

[C9] D. Mund, R. Triebel and D. Cremers,
Active Online Confidence Boosting for Efficient Object Classification,
Proc. IEEE International Conference on Robotics and Automation (ICRA), 2015.

[C10] V. Golkov, A. Dosovitskiy, P. Sämann, J. I. Sperl, T. Sprenger, M. Czisch, M. I. Menzel, P. A. Gomez, A. Haase, T. Brox and D. Cremers,
q-Space Deep Learning for Twelve-Fold Shorter and Model-Free Diffusion MRI Scans,
Medical Image Computing and Computer Assisted Intervention (MICCAI), Munich, Germany, oct 2015.

[C11] A. Dosovitskiy, P. Fischer, E. Ilg, P. Haeusser, C. Hazirbas, V. Golkov, P. van der Smagt, D. Cremers and T. Brox,
FlowNet: Learning Optical Flow with Convolutional Networks,
IEEE International Conference on Computer Vision (ICCV), dec 2015.

[C12] R. Triebel, K. Arras, R. Alami, L. Beyer, S. Breuers, R. Chatila, M. Chetouani, D. Cremers, V. Evers, M. Fiore, H. Hung, O. A. I Ramirez, M. Joosse, H. Khambhaita, T. Kucner, B. Leibe, A. J. Lilienthal, T. Linder, M. Lohse, M. Magnusson, B. Okal, L. Palmieri, U. Rafi, M. van Rooij and L. Zhang,
SPENCER: A Socially Aware Service Robot for Passenger Guidance and Help in Busy Airports,
Proc. Field and Service Robotics (FSR), 2015.

[C13] J. Engel, J. Stueckler and D. Cremers,
Large-Scale Direct SLAM with Stereo Cameras,
International Conference on Intelligent Robots and Systems (IROS), sept 2015.

[C14] D. Caruso, J. Engel and D. Cremers,
Large-Scale Direct SLAM for Omnidirectional Cameras,
International Conference on Intelligent Robots and Systems (IROS), sept 2015.

[C15] Y. Tao, R. Triebel and D. Cremers,
Semi-supervised Online Learning for Efficient Classification of Objects in 3D Data Streams,
International Conference on Intelligent Robots and Systems (IROS), sept 2015.

[C16] R. Maier, J. Stueckler and D. Cremers,
Super-Resolution Keyframe Fusion for 3D Modeling with High-Quality Textures,
International Conference on 3D Vision (3DV), October 2015.

[C17] V. Usenko, J. Engel, J. Stueckler and D. Cremers,
Reconstructing Street-Scenes in Real-Time From a Driving Car,
Proc. of the Int. Conference on 3D Vision (3DV), oct 2015.

[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,
Proc. of the Int. Conference on 3D Vision (3DV), oct 2015.

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

[C23] 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,
IEEE International Conference on Computer Vision (ICCV), Santiago, Chile, 2015.

[C24] J. Duran, M. Moeller, C. Sbert and D. Cremers,
A Novel Framework for Nonlocal Vectorial Total Variation Based on $\ell^{p,q,r}$â^'norms,
Proceedings of the 10th International Conference on Energy Minimization Methods in Computer Vision and Pattern Recognition, Springer International Publishing, 141-154, 2015.

2014

Journal Articles

[J1] B. Goldluecke, M. Aubry, K. Kolev and D. Cremers,
A Super-resolution Framework for High-Accuracy Multiview Reconstruction,
International Journal of Computer Vision, 106(2): 172-191, jan 2014.

[J2] E. Strekalovskiy, A. Chambolle and D. Cremers,
Convex Relaxation of Vectorial Problems with Coupled Regularization,
SIAM Journal on Imaging Sciences, 7(1): 294-336, 2014.

[J3] J. Engel, J. Sturm and D. Cremers,
Scale-Aware Navigation of a Low-Cost Quadrocopter with a Monocular Camera,
Robotics and Autonomous Systems (RAS), 62(11): 1646-–1656, 2014.

[J4] E. Rodola, S. R Bulo and D. Cremers,
Robust Region Detection via Consensus Segmentation of Deformable Shapes,
Computer Graphics Forum, 33(5): 97-106, 2014.

Books

[B1] E: D. Cremers, I. Reid, H. Saito and M.-S. Yang,
Computer Vision: ACCV 2014,
Springer 2014.

Book Chapters

[BC1] V. Golkov, J.I. Sperl, M.I. Menzel, T. Sprenger, E.T. Tan, L. Marinelli, C.J. Hardy, A. Haase and D. Cremers,
Joint Super-Resolution Using Only One Anisotropic Low-Resolution Image per q-Space Coordinate,
Computational Diffusion MRI, Springer, 2014, **Book Chapter, and Oral Presentation at MICCAI 2014 Workshop on Computational Diffusion MRI**.

Conference and Workshop Papers

[C1] V. Golkov, M.I. Menzel, T. Sprenger, M. Souiai, A. Haase, D. Cremers and J.I. Sperl,
Direct Reconstruction of the Average Diffusion Propagator with Simultaneous Compressed-Sensing-Accelerated Diffusion Spectrum Imaging and Image Denoising by Means of Total Generalized Variation Regularization,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2014.

[C2] V. Golkov, M.I. Menzel, T. Sprenger, A. Haase, D. Cremers and J.I. Sperl,
Semi-Joint Reconstruction for Diffusion MRI Denoising Imposing Similarity of Edges in Similar Diffusion-Weighted Images,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2014.

[C3] V. Golkov, M.I. Menzel, T. Sprenger, M. Souiai, A. Haase, D. Cremers and J.I. Sperl,
Improved Diffusion Kurtosis Imaging and Direct Propagator Estimation Using 6-D Compressed Sensing,
Organization for Human Brain Mapping (OHBM) Annual Meeting, 2014.

[C4] F. Steinbruecker, J. Sturm and D. Cremers,
Volumetric 3D Mapping in Real-Time on a CPU,
International Conference on Robotics and Automation (ICRA), Hongkong, China, 2014.

[C5] E. Rodola, S. R Bulo, T. Windheuser, M. Vestner and D. Cremers,
Dense Non-Rigid Shape Correspondence Using Random Forests,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2014.

[C6] 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.

[C7] H. Alvarez, L.M. Paz, J. Sturm and D. Cremers,
Collision Avoidance for Quadrotors with a Monocular Camera,
Proc. of The 12th International Symposium on Experimental Robotics (ISER), 2014.

[C8] J. Engel, T. Schöps and D. Cremers,
LSD-SLAM: Large-Scale Direct Monocular SLAM,
European Conference on Computer Vision (ECCV), September 2014, **Oral Presentation**.

[C9] T. Schöps, J. Engel and D. Cremers,
Semi-Dense Visual Odometry for AR on a Smartphone,
International Symposium on Mixed and Augmented Reality, September 2014, **Best Short Paper Award**.

[C10] T. Windheuser, M. Vestner, E. Rodola, R. Triebel and D. Cremers,
Optimal Intrinsic Descriptors for Non-Rigid Shape Analysis,
British Machine Vision Conference (BMVC), 2014.

[C11] M. Strobel, J. Diebold and D. Cremers,
Flow and Color Inpainting for Video Completion,
German Conference on Pattern Recognition (GCPR), Münster, Germany, September 2014, **Oral Presentation**.

[C12] 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**.

[C13] T. Gurdan, M. R. Oswald, D. Gurdan and D. Cremers,
Spatial and Temporal Interpolation of Multi-View Image Sequences,
German Conference on Pattern Recognition (GCPR), Münster, Germany, Vol. 36, sep 2014.

[C14] M. R. Oswald and D. Cremers,
Surface Normal Integration for Convex Space-time Multi-view Reconstruction,
British Machine Vision Conference (BMVC), 2014.

[C15] C. Nieuwenhuis, S. Hawe, M. Kleinsteuber and D. Cremers,
Co-Sparse Textural Similarity for Interactive Segmentation,
European Conference on Computer Vision (ECCV), 2014.

[C16] M. R. Oswald, J. Stühmer and D. Cremers,
Generalized Connectivity Constraints for Spatio-temporal 3D Reconstruction,
European Conference on Computer Vision (ECCV), 32-46, 2014.

[C17] E. Strekalovskiy and D. Cremers,
Real-Time Minimization of the Piecewise Smooth Mumford-Shah Functional,
European Conference on Computer Vision (ECCV), 127-141, 2014.

[C18] A. Kanezaki, E. Rodola, D. Cremers and T. Harada,
[Taiou tenshuugou ruijido gakushuu wo mochiita goutai-higoutai buttai kenshutsu],
- *Pattern Recognition and Media Understanding (PRMU)*, Vol. 114, 13-18, oct 2014.

[C19] 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.

[C20] O. Dunkley, J. Engel, J. Sturm and D. Cremers,
Visual-Inertial Navigation for a Camera-Equipped 25g Nano-Quadrotor,
IROS2014 Aerial Open Source Robotics Workshop, 2014.

[C21] 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.

[C22] S. Debnath, S. S. Baishya, R. Triebel, V. Dutt and D. Cremers,
Environment-adaptive Learning: How Clustering Helps to Obtain Good Training Data,
Carsten Lutz and Michael Thielscher(Eds.), *KI 2014: Advances in Artificial Intelligence*, Springer, 68-79, 2014.

[C23] 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.

[C24] 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.

[C25] 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.

[C26] F. R. Schmidt, T. Windheuser, U. Schlickewei and D. Cremers,
Dense Elastic 3D Shape Matching,
Global Optimization Methods, Springer, LNCS, Vol. 8293, 1-18, 2014.

2013

Journal Articles

[J1] C. Nieuwenhuis and D. Cremers,
Spatially Varying Color Distributions for Interactive Multi-Label Segmentation,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 35(5): 1234-1247, 2013.

[J2] C. Nieuwenhuis, E. Toeppe and D. Cremers,
A Survey and Comparison of Discrete and Continuous Multi-label Optimization Approaches for the Potts Model,
International Journal of Computer Vision, 104(3): 223-240, sep 2013.

[J3] B. Goldluecke, E. Strekalovskiy and D. Cremers,
Tight Convex Relaxations for Vector-Valued Labeling,
SIAM Journal on Imaging Sciences, 6(3): 1626—1664, 2013.

[J4] F. Endres, J. Hess, J. Sturm, D. Cremers and W. Burgard,
3D Mapping with an RGB-D Camera,
IEEE Transactions on Robotics (T-RO), 30(1): 177-187, 2013.

[J5] 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,
Journal of Visual Communication and Image Representation (JVCI), 2013.

Book Chapters

[BC1] M. Klodt, F. Steinbruecker and D. Cremers,
Moment Constraints in Convex Optimization for Segmentation and Tracking,
Advanced Topics in Computer Vision, Springer, 2013.

Conference and Workshop Papers

[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,
European Society for Magnetic Resonance in Medicine and Biology (ESMRMB) Annual Meeting, 2013, **Oral Presentation**.

[C4] V. Golkov, T. Sprenger, M.I. Menzel, D. Cremers and J.I. Sperl,
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**.

[C6] V. Golkov, M.I. Menzel, T. Sprenger, A. Menini, D. Cremers and J.I. Sperl,
Corrected Joint SENSE Reconstruction, Low-Rank Constraints, and Compressed-Sensing-Accelerated Diffusion Spectrum Imaging in Denoising and Kurtosis Tensor Estimation,
ISMRM Workshop on Diffusion as a Probe of Neural Tissue Microstructure, 2013.

[C7] V. Golkov, T. Sprenger, M.I. Menzel, E.T. Tan, K.F. King, C.J. Hardy, L. Marinelli, D. Cremers and J.I. Sperl,
Noise Reduction in Accelerated Diffusion Spectrum Imaging through Integration of SENSE Reconstruction into Joint Reconstruction in Combination with q-Space Compressed Sensing,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2013.

[C8] C. Kerl, J. Sturm and D. Cremers,
Robust Odometry Estimation for RGB-D Cameras,
International Conference on Robotics and Automation (ICRA), May 2013, **Best Vision Paper Award - Finalist**.

[C9] 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.

[C10] E. Bylow, J. Sturm, C. Kerl, F. Kahl and D. Cremers,
Real-Time Camera Tracking and 3D Reconstruction Using Signed Distance Functions,
Robotics: Science and Systems Conference (RSS), June 2013.

[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,
A Co-occurrence Prior for Continuous Multi-Label Optimization,
Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), 2013.

[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,
Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), 2013.

[C15] C. Kerl, J. Sturm and D. Cremers,
Dense Visual SLAM for RGB-D Cameras,
Proc. of the Int. Conf. on Intelligent Robot Systems (IROS), 2013.

[C16] T. Naseer, J. Sturm and D. Cremers,
FollowMe: Person Following and Gesture Recognition with a Quadrocopter,
Proc. of the Int. Conf. on Intelligent Robot Systems (IROS), 2013.

[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,
British Machine Vision Conference (BMVC), 2013.

[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 IEEE. 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,
Actes des recontres du CIRM: Courbure discrete: theorie et applications, Vol. 3, 107-117, 2013.

Technical Reports

[R1] M. Souiai, E. Strekalovskiy, C. Nieuwenhuis and D. Cremers,
Label Configuration Priors for Continuous Multi-Label Optimization,
Technical report 2013.

2012

Journal Articles

[J1] A. Chambolle, D. Cremers and T. Pock,
A Convex Approach to Minimal Partitions,
SIAM Journal on Imaging Sciences, 5(4): 1113-1158, 2012.

[J2] T. Schoenemann and D. Cremers,
A Coding Cost Framework for Super-resolution Motion Layer Decomposition,
IEEE Transactions on Image Processing, 21(3): 1097-1110, March 2012.

[J3] T. Schoenemann, F. Kahl, S. Masnou and D. Cremers,
A linear framework for region-based image segmentation and inpainting involving curvature penalization,
International Journal of Computer Vision, 99: 53-68, aug 2012.

[J4] D. Cremers,
Optimal Solutions for Semantic Image Decomposition,
Image and Vision Computing, 30(8): 476-477, 2012.

[J5] S. Chen, D. Cremers and R. J. Radke,
Image segmentation with one shape prior - A template-based formulation,
Image and Vision Computing, 30(12): 1032-1042, 2012.

[J6] B. Goldluecke, E. Strekalovskiy and D. Cremers,
The Natural Total Variation Which Arises from Geometric Measure Theory,
SIAM Journal on Imaging Sciences, 5(2): 537—563, 2012.

[J7] K. Kolev, T. Brox and D. Cremers,
Fast Joint Estimation of Silhouettes and Dense 3D Geometry from Multiple Images,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 34(3): 493-505, 2012.

[J8] M. Schikora, B. Neupane, S. Madhogaria, W. Koch, D. Cremers, H. Hirt, K.-H. Kogel and A. Schikora,
An image classification approach to analyze the suppression of plant immunity by the human pathogen Salmonella Typhimurium,
BMC Bioinformatics, 13(171): July 2012.

[J9] D. Cremers and E. Strekalovskiy,
Total Cyclic Variation and Generalizations,
Journal of Mathematical Imaging and Vision, 47(3): 258-277, nov 2012.

Book Chapters

[BC1] M. Schikora, W. Koch, R. L. Streit and D. Cremers,
A Sequential Monte Carlo Method for Multi-Target Tracking with the Intensity Filter,
Advances in Intelligent Signal Processing and Data Mining, Springer-Verlag Berlin Heidelberg, 55-87, 2012.

Conference and Workshop Papers

[C1] F. Endres, J. Hess, N. Engelhard, J. Sturm, D. Cremers and W. Burgard,
An Evaluation of the RGB-D SLAM System,
International Conference on Robotics and Automation (ICRA), St. Paul, MA, USA, May 2012.

[C2] T. Ruehr, J. Sturm, D. Pangercic, M. Beetz and D. Cremers,
A Generalized Framework for Opening Doors and Drawers in Kitchen Environments,
International Conference on Robotics and Automation (ICRA), St. Paul, MA, USA, May 2012.

[C3] M. Schikora, A. Gning, L. Mihaylova, D. Cremers, W. Koch and R. Streit,
Box-Particle Intensity Filter,
9th IET Data Fusion and Target Tracking Conference, London, UK, May 2012.

[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,
Proc. of the International Conference on Intelligent Robot Systems (IROS), Oct. 2012.

[C6] E. Strekalovskiy, C. Nieuwenhuis and D. Cremers,
Nonmetric Priors for Continuous Multilabel Optimization,
European Conference on Computer Vision (ECCV), Firenze, Italy, Springer, oct 2012.

[C7] T. Windheuser, H. Ishikawa and D. Cremers,
Generalized Roof Duality for Multi-Label Optimization: Optimal Lower Bounds and Persistency,
European Conference on Computer Vision (ECCV), Firenze, Italy, oct 2012.

[C8] T. Windheuser, H. Ishikawa and D. Cremers,
QPBO [QPBO arugorizumu no tachika ni yoru hiretsu mojura enerugi saisho-ka],
Meeting on Image Recognition and Understanding, Fukuoka, Japan, aug 2012.

[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, jun 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, jun 2012.

[C11] J. Engel, J. Sturm and D. Cremers,
Camera-Based Navigation of a Low-Cost Quadrocopter,
Proc. of the International Conference on Intelligent Robot Systems (IROS), Oct. 2012.

[C12] J. Sturm, N. Engelhard, F. Endres, W. Burgard and D. Cremers,
A Benchmark for the Evaluation of RGB-D SLAM Systems,
Proc. of the International Conference on Intelligent Robot Systems (IROS), Oct. 2012.

[C13] J. Engel, J. Sturm and D. Cremers,
Accurate Figure Flying with a Quadrocopter Using Onboard Visual and Inertial Sensing,
Proc. of the Workshop on Visual Control of Mobile Robots (ViCoMoR) at the IEEE/RJS International Conference on Intelligent Robot Systems (IROS), Oct. 2012.

[C14] J. Sturm, W. Burgard and D. Cremers,
Evaluating Egomotion and Structure-from-Motion Approaches Using the TUM RGB-D Benchmark,
Proc. of the Workshop on Color-Depth Camera Fusion in Robotics at the IEEE/RJS International Conference on Intelligent Robot Systems (IROS), Oct. 2012.

[C15] N. Ufer, M. Souiai and D. Cremers,
Wehrli 2.0: An Algorithm for "Tidying up Art",
VISART "Where Computer Vision Meets Art" workshop, ECCV 2012, Firenze, Italy, Springer, oct 2012.

[C16] G. M. Garcia, D. A. Klein, J. Stueckler, S. Frintrop and A. B. Cremers,
Adaptive Multi-cue 3D Tracking of Arbitrary Objects,
Pinz, Axel, Pock, Thomas, Bischof, Horst, Leberl and Franz(Eds.), *DAGM/OAGM Symposium*, Springer, Lecture Notes in Computer Science, Vol. 7476, 357-366, 2012.

2011

Journal Articles

[J1] T. Windheuser, U. Schlickewei, F. R. Schmidt and D. Cremers,
Large-Scale Integer Linear Programming for Orientation-Preserving 3D Shape Matching,
Computer Graphics Forum (Proceedings Symposium Geometry Processing), 30(5): 1471-1480, 2011.

[J2] D. Cremers and K. Kolev,
Multiview Stereo and Silhouette Consistency via Convex Functionals over Convex Domains,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 33(6): 1161-1174, 2011.

[J3] A. Wedel, T. Brox, T. Vaudrey, C. Rabe, U. Franke and D. Cremers,
Stereoscopic Scene Flow Computation for 3D Motion Understanding,
International Journal of Computer Vision, 95(1): 29-51, 2011.

[J4] T. Schoenemann, S. Masnou and D. Cremers,
The Elastic Ratio: Introducing Curvature into Ratio-Based Globally Optimal Image Segmentation,
IEEE Transactions on Image Processing, 20(9): 2565-2581, 2011.

[J5] A. Sellent, M. Eisemann, B. Goldluecke, D. Cremers and M. Magnor,
Motion Field Estimation from Alternate Exposure Images,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 33(8): 1577-1589, 2011.

[J6] K. Kolev, N. Kirchgessner, S. Houben, A. Csiszar, W. Rubner, C. Palm, B. Eiben, R. Merkel and D. Cremers,
A Variational Approach to Vesicle Membrane Reconstruction from Fluorescence Imaging,
Pattern Recognition, 44: 2944-2958, 2011.

Books

[B1] A. Wedel and D. Cremers,
Stereoscopic Scene Flow for 3D Motion Analysis,
Springer 2011.

Book Chapters

[BC1] D. Cremers, T. Pock, K. Kolev and A. Chambolle,
Convex Relaxation Techniques for Segmentation, Stereo and Multiview Reconstruction,
Markov Random Fields for Vision and Image Processing, MIT Press, 2011.

[BC2] D. Cremers,
Image Segmentation with Shape Priors: Explicit Versus Implicit Representations,
Handbook of Mathematical Methods in Imaging, Springer, 1453-1487, 2011.

Conference and Workshop Papers

[C1] T. Windheuser, U. Schlickewei, F. R. Schmidt and D. Cremers,
Geometrically Consistent Elastic Matching of 3D Shapes: A Linear Programming Solution,
IEEE International Conference on Computer Vision (ICCV), 2011.

[C2] M. Aubry, U. Schlickewei and D. Cremers,
Pose-Consistent 3D Shape Segmentation Based on a Quantum Mechanical Feature Descriptor,
Pattern Recognition (Proc. DAGM), Frankfurt, Germany, Springer, 2011.

[C3] T. Schoenemann, S. Masnou and D. Cremers,
On a linear programming approach to the discrete Willmore boundary value problem and generalizations,
J.-D. Boissonnat et al.(Ed.), *Curves and Surfaces 2011*, LNCS, 629-646, 2011.

[C4] E. Strekalovskiy and D. Cremers,
Total Variation for Cyclic Structures: Convex Relaxation and Efficient Minimization,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Colorado Springs, Colorado, jun 2011.

[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.

[C9] J. Sturm, S. Magnenat, N. Engelhard, F. Pomerleau, F. Colas, W. Burgard, D. Cremers and R. Siegwart,
Towards a benchmark for RGB-D SLAM evaluation,
Proc. of the RGB-D Workshop on Advanced Reasoning with Depth Cameras at Robotics: Science and Systems Conf. (RSS), Los Angeles, USA, June 2011.

[C10] C. Nieuwenhuis, E. Toeppe and D. Cremers,
Space-Varying Color Distributions for Interactive Multiregion Segmentation: Discrete versus Continuous Approaches,
Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCV-PR), 177-190, 2011.

[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,
D. Cremers, M. A. Magnor, M. R. Oswald and L. Zelnik-Manor(Eds.), *Proceedings of the 2010 international conference on Video Processing and Computational Video*, Berlin, Heidelberg, Springer-Verlag, 104-123, 2011.

[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,
Proceedings of the 2011 Conference on Innovations for Shape Analysis: Models and Algorithms, Springer-Verlag, 2011.

2010

Journal Articles

[J1] T. Pock, D. Cremers, H. Bischof and A. Chambolle,
Global Solutions of Variational Models with Convex Regularization,
SIAM Journal on Imaging Sciences, 3(4): 1122-1145, 2010.

[J2] T. Schoenemann and D. Cremers,
A Combinatorial Solution for Model-based Image Segmentation and Real-time Tracking,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 32(7): 1153-1164, 2010.

Books

[B1] E: D. Cremers, M. Magnor, M. R. Oswald and L. Zelnik-Manor,
Video Processing and Computational Video,
Springer 2010.

Book Chapters

[BC1] A. Chambolle, V. Caselles, D. Cremers, M. Novaga and T. Pock,
An Introduction to Total Variation for Image Analysis,
Theoretical Foundations and Numerical Methods for Sparse Recovery, De Gruyter, 2010.

Conference and Workshop Papers

[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,
13th International Conference on Information Fusion (FUSION), Edinburgh, UK, July 2010.

[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,
SPIE Security + Defence, Toulouse, France, September 2010.

[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, nov 2010, **Received Honorable Mention Award**.

[C5] 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.

[C6] 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.

[C7] B. Goldluecke and D. Cremers,
An Approach to Vectorial Total Variation based on Geometric Measure Theory,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2010.

[C8] B. Goldluecke and D. Cremers,
Convex Relaxation for Multilabel Problems with Product Label Spaces,
European Conference on Computer Vision (ECCV), 2010.

2009

Journal Articles

[J1] T. Brox and D. Cremers,
On local region models and a statistical interpretation of the piecewise smooth Mumford-Shah functional,
International Journal of Computer Vision, 84(2): 184-193, 2009.

[J2] T. Brox, B. Rosenhahn, J. Gall and D. Cremers,
Combined region- and motion-based 3D tracking of rigid and articulated objects,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 32(3): 402-415, 2009.

[J3] K. Kolev, M. Klodt, T. Brox and D. Cremers,
Continuous Global Optimization in Multiview 3D Reconstruction,
International Journal of Computer Vision, 84(1): 80-96, August 2009.

[J4] A. Wedel, C. Rabe, H. Badino, H. Loose, U. Franke and D. Cremers,
B-Spline Modeling of Road Surfaces with an Application to Free Space Estimation,
Transactions on Intelligent Transportation Systems, 10(4): 572-583, 2009.

Books

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

[B2] E: D. Cremers, B. Rosenhahn, A. L. Yuille and F. R. Schmidt,
Statistical and Geometrical Approaches to Visual Motion Analysis,
Springer 2009.

Conference and Workshop Papers

[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, jun 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,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Miami, Florida, 2009.

[C5] A. Wedel, C. Rabe, A. Meissner, U. Franke and D. Cremers,
Detection and Segmentation of Independently Moving Objects from Dense Scene Flow,
D. Cremers, Y. Boykov, A. Blake and F. R. Schmidt(Eds.), *Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR)*, LNCS, Vol. 5681, 2009.

[C6] 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**.

[C7] B. Goldluecke and D. Cremers,
Superresolution Texture Maps for Multiview Reconstruction,
IEEE International Conference on Computer Vision (ICCV), Kyoto, Japan, 2009.

[C8] A. Sellent, M. Eisemann, B. Goldluecke, T. Pock, D. Cremers and M. Magnor,
Variational Optical Flow from Alternate Exposure Images,
Proceedings Vision, Modeling and Visualization (VMV), 135-143, 2009.

[C9] T. Pock, D. Cremers, H. Bischof and A. Chambolle,
An Algorithm for Minimizing the Piecewise Smooth Mumford-Shah Functional,
IEEE International Conference on Computer Vision (ICCV), Kyoto, Japan, 2009.

[C10] A. Wedel, D. Cremers, T. Pock and H. Bischof,
Structure- and Motion-adaptive Regularization for High Accuracy Optic Flow,
IEEE International Conference on Computer Vision (ICCV), Kyoto, Japan, 2009.

[C11] T. Schoenemann, F. Kahl and D. Cremers,
Curvature Regularity for Region-based Image Segmentation and Inpainting: A Linear Programming Relaxation,
IEEE International Conference on Computer Vision (ICCV), Kyoto, Japan, 2009.

[C12] T. Windheuser, T. Schoenemann and D. Cremers,
Beyond Connecting the Dots: A Polynomial-time Algorithm for Segmentation and Boundary Estimation with Imprecise User Input,
IEEE International Conference on Computer Vision (ICCV), Kyoto, Japan, 2009.

[C13] F. Steinbruecker, T. Pock and D. Cremers,
Large Displacement Optical Flow Computation without Warping,
IEEE International Conference on Computer Vision (ICCV), Kyoto, Japan, 2009.

[C14] 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.

[C15] F. Steinbruecker, T. Pock and D. Cremers,
Advanced Data Terms for Variational Optic Flow Estimation,
Proceedings Vision, Modeling and Visualization (VMV), Braunschweig, Germany, 2009.

2008

Journal Articles

[J1] T. Brox, O. Kleinschmidt and D. Cremers,
Efficient Nonlocal Means for Denoising of Textural Patterns,
IEEE Transactions on Image Processing, 17(7): 1083-1092, jul 2008.

[J2] D. Cremers,
Nonlinear Dynamical Shape Priors for Level Set Segmentation,
Journal of Scientific Computing, 35(2-3): 132-143, jun 2008.

[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,
International Journal of Computer Vision, 76(3): 245-256, mar 2008.

Conference and Workshop Papers

[C1] T. Schoenemann, F. R. Schmidt and D. Cremers,
Image Segmentation with Elastic Shape Priors via Global Geodesics in Product Spaces,
British Machine Vision Conference (BMVC), Leeds, UK, September 2008.

[C2] T. Pock, T. Schoenemann, G. Graber, H. Bischof and D. Cremers,
A Convex Formulation of Continuous Multi-Label Problems,
European Conference on Computer Vision (ECCV), Marseille, France, October 2008.

[C3] A. Wedel, C. Rabe, T. Vaudrey, T. Brox, U. Franke and D. Cremers,
Efficient Dense Scene Flow from Sparse or Dense Stereo Data,
European Conference on Computer Vision (ECCV), Marseille, France, October 2008.

[C4] A. Wedel, T. Pock, J. Braun, U. Franke and D. Cremers,
Duality TV-L1 Flow with Fundamental Matrix Prior,
Image Vision and Computing, Auckland, New Zealand, November 2008.

[C5] M. Klodt, T. Schoenemann, K. Kolev, M. Schikora and D. Cremers,
An Experimental Comparison of Discrete and Continuous Shape Optimization Methods,
European Conference on Computer Vision (ECCV), Marseille, France, October 2008.

[C6] A. Wedel, T. Pock, C. Zach, D. Cremers and H. Bischof,
An Improved Algorithm for TV-L1 Optical Flow,
Proc. of the Dagstuhl Motion Workshop, Springer, LNCS, September 2008.

[C7] 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, jun 2008.

[C8] D. Cremers, F. R. Schmidt and F. Barthel,
Shape Priors in Variational Image Segmentation: Convexity, Lipschitz Continuity and Globally Optimal Solutions,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Anchorage, Alaska, jun 2008.

[C9] B. Rosenhahn, C. Schmaltz, T. Brox, J. Weickert, D. Cremers and H.-P. Seidel,
Markerless Motion Capture of Man-Machine Interaction,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Anchorage, Alaska, jun 2008.

[C10] T. Schoenemann and D. Cremers,
Matching Non-rigidly Deformable Shapes Across Images: A Globally Optimal Solution,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Anchorage, Alaska, jun 2008.

[C11] T. Schoenemann and D. Cremers,
Globally Optimal Shape-based Tracking in Real-time,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Anchorage, Alaska, jun 2008.

[C12] T. Schoenemann and D. Cremers,
High Resolution Motion Layer Decomposition using Dual-space Graph Cuts,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Anchorage, Alaska, jun 2008.

[C13] B. Rosenhahn, T. Brox, D. Cremers and H.-P. Seidel,
Modeling and Tracking Line-Constrained Mechanical Systems,
G. Sommer and R. Klette(Eds.), *2nd Workshop on Robot Vision*, LNCS, Vol. 4931, 98-110, 2008.

[C14] O. Kleinschmidt, T. Brox and D. Cremers,
Nonlocal texpaperture filtering with efficient tree structures and invariant patch similarity measures,
Int. Workshop on Local and Nonlocal Approximation, Lausanne, Switzerland, aug 2008.

Technical Reports

[R1] A. Chambolle, D. Cremers and T. Pock,
A Convex Approach for Computing Minimal Partitions,
Technical report TR-2008-05, Dept. of Computer Science, University of Bonn, Bonn, Germany, nov 2008.

2007

Journal Articles

[J1] D. Cremers,
Computer Lernen Sehen,
Industrial Vision, 2: 60, 2007.

[J2] D. Cremers, M. Rousson and R. Deriche,
A review of statistical approaches to level set segmentation: integrating color, texture, motion and shape,
International Journal of Computer Vision, 72(2): 195-215, apr 2007.

Books

[B1] E: S.-C. Zhu, A. Yuille, D. Cremers and Y. Wang,
Energy Minimization Methods for Computer Vision and Pattern Recognition (EMMCVPR),
Springer 2007.

Book Chapters

[BC1] T. Brox, B. Rosenhahn and D. Cremers,
Contours, optic flow, and prior knowledge: cues for capturing 3D human motion in videos,
Human Motion - Understanding, Modeling, Capture, and Animation, Springer, 2007.

[BC2] D. Cremers and M. Rousson,
Efficient kernel density estimation of shape and intensity priors for level set segmentation,
J. S. Suri and A. Farag(Eds.), *Parametric and Geometric Deformable Models: An application in Biomaterials and Medical Imagery*, Springer, May 2007.

Conference and Workshop Papers

[C1] K. Kolev, M. Klodt, T. Brox and D. Cremers,
Propagated Photoconsistency and Convexity in Variational Multiview 3D Reconstruction,
Workshop on Photometric Analysis for Computer Vision, Rio de Janeiro, Brazil, oct 2007.

[C2] K. Kolev, M. Klodt, T. Brox, S. Esedoglu and D. Cremers,
Continuous Global Optimization in Multiview 3D Reconstruction,
Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), Ezhou, China, Springer, LNCS, Vol. 4679, 441-452, aug 2007.

[C3] T. Brox, B. Rosenhahn, D. Cremers and H.-P. Seidel,
Nonparametric density estimation with adaptive anisotropic kernels for human motion tracking,
A. Elgammal, B. Rosenhahn and R. Klette(Eds.), *Proc. 2nd International Workshop on Human Motion*, Rio de Janeiro, Brazil, Springer, LNCS, Vol. 4814, 152-165, oct 2007.

[C4] T. Schoenemann and D. Cremers,
Globally Optimal Image Segmentation with an Elastic Shape Prior,
IEEE International Conference on Computer Vision (ICCV), Rio de Janeiro, Brazil, oct 2007.

[C5] T. Schoenemann and D. Cremers,
Introducing Curvature into Globally Optimal Image Segmentation: Minimum Ratio Cycles on Product Graphs,
IEEE International Conference on Computer Vision (ICCV), Rio de Janeiro, Brazil, oct 2007.

[C6] F. R. Schmidt, D Farin and D. Cremers,
Fast Matching of Planar Shapes in Sub-cubic Runtime,
IEEE International Conference on Computer Vision (ICCV), Rio de Janeiro, Brazil, oct 2007.

[C7] F. R. Schmidt, E. Toeppe, D. Cremers and Y. Boykov,
Intrinsic Mean for Semimetrical Shape Retrieval via Graph Cuts,
Pattern Recognition (Proc. DAGM), Heidelberg, Germany, Springer, LNCS, Vol. 4713, 446-455, sep 2007.

[C8] A. Wedel, T. Schoenemann, T. Brox and D. Cremers,
WarpCut - Fast obstacle segmentation in monocular video,
Pattern Recognition (Proc. DAGM), Heidelberg, Germany, Springer, LNCS, sep 2007.

[C9] C. Schmaltz, B. Rosenhahn, T. Brox, D. Cremers, J. Weickert, L. Wietzke and G. Sommer,
Occlusion Modeling by Tracking Multiple Objects,
Pattern Recognition (Proc. DAGM), Heidelberg, Germany, Springer, LNCS, sep 2007.

[C10] B. Rosenhahn, T. Brox, D. Cremers and H.-P. Seidel,
Online smoothing for markerless motion capture,
Pattern Recognition (Proc. DAGM), Heidelberg, Germany, Springer, LNCS, sep 2007.

[C11] F. R. Schmidt, E. Toeppe, D. Cremers and Y. Boykov,
Efficient Shape Matching via Graph Cuts,
Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), Ezhou, China, Springer, LNCS, Vol. 4679, 39-54, aug 2007.

[C12] D. Cremers,
Nonlinear Dynamical Shape Priors for Level Set Segmentation,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2007.

[C13] T. Brox and D. Cremers,
On the Statistical Interpretation of the Piecewise Smooth Mumford-Shah Functional,
F. Sgallari, A. Murli and N. Paragios(Eds.), *Proc. International Conference on Scale Space and Variational Methods in Computer Vision*, Ischia, Italy, Springer, LNCS, Vol. 4485, 203-213, may 2007.

[C14] T. Brox and D. Cremers,
Iterated Nonlocal Means for Texture Restoration,
F. Sgallari, A. Murli and N. Paragios(Eds.), *Proc. International Conference on Scale Space and Variational Methods in Computer Vision*, Ischia, Italy, Springer, LNCS, Vol. 4485, 13-24, may 2007.

[C15] C. Schmaltz, B. Rosenhahn, T. Brox, D. Cremers, J. Weickert, L. Wietzke and G. Sommer,
Region-based Pose Tracking,
Proc. 3rd Iberian Conference on Pattern Recognition and Image Analysis, Girona, Spain, Springer, LNCS, jun 2007.

[C16] D. Cremers, O. Fluck, M. Rousson and S. Aharon,
A probabilistic level set formulation for interactive organ segmentation,
Proc. of the SPIE Medical Imaging, San Diego, USA, feb 2007.

Technical Reports

[R1] T. Brox, O. Kleinschmidt and D. Cremers,
Iterated and Efficient Nonlocal Means for Denoising of Textural Patterns,
Technical report TR-2007-04, Dept. of Computer Science, University of Bonn, Bonn, Germany, aug 2007.

2006

Journal Articles

[J1] D. Cremers,
Dynamical statistical shape priors for level set based tracking,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 28(8): 1262-1273, aug 2006.

[J2] D. Cremers, S. J. Osher and S. Soatto,
Kernel density estimation and intrinsic alignment for shape priors in level set segmentation,
International Journal of Computer Vision, 69(3): 335-351, sep 2006.

[J3] D. Cremers, N. Sochen and C. Schnörr,
A multiphase dynamic labeling model for variational recognition-driven image segmentation,
International Journal of Computer Vision, 66(1): 67-81, jan 2006.

[J4] S. Manay, D. Cremers, B.-W. Hong, A. Yezzi and S. Soatto,
Integral invariants for shape matching,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 28(10): 1602-1618, oct 2006.

Book Chapters

[BC1] D. Cremers and T. Kohlberger,
Probabilistic kernel PCA and its application to statistical shape modeling and inference,
G. Camps-Valls et al.(Ed.), *Kernel Methods in Bioengineering, Signal and Image Processing*, Idea Group Inc., 2006.

[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.

Conference and Workshop Papers

[C1] F. R. Schmidt, M. Clausen and D. Cremers,
Shape Matching by Variational Computation of Geodesics on a Manifold,
Pattern Recognition (Proc. DAGM), Berlin, Germany, Springer, LNCS, Vol. 4174, 142-151, sep 2006.

[C2] T. Schoenemann and D. Cremers,
Near Real-time Motion Segmentation using Graph Cuts,
Pattern Recognition (Proc. DAGM), Berlin, Germany, Springer, LNCS, Vol. 4174, 455-464, sep 2006.

[C3] T. Brox, B. Rosenhahn, U. Kersting and D. Cremers,
Nonparametric density estimation for human pose tracking,
K. Franke et al.(Ed.), *Pattern Recognition (Proc. DAGM)*, Berlin, Germany, Springer, LNCS, Vol. 4174, 546-555, sep 2006.

[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, LNCS, Vol. 4174, 688-697, sep 2006.

[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, LNCS, Vol. 4174, 475-484, sep 2006.

[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)*, Graz, Austria, Springer, LNCS, Vol. 3953, 409-422, may 2006.

[C7] B. Rosenhahn, T. Brox, D. Cremers and H.-P. Seidel,
A comparison of shape matching methods for contour based pose estimation,
R. Reulke, U. Eckhardt, B. Flach, U. Knauer and K. Polthier(Eds.), *Proc. International Workshop on Combinatorial Image Analysis*, Berlin, Germany, Springer, LNCS, Vol. 4040, 263-276, jun 2006.

[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)*, Graz, Austria, Springer, LNCS, Vol. 3952, 98-111, may 2006.

[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)*, Graz, Austria, Springer, LNCS, Vol. 3953, 263-274, may 2006.

[C10] D. Cremers, C. Guetter and C. Xu,
Nonparametric priors on the space of joint intensity distributions for non-rigid multi-modal image registration,
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Vol. 2, 1777-1783, June 2006.

[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,
Medical Image Computing and Computer Assisted Intervention (MICCAI), LNCS, Vol. 4190, 92-100, oct 2006.

2005

Journal Articles

[J1] D. Cremers and S. Soatto,
Motion Competition: A variational framework for piecewise parametric motion segmentation,
International Journal of Computer Vision, 62(3): 249-265, May 2005.

Book Chapters

[BC1] M. Bergtholdt, D. Cremers and C. Schnörr,
Variational segmentation with shape priors,
N. Paragios, Y. Chen and O. Faugeras(Ed.), *Handbook of Mathematical Models in Computer Vision*, Springer, 2005.

Conference and Workshop Papers

[C1] D. Cremers and G. Funka-Lea,
Dynamical statistical shape priors for level set based tracking,
N. Paragios, F. Faugeras, T. Chan and C. Schnörr(Eds.), *Intl. Workshop on Variational and Level Set Methods*, Springer, LNCS, Vol. 3752, 2005.

[C2] S. Manay, D. Cremers, A. J. Yezzi and S. Soatto,
One-shot integral invariant shape priors for variational segmentation,
A. Rangarajan, B. Vemuri and A. L. Yuille(Eds.), *Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR)*, LNCS, Vol. 3757, 414-426, 2005.

[C3] M. Rousson and D. Cremers,
Efficient kernel density estimation of shape and intensity priors for level set segmentation,
Medical Image Computing and Computer Assisted Intervention (MICCAI), Vol. 1, 757-764, 2005.

2004

Conference and Workshop Papers

[C1] D. Cremers,
Bayesian Approaches to Motion-based Image and Video Segmentation,
1st Int. Workshop on Complex Motion, Schloss Reisensburg, Germany, Springer, LNCS, Vol. 3417, 106-125, oct 2004.

[C2] D. Cremers, S. J. Osher and S. Soatto,
Kernel density estimation and intrinsic alignment for knowledge-driven segmentation: Teaching level sets to walk,
C. E. Rasmussen(Ed.), *Pattern Recognition (Proc. DAGM)*, Springer, LNCS, Vol. 3175, 36-44, 2004.

[C3] D. Cremers, N. Sochen and C. Schnörr,
Multiphase dynamic labeling for variational recognition-driven image segmentation,
T. Pajdla and V. Hlavac(Eds.), *European Conference on Computer Vision (ECCV)*, Springer, LNCS, Vol. 3024, 74-86, 2004.

[C4] H. Jin, D. Cremers, A. Yezzi and S. Soatto,
Shedding light on stereoscopic segmentation,
L. Davis(Ed.), *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Washington, DC, Vol. 1, 36-42, 2004.

2003

Journal Articles

[J1] D. Cremers, T. Kohlberger and C. Schnörr,
Shape Statistics in Kernel Space for Variational Image Segmentation,
Pattern Recognition, 36(9): 1929-1943, 2003, **Awarded Best Paper of the Year 2003**.

[J2] D. Cremers and C. Schnörr,
Statistical shape knowledge in variational motion segmentation,
Image and Vision Computing, 21(1): 77-86, 2003.

[J3] J. Keuchel, C. Schnörr, C. Schellewald and D. Cremers,
Binary partitioning, perceptual grouping, and restoration with semidefinite programming,
IEEE Transactions on Pattern Analysis and Machine Intelligence, 25(11): 1364-1379, 2003.

Conference and Workshop Papers

[C1] D. Cremers,
A variational framework for image segmentation combining motion estimation and shape regularization,
C. Dyer and P. Perona(Eds.), *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Vol. 1, 53-58, June 2003.

[C2] D. Cremers,
A multiphase level set framework for variational motion segmentation,
L. D. Griffin and M. Lillholm(Eds.), *Scale-Space Methods in Computer Vision*, Isle of Skye, Springer, LNCS, Vol. 2695, 599-614, 2003.

[C3] D. Cremers and S. Soatto,
A pseudo-distance for shape priors in level set segmentation,
N. Paragios(Ed.), *IEEE 2nd Int. Workshop on Variational, Geometric and Level Set Methods*, Nice, 169-176, 2003.

[C4] D. Cremers and S. Soatto,
Variational space-time motion segmentation,
B. Triggs and A. Zisserman(Eds.), *IEEE International Conference on Computer Vision (ICCV)*, Nice, Vol. 2, 886-892, Oct. 2003.

[C5] D. Cremers, N. Sochen and C. Schnörr,
Towards Recognition-based Variational Segmentation Using Shape Priors and Dynamic Labeling,
L. D. Griffin and M. Lillholm(Eds.), *Scale-Space Methods in Computer Vision*, Isle of Skye, Springer, LNCS, Vol. 2695, 388-400, 2003.

[C6] D. Cremers and A. L. Yuille,
A generative model based approach to motion segmentation,
B. Michaelis and G. Krell(Eds.), *Pattern Recognition (Proc. DAGM)*, Magdeburg, Springer, LNCS, Vol. 2781, 313-320, Sept. 2003.

[C7] G. Doretto, D. Cremers, P. Favaro and S. Soatto,
Dynamic texture segmentation,
B. Triggs and A. Zisserman(Eds.), *IEEE International Conference on Computer Vision (ICCV)*, Nice, Vol. 2, 1236-1242, Oct. 2003.

2002

Journal Articles

[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,
Neural Computation, 14(7): 1651-1667, 2002.

[J2] D. Cremers, F. Tischhäuser, J. Weickert and C. Schnörr,
Diffusion Snakes: Introducing statistical shape knowledge into the Mumford–Shah functional,
International Journal of Computer Vision, 50(3): 295-313, 2002.

Conference and Workshop Papers

[C1] J. Keuchel, C. Schnoerr, C. Schellewald and D. Cremers,
Unsupervised Image Partitioning with Semidefinite Programmifng,
van Gool and L.(Ed.), *Pattern Recognition*, Zürich, Springer, LNCS, Vol. 2449, 141-149, Sept. 2002.

[C2] D. Cremers, T. Kohlberger and C. Schnörr,
Nonlinear shape statistics in Mumford–Shah based segmentation,
A. Heyden and others(Eds.), *European Conference on Computer Vision (ECCV)*, Copenhagen, Springer, LNCS, Vol. 2351, 93-108, May 2002.

[C3] D. Cremers and C. Schnörr,
Motion Competition: variational integration of motion segmentation and shape regularization,
L. van Gool(Ed.), *Pattern Recognition (Proc. DAGM)*, Zürich, Springer, LNCS, Vol. 2449, 472-480, Sept. 2002, **Received the Best Paper Award**.

[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.

PhDThesis

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

2001

Conference and Workshop Papers

[C1] D. Cremers, T. Kohlberger and C. Schnörr,
Nonlinear shape statistics via kernel spaces,
B. Radig and S. Florczyk(Eds.), *Pattern Recognition (Proc. DAGM)*, Munich, Germany, Springer, LNCS, Vol. 2191, 269-276, Sept. 2001.

[C2] J. Keuchel, C. Schellewald, D. Cremers and C. Schnoerr,
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**.

2000

Conference and Workshop Papers

[C1] D. Cremers, C. Schnörr, J. Weickert and C. Schellewald,
Learning of translation invariant shape knowledge for steering diffusion snakes,
G. Baratoff and H. Neumann(Eds.), *Dynamische Perzeption*, Ulm Germany, Infix, Proceedings on Artificial Intelligence, Vol. 9, 117-122, Nov. 2000.

[C2] D. Cremers, C. Schnörr, J. Weickert and C. Schellewald,
Diffusion Snakes using statistical shape knowledge,
G. Sommer and Y.Y. Zeevi(Eds.), *Algebraic Frames for the Perception-Action Cycle*, Kiel, Germany, Springer, LNCS, Vol. 1888, 164-174, Sept. 2000.

Technical Reports

[R1] D. Cremers, C. Schnörr, J. Weickert and C. Schellewald,
Diffusion Snakes using statistical shape knowledge,
Technical report 11/00, Dept. of Math. and Comp. Sci., Comp. Sci. Series, University of Mannheim, Germany, Mar. 2000.

1999

Journal Articles

[J1] D. Cremers and A. Mielke,
Flow equations for the Héon-Heiles Hamiltonian,
Physica D, 126: 123-135, 1999.