Journal Articles

[J1] Z. Ye, B. Haefner, Y. Queau, T. Möllenhoff and D. Cremers,
A Cutting-Plane Method for Sublabel-Accurate Relaxation of Problems with
Product Label Spaces,

[J2] C Tomani and D Cremers,
Challenger: Training with Attribution Maps,

[J3] 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 R. Kienberger,
Deep Learning in Attosecond Metrology,
*Optics Express*, 30(9): 15669-15684, 2022, *Editor’s Pick*.

[J5] 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.

[J6] 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,

[J7] P. Müller, V. Golkov, V. Tomassini and D. Cremers,
Rotation-Equivariant Deep Learning for Diffusion MRI,

[J8] J. Chui, S. Klenk and D. Cremers,
Event-Based Feature Tracking in Continuous Time with Sliding Window Optimi-
zation,

[J9] M. Mozes, M. Schmitt, V. Golkov, H. Schütze and D. Cremers,
Scene Graph Generation for Better Image Captioning?,

[J10] E. Laude, P. Ochs and D. Cremers,
Bregman Proximal Mappings and Bregman-Moreau Envelopes under Relative
Prox-Regularity,

[J11] B. Haefner, S. Peng, A. Verma, Y. Queau and D. Cremers,
Photometric Depth Super-Resolution,
*IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 42(10): 2453-
Deep Learning for Virtual Screening: Five Reasons to Use ROC Cost Functions, 

Visual-Inertial Mapping with Non-Linear Factor Recovery, 

[J14] L. von Stumberg, P. Wenzel, Q. Khan and D. Cremers, 
GN-Net: The Gauss-Newton Loss for Multi-Weather Relocalization, 

[J15] 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, 

Accelerating in vivo fast spin echo high angular resolution diffusion imaging with an isotropic resolution in mice through compressed sensing, 

[J17] G Fabbro, V Golkov, T Kemp and D Cremers, 
Speech Synthesis and Control Using Differentiable DSP, 

[J18] I Chiotellis and D Cremers, 
Neural Online Graph Exploration, 

Video Object Segmentation without Temporal Information, 

[J20] H Tjaden, U Schwanecke, E Schömer and D Cremers, 
A Region-based Gauss-Newton Approach to Real-Time Monocular Multiple Object Tracking, 

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

[J22] F. Pasa, V. Golkov, F. Pfeiffer, D. Cremers and D. Pfeiffer, 
Efficient Deep Network Architectures for Fast Chest X-Ray Tuberculosis Screening and Visualization, 
[J23] J. Schuchardt, V. Golkov and D. Cremers, 
Learning to Evolve, 

[J24] L. Della Libera, V. Golkov, Y. Zhu, A. Mielke and D. Cremers, 
Deep Learning for 2D and 3D Rotatable Data: An Overview of Methods, 

[J25] J. Engel, V. Koltun and D. Cremers, 
Direct Sparse Odometry, 

[J26] N. Yang, R. Wang, X. Gao and D. Cremers, 
Challenges in Monocular Visual Odometry: Photometric Calibration, Motion Bias and Rolling Shutter Effect, 

[J27] Y. Queau, B. Durix, T. Wu, D. Cremers, F. Lauze and J.-D. Durou, 
LED-based Photometric Stereo: Modeling, Calibration and Numerical Solution, 

[J28] B. Bringmann, D. Cremers and F. Krahmer, 
The homotopy method revisited: Computing solution paths of L1-regularized problems, 

[J29] J. Melou, Y. Queau, J.-D. Durou, F. Castan and D. Cremers, 
Variational Reflectance Estimation from Multi-view Images, 

[J30] P. Bergmann, R. Wang and D. Cremers, 
Online Photometric Calibration of Auto Exposure Video for Realtime Visual Odometry and SLAM, 

[J31] E. Aljalbout, V. Golkov, Y. Siddiqui, M. Strobel and D. Cremers, 
Clustering with Deep Learning: Taxonomy and New Methods, 

[J32] 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?, 

[J33] H. Matsuki, L. von Stumberg, V. Usenko, J. Stueckler and D. Cremers, 
Omnidirectional DSO: Direct Sparse Odometry with Fisheye Cameras, 
[J34] L. Ma, J. Stueckler, T. Wu and D. Cremers,
Detailed Dense Inference with Convolutional Neural Networks via Discrete Wavelet Transform,
Aug 2018.

[J35] G. Kuschk, P. d’Angelo, D. Gaudrie, P. Reinartz and D. Cremers,
Spatially Regularized Fusion of Multiresolution Digital Surface Models,

[J36] D. Cremers, L. Leal-Taixe and R. Vidal,
Deep Learning for Computer Vision (Dagstuhl Seminar 17391),

[J37] Y. Kee, Y. Lee, M. Souiai, D. Cremers and J. Kim,
Sequential Convex Programming for Computing Information-Theoretic Minimal Partitions: Nonconvex Nonsmooth Optimization,

[J38] D Cremers,
Computer Vision für 3-D-Rekonstruktion - Vom Nischenthema zum Mainstream,

[J39] E. Rodola, L. Cosmo, M. M. Bronstein, A. Torsello and D. Cremers,
Partial Functional Correspondence,

[J40] L. Cosmo, E. Rodola, A. Albarelli, F. Memoli and D. Cremers,
Consistent Partial Matching of Shape Collections via Sparse Modeling,

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

 Tau Like Proteins Reduce Torque Generation in Microtubule Bundles,

[J43] E Rodola, M Möller and D Cremers,
Regularized Pointwise Map Recovery from Functional Correspondence,

[J44] J. Kukacka, V. Golkov and D. Cremers,
Regularization for Deep Learning: A Taxonomy,

[J45] J. Diebold, C. Nieuwenhuis and D. Cremers,
Midrange Geometric Interactions for Semantic Segmentation,
[J46] J. Duran, M. Möller, C. Sbert and D. Cremers,
Collaborative Total Variation: A General Framework for Vectorial TV Models,

[J47] M. Burger, G. Gilboa, M. Möller, L. Eckardt and D. Cremers,
Spectral Decompositions Using One-Homogeneous Functionals,

[J48] D. Boscaini, J. Masci, E. Rodola, M. M. Bronstein and D. Cremers,
Anisotropic Diffusion Descriptors,

[J49] 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.

[J50] 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.

[J51] M. Vestner, R. Litman, A. Bronstein, E. Rodola and D. Cremers,
Bayesian Inference of Bijective Non-Rigid Shape Correspondence,

[J52] J. Diebold, S. Tari and D. Cremers,
The Role of Diffusion in Figure Hunt Games,

[J53] S. Madhogaria, P. M. Baggenstoss, M. Schikora, W. Koch and D. Cremers,
Car detection by fusion of HOG and causal MRF,

[J54] M. Klodt, K. Herzog, R. Töpfer and D. Cremers,
Field phenotyping of grapevine growth using dense stereo reconstruction,

[J55] E. Rodola, A. Albarelli, D. Cremers and A. Torsello,
A Simple and Effective Relevance-based Point Sampling for 3D Shapes,

[J56] R. Mecca, E. Rodola and D. Cremers,
Realistic Photometric Stereo Using Partial Differential Irradiance Equation Ratios,

[J57] T. Möllenhoff, E. Strekalovskiy, M. Möller and D. Cremers,
The Primal-Dual Hybrid Gradient Method for Semiconvex Splittings,

[J58] Y. Kee, H. Lee, J. Yim, D. Cremers and J. Kim,
Entropy Minimization for Groupwise Planar Shape Co-alignment and its Applications,
[J59] M. Möller, M. Benning, C. Schönlieb and D. Cremers,
Variational Depth From Focus Reconstruction,

[J60] B. Goldluecke, M. Aubry, K. Kolev and D. Cremers,
A Super-resolution Framework for High-Accuracy Multiview Reconstruction,

[J61] E. Strekalovskiy, A. Chambolle and D. Cremers,
Convex Relaxation of Vectorial Problems with Coupled Regularization,

[J62] J. Engel, J. Sturm and D. Cremers,
Scale-Aware Navigation of a Low-Cost Quadrocopter with a Monocular Camera,

[J63] E. Rodola, S. R Bulo and D. Cremers,
Robust Region Detection via Consensus Segmentation of Deformable Shapes,

[J64] C. Nieuwenhuis and D. Cremers,
Spatially Varying Color Distributions for Interactive Multi-Label Segmentation,

[J65] C. Nieuwenhuis, E. Toeppe and D. Cremers,
A Survey and Comparison of Discrete and Continuous Multi-label Optimization Approaches for the Potts Model,

[J66] B. Goldluecke, E. Strekalovskiy and D. Cremers,
Tight Convex Relaxations for Vector-Valued Labeling,

[J67] F. Endres, J. Hess, J. Sturm, D. Cremers and W. Burgard,
3D Mapping with an RGB-D Camera,

[J68] Z. Liu, M. Beetz, D. Cremers, J. Gall, W. Li, D. Pangeric, J. Sturm and Y.-W. Tai,
Introduction to the special issue on visual understanding and applications with RGB-D cameras,

[J69] A. Chambolle, D. Cremers and T. Pock,
A Convex Approach to Minimal Partitions,

[J70] T. Schoenemann and D. Cremers,
A Coding Cost Framework for Super-resolution Motion Layer Decomposition,
T. Schoenemann, F. Kahl, S. Masnou and D. Cremers,
A linear framework for region-based image segmentation and inpainting involving curvature penalization,

D. Cremers,
Optimal Solutions for Semantic Image Decomposition,

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

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

K. Kolev, T. Brox and D. Cremers,
Fast Joint Estimation of Silhouettes and Dense 3D Geometry from Multiple Images,

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,

D. Cremers and E. Strekalovskiy,
Total Cyclic Variation and Generalizations,

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

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

A. Wedel, T. Brox, T. Vaudrey, C. Rabe, U. Franke and D. Cremers,
Stereoscopic Scene Flow Computation for 3D Motion Understanding,

T. Schoenemann, S. Masnou and D. Cremers,
The Elastic Ratio: Introducing Curvature into Ratio-Based Globally Optimal Image Segmentation,

A. Sellent, M. Eisemann, B. Goldluecke, D. Cremers and M. Magnor,
Motion Field Estimation from Alternate Exposure Images,
A Variational Approach to Vesicle Membrane Reconstruction from Fluorescence Imaging,  

[J84] T. Pock, D. Cremers, H. Bischof and A. Chambolle,  
Global Solutions of Variational Models with Convex Regularization,  

[J85] T. Schoenemann and D. Cremers,  
A Combinatorial Solution for Model-based Image Segmentation and Real-time Tracking,  

[J86] T. Brox and D. Cremers,  
On local region models and a statistical interpretation of the piecewise smooth Mumford-Shah functional,  

[J87] T. Brox, B. Rosenhahn, J. Gall and D. Cremers,  
Combined region- and motion-based 3D tracking of rigid and articulated objects,  

[J88] K. Kolev, M. Klodt, T. Brox and D. Cremers,  
Continuous Global Optimization in Multiview 3D Reconstruction,  

[J89] 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,  

[J90] T. Brox, O. Kleinschmidt and D. Cremers,  
Efficient Nonlocal Means for Denoising of Textural Patterns,  

[J91] D. Cremers,  
Nonlinear Dynamical Shape Priors for Level Set Segmentation,  

[J92] 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,  

[J93] D. Cremers,  
Computer Lernen Sehen,  

[J94] D. Cremers, M. Rousson and R. Deriche,  
A review of statistical approaches to level set segmentation: integrating color, texture, motion and shape,  
[J95] D. Cremers,  
Dynamical statistical shape priors for level set based tracking,  

[J96] D. Cremers, S. J. Osher and S. Soatto,  
Kernel density estimation and intrinsic alignment for shape priors in level set segmentation,  

[J97] D. Cremers, N. Sochen and C. Schnörr,  
A multiphase dynamic labeling model for variational recognition-driven image segmentation,  

[J98] S. Manay, D. Cremers, B.-W. Hong, A. Yezzi and S. Soatto,  
Integral invariants for shape matching,  

[J99] D. Cremers and S. Soatto,  
Motion Competition: A variational framework for piecewise parametric motion segmentation,  

[J100] D. Cremers, T. Kohlberger and C. Schnörr,  
Shape Statistics in Kernel Space for Variational Image Segmentation,  

[J101] D. Cremers and C. Schnörr,  
Statistical shape knowledge in variational motion segmentation,  

[J102] J. Keuchel, C. Schnörr, C. Schellewald and D. Cremers,  
Binary partitioning, perceptual grouping, and restoration with semidefinite programming,  

[J103] D. Cremers and A. V. M. Herz,  
Travelling waves of excitation in neural field models: Equivalence of rate descriptions and integrate-and-fire dynamics,  

[J104] D. Cremers, F. Tischhäuser, J. Weickert and C. Schnörr,  
Diffusion Snakes: Introducing statistical shape knowledge into the Mumford–Shah functional,  

[J105] D. Cremers and A. Mielke,  
Flow equations for the Hénon-Heiles Hamiltonian,  

Books
Author: D. Cremers

List of Publications

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

[B2] E. S.-C. Zhu, A. Yuille, D. Cremers and Y. Wang,
Energy Minimization Methods for Computer Vision and Pattern Recognition (EMMCVPR),

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,

[BC2] D. Cremers,
Image Segmentation with Shape Priors: Explicit Versus Implicit Representations,

[BC3] 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.

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.

[BC5] M. Klodt, F. Steinbruecker and D. Cremers,
Moment Constraints in Convex Optimization for Segmentation and Tracking,

A Sequential Monte Carlo Method for Multi-Target Tracking with the Intensity Filter,

[BC7] D. Cremers, T. Pock, K. Kolev and A. Chambolle,
Convex Relaxation Techniques for Segmentation, Stereo and Multiview Reconstruction,

[BC8] D. Cremers,
Image Segmentation with Shape Priors: Explicit Versus Implicit Representations,
[BC9] A. Chambolle, V. Caselles, D. Cremers, M. Novaga and T. Pock,
*An Introduction to Total Variation for Image Analysis,*

[BC10] T. Brox, B. Rosenhahn and D. Cremers,
*Contours, optic flow, and prior knowledge: cues for capturing 3D human motion in videos,*

[BC11] D. Cremers and M. Rousson,
*Efficient kernel density estimation of shape and intensity priors for level set segmentation,*

[BC12] D. Cremers and T. Kohlberger,
*Probabilistic kernel PCA and its application to statistical shape modeling and inference,*

[BC13] 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.

[BC14] M. Bergtholdt, D. Cremers and C. Schnörr,
*Variational segmentation with shape priors,*

Conference and Workshop Papers

[C1] F Hofherr, L Koestler, F Bernard and D Cremers,
*Neural Implicit Representations for Physical Parameter Inference from a Single Video,*

[C2] L Sang, B Haefner, X Zuo and D Cremers,
*High-Quality RGB-D Reconstruction via Multi-View Uncalibrated Photometric Stereo and Gradient-SDF,*
IEEE Winter Conference on Applications of Computer Vision (WACV), Hawaii, USA, January 2023.

[C3] M. Eisenberger, A. Toker, L. Leal-Taixe, F. Bernard and D. Cremers,
*A Unified Framework for Implicit Sinkhorn Differentiation,*
IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2022.

[C4] C Tomani, D Cremers and F Buettner,
*Parameterized Temperature Scaling for Boosting the Expressive Power in Post-Hoc Uncertainty Calibration,*
European Conference on Computer Vision (ECCV), 2022.
[C5] 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.

[C6] 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.

[C7] 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.

[C8] S Weber, N Demmel, T Chon Chan and D Cremers,
Power Bundle Adjustment for Large-Scale 3D Reconstruction,
submission, 2022.

[C9] F Müller, Q Khan and D Cremers,
Lateral Ego-Vehicle Control Without Supervision Using Point Clouds,

[C10] L Hang, Q Khan, V Tresp and D Cremers,
Biologically Inspired Neural Path Finding,
Brain Informatics (Accepted), Springer, 2022.

[C11] 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.

[C12] L Koestler, D Grittner, M Moeller, D Cremers and Z Lähnner,
Intrinsic Neural Fields: Learning Functions on Manifolds,
European Conference on Computer Vision (ECCV), 2022.

[C13] M Gladkova, N Korobov, N Demmel, A Osep, L Leal-Taixe and D Cremers,
DirectTracker: 3D Multi-Object Tracking Using Direct Image Alignment and Photometric Bundle Adjustment,

[C14] HHH Hsu, Y Shen, C Tomani and D Cremers,
What Makes Graph Neural Networks Miscalibrated?,

[C15] Y Shen and D Cremers,
Deep Combinatorial Aggregation,

[C16] HHH Hsu, Y Shen and D Cremers,
A Graph Is More Than Its Nodes: Towards Structured Uncertainty-Aware Learning on Graphs,
[C17] 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,

[C18] T Frerix, D Kochkov, J Smith, D Cremers, M Brenner and S Hoyer,
Variational Data Assimilation with a Learned Inverse Observation Operator,

[C19] 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.

[C20] M. C. Mukkamala, F. Westerkamp, E. Laude, D. Cremers and P. Ochs,
Bregman Proximal Gradient Algorithms for Deep Matrix Factorization,
Elmoataz, Abderrahim, Fadili, Jalil, Quéau, Yvain, Rabin, Julien, Simon and Loïc (Eds.),

[C21] Z. Ye, B. Haefner, Y. Queau, T. Möllenhoff and D. Cremers,
Sublabel-Accurate Multilabeling Meets Product Label Spaces,
*DAGM German Conference on Pattern Recognition (GCPR)*, 2021.

[C22] 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.

[C23] T Yenamandra, A Tewari, F Bernard, HP Seidel, M Elgharib, D Cremers and C Theobalt,
i3DMM: Deep Implicit 3D Morphable Model of Human Heads,

[C24] M Gao, Z Lühner, J Thunberg, D Cremers and F Bernard,
Isometric Multi-Shape Matching,
*IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021, *Oral Presentation*.

[C25] M Naeyaert, V Golkov, D Cremers, J Sijbers and M Verhoye,
Faster and better HARDI using FSE and holistic reconstruction,

[C26] P. Müller, V. Golkov, V. Tomassini and D. Cremers,
Rotation-Equivariant Deep Learning for Diffusion MRI (short version),
[C27] 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.

[C28] M Gladkova, R Wang, N Zeller and D Cremers,
Tight Integration of Feature-based Relocalization in Monocular Direct Visual Odometry,

[C29] 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.

[C30] P. Wenzel, T. Schön, L. Leal-Taixe and D. Cremers,
Vision-Based Mobile Robotics Obstacle Avoidance With Deep Reinforcement Learning,

[C31] 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.

[C32] 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.

[C33] N Demmel, D Schubert, C Sommer, D Cremers and V Usenko,
Square Root Marginalization for Sliding-Window Bundle Adjustment,

[C34] 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,

[C35] S Klenk, J Chui, N Demmel and D Cremers,
TUM-VIE: The TUM Stereo Visual-Inertial Event Dataset,

[C36] 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.

[C37] S Weber, N Demmel and D Cremers,
Multidirectional Conjugate Gradients for Scalable Bundle Adjustment,
*German Conference on Pattern Recognition (GCPR)*, 2021, Oral Presentation.
[C38] Y Wang, Y Shen and D Cremers,
Explicit pairwise factorized graph neural network for semi-supervised node classification,
UAI, 2021.

3D Deep Learning for Biological Function Prediction from Physical Fields,

[C40] L. Sang, B. Haefner and D. Cremers,
Inferring Super-Resolution Depth from a Moving Light-Source Enhanced RGB-DSensor: A Variational Approach,
IEEE Winter Conference on Applications of Computer Vision (WACV), Colorado, USA, March 2020, Spotlight Presentation.

[C41] T Frerix, M Niesner and D Cremers,
Homogeneous Linear Inequality Constraints for Neural Network Activations,

[C42] R. Wang, N. Yang, J. Stueckler and D. Cremers,
DirectShape: Photometric Alignment of Shape Priors for Visual Vehicle Pose and Shape Estimation,

[C43] 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.

[C44] M. Eisenberger and D. Cremers,
Hamiltonian Dynamics for Real-World Shape Interpolation,
European Conference on Computer Vision (ECCV), 2020, Spotlight Presentation.

[C45] M. Eisenberger, A. Toker, L. Leal-Taixe and D. Cremers,
Deep Shells: Unsupervised Shape Correspondence with Optimal Transport,

[C46] S. Weiss, R. Maier, D. Cremers, R. Westermann and N. Thuerer,
Correspondence-Free Material Reconstruction using Sparse Surface Constraints,

[C47] C. Sommer, V. Usenko, D. Schubert, N. Demmel and D. Cremers,
Efficient Derivative Computation for Cumulative B-Splines on Lie Groups,

[C48] N. Yang, L. von Stumberg, R. Wang and D. Cremers,
D3VO: Deep Depth, Deep Pose and Deep Uncertainty for Monocular Visual Odometry,
[C49] 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.

[C50] 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.

[C51] 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.

[C52] C. Sommer, Y. Sun, E. Bylow and D. Cremers,  
PrimiTect: Fast Continuous Hough Voting for Primitive Detection,  

[C53] L. Koestler, N. Yang, R. Wang and D. Cremers,  
Learning Monocular 3D Vehicle Detection without 3D Bounding Box Labels,  

[C54] 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,  

[C55] B Holzschuh, Z Lähner and D Cremers,  
Simulated Annealing for 3D Shape Correspondence,  

[C56] M Aygün, Z Lähner and D Cremers,  
Unsupervised Dense Shape Correspondence using Heat Kernels,  

[C57] N Demmel, M Gao, E Laude, T Wu and D Cremers,  
Distributed Photometric Bundle Adjustment,  

[C58] L. von Stumberg, P. Wenzel, N. Yang and D. Cremers,  
LM-Reloc: Levenberg-Marquardt Based Direct Visual Relocalization,  

Shape Correspondence with Isometric and Non-Isometric Deformations,  


[C70] M. Moeller, T. Möllenhoff and D. Cremers, Controlling Neural Networks via Energy Dissipation, International Conference on Computer Vision (ICCV), Seoul, South Korea, 10 2019.

[C72] 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,

[C73] P. Brechet, T. Wu, T. Möllenhoff and D. Cremers,
Informative GANs via Structured Regularization of Optimal Transport,

[C74] 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,

[C75] 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,

[C76] 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.

[C77] B. Haefner, Y. Queau, T. Möllenhoff and D. Cremers,
Fight ill-posedness with ill-posedness: Single-shot variational depth super-
resolution from shading,
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2018,
Spotlight Presentation.

and D. Cremers,
Discrete-Continuous ADMM for Transductive Inference in Higher-Order
MRFs,

[C79] 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,

[C80] 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.

[C81] 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.


[C93] 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.

[C94] V. Usenko, N. Demmel and D. Cremers, 
The Double Sphere Camera Model, 

[C95] I. Chiotellis, F. Zimmermann, D. Cremers and R. Triebel, 
Incremental Semi-Supervised Learning from Streams for Object Classification, 

[C96] 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.

[C97] 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.

[C98] M. Benning, M. Möller, R. Z. Nossek, M. Burger, D. Cremers and G. Gilboa, 
Nonlinear Spectral Image Fusion, 

[C99] D. Bender, W. Koch and D. Cremers, 
Map-based drone homing using shortcuts, 

[C100] G. Kuschik, A. Bozic and D. Cremers, 
Real-time variational stereo reconstruction with applications to large-scale dense SLAM, 

[C101] 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.

[C102] 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, 

[C103] L. Ma, J. Stueckler, C. Kerl and D. Cremers, 
Multi-View Deep Learning for Consistent Semantic Mapping with RGB-D Cameras, 
[C104] 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,  

[C105] M. Dzitsiuk, J. Sturm, R. Maier, L. Ma and D. Cremers,  
De-noising, Stabilizing and Completing 3D Reconstructions On-the-go using Plane Priors,  

[C106] L. von Stumberg, V. Usenko, J. Engel, J. Stueckler and D. Cremers,  
From Monocular SLAM to Autonomous Drone Exploration,  

[C107] F. Walch, C. Hazirbas, L. Leal-Taixe, T. Sattler, S. Hilsenbeck and D. Cremers,  
Image-based localization using LSTMs for structured feature correlation,  

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

[C109] Y. Queau, M. Pizenberg, J.-D. Durou and D. Cremers,  
Microgeometry capture and RGB albedo estimation by photometric stereo without demosaicing,  

[C110] P. Haeusser, A. Mordvintsev and D. Cremers,  
Learning by Association - A versatile semi-supervised training method for neural networks,  

[C111] M. Slavcheva, M. Baust, D. Cremers and S. Ilic,  
KillingFusion: Non-rigid 3D Reconstruction without Correspondences,  

[C112] V. Usenko, L. von Stumberg, A. Pangeric 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 ()

[C113] 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)*, Honolulu, USA, 2017.


[C125] T. Möllenhoff and D. Cremers, 
Sublabel-Accurate Discretization of Nonconvex Free-Discontinuity Problems, 

[C126] Y. Queau, J. Melou, F. Castan, D. Cremers and J.-D. Durou, 
A Variational Approach to Shape-from-shading Under Natural Illumination, 

[C127] F. Bernard, F. R. Schmidt, J. Thunberg and D. Cremers, 
A Combinatorial Solution to Non-Rigid 3D Shape-to-Image Matching, 

[C128] 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, 

[C129] 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, 

[C130] 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.

[C131] 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%).

[C132] 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.

[C133] V. Usenko, J. Engel, J. Stueckler and D. Cremers, 
Direct Visual-Inertial Odometry with Stereo Cameras, 

[C134] A. Narr, R. Triebel and D. Cremers, 
Stream-based Active Learning for Efficient and Adaptive Classification of 3D Objects, 

SHREC’16: Matching of Deformable Shapes with Topological Noise, 
Proc. of Eurographics Workshop on 3D Object Retrieval (3DOR), May 2016.
Author: D. Cremers

List of Publications


[C148] 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.

[C149] 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.

[C150] T. Möllenhoff, E. Strekalovskiy, M. Möller and D. Cremers,
Low Rank Priors for Color Image Regularization,

[C151] 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.

[C152] J. Stühmer and D. Cremers,
A Fast Projection Method for Connectivity Constraints in Image Segmentation,

[C153] 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.

[C154] 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.

[C155] D. Mund, R. Triebel and D. Cremers,
Active Online Confidence Boosting for Efficient Object Classification,

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.

[C157] 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.
SPENCER: A Socially Aware Service Robot for Passenger Guidance and Help in Busy Airports,

[C159] J. Engel, J. Stueckler and D. Cremers,
Large-Scale Direct SLAM with Stereo Cameras,

[C160] D. Caruso, J. Engel and D. Cremers,
Large-Scale Direct SLAM for Omnidirectional Cameras,

[C161] Y. Tao, R. Triebel and D. Cremers,
Semi-supervised Online Learning for Efficient Classification of Objects in 3D Data Streams,

[C162] 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.

[C163] V. Usenko, J. Engel, J. Stueckler and D. Cremers,
Reconstructing Street-Scenes in Real-Time From a Driving Car,

[C164] M. Jaimez, M. Souiai, J. Stueckler, J. Gonzalez-Jimenez and D. Cremers,
Motion Cooperation: Smooth Piece-Wise Rigid Scene Flow from RGB-D Images,

[C165] 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.

[C166] 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.

[C167] 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.

[C168] 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.
Model-Based Tracking at 300Hz using Raw Time-of-Flight Observations,
IEEE International Conference on Computer Vision (ICCV), Santiago, Chile, 2015.

[C170] J. Duran, M. Moeller, C. Sbert and D. Cremers,
A Novel Framework for Nonlocal Vectorial Total Variation Based on $\ell^{p,q,r}$ norms,

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,

[C172] 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,

Improved Diffusion Kurtosis Imaging and Direct Propagator Estimation Using 6-D Compressed Sensing,

[C174] 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.

[C175] E. Rodola, S. R Bulo, T. Windheuser, M. Vestner and D. Cremers,
Dense Non-Rigid Shape Correspondence Using Random Forests,

[C176] Y. Kee, M. Souiai, D. Cremers and J. Kim,
Sequential Convex Relaxation for Mutual-Information-Based Unsupervised Figure-Ground Segmentation,

[C177] H. Alvarez, L.M. Paz, J. Sturm and D. Cremers,
Collision Avoidance for Quadrotors with a Monocular Camera,

[C178] J. Engel, T. Schöps and D. Cremers,
LSD-SLAM: Large-Scale Direct Monocular SLAM,
European Conference on Computer Vision (ECCV), September 2014, Oral Presentation.

[C179] 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.
[C180] 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.

[C181] 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.

[C182] 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.

[C183] 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.

[C184] M. R. Oswald and D. Cremers,
Surface Normal Integration for Convex Space-time Multi-view Reconstruction,
British Machine Vision Conference (BMVC), 2014.

[C185] C. Nieuwenhuis, S. Hawe, M. Kleinsteuber and D. Cremers,
Co-Sparse Textural Similarity for Interactive Segmentation,
European Conference on Computer Vision (ECCV), 2014.

[C186] M. R. Oswald, J. Stühmer and D. Cremers,
Generalized Connectivity Constraints for Spatio-temporal 3D Reconstruction,

[C187] E. Strekalovskiy and D. Cremers,
Real-Time Minimization of the Piecewise Smooth Mumford-Shah Functional,

[C188] A. Kanezaki, E. Rodola, D. Cremers and T. Harada,
[Taiou tenshuugou ruijido gakushuu wo mochiita goutai-higoutai buttai kenshutsu],

[C189] 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.

[C190] O. Dunkley, J. Engel, J. Sturm and D. Cremers,
Visual-Inertial Navigation for a Camera-Equipped 25g Nano-Quadrotor,

[C191] 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.
[C192] S. Debnath, S. S. Baishya, R. Triebel, V. Dutt and D. Cremers, 
Environment-adaptive Learning: How Clustering Helps to Obtain Good Training Data, 

[C193] A. Kanezaki, E. Rodola, D. Cremers and T. Harada, 
Learning Similarities for Rigid and Non-Rigid Object Detection, 

[C194] D. Bender, M. Schikora, J. Sturm and D. Cremers, 
INS-Camera Calibration without Ground Control Points, 

[C195] C. Kerl, M. Souiai, J. Sturm and D. Cremers, 
Towards Illumination-invariant 3D Reconstruction using ToF RGB-D Cameras, 

[C196] F. R. Schmidt, T. Windheuser, U. Schlickewei and D. Cremers, 
Dense Elastic 3D Shape Matching, 

[C197] M. Souiai, C. Nieuwenhuis, E. Strekalovskiy and D. Cremers, 
Convex Optimization for Scene Understanding, 
*ICCV Workshop on Graphical Models for Scene Understanding*, 2013.

[C198] 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.

[C199] 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, 

[C200] 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*.

[C201] 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*.

[C202] 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.


Author: D. Cremers

List of Publications

[C213] 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.

[C214] 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.

[C215] 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.

[C216] 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.

[C217] E. Rodola, T. Harada, Y. Kuniyoshi and D. Cremers,
Efficient Shape Matching using Vector Extrapolation,

[C218] 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.

[C219] 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.

[C220] 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.

[C221] C. Nieuwenhuis, E. Strekalovskiy and D. Cremers,
Proportion Priors for Image Sequence Segmentation,
*IEEE International Conference on Computer Vision (ICCV)*, Sydney, Australia, December 2013.

[C222] 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.

[C223] 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.
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.

F. Steinbrücker, 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.

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.

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

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

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

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

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.

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

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

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.

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.
[C236] M. R. Oswald, E. Toepppe 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.

[C237] 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.

[C238] J. Engel, J. Sturm and D. Cremers,  
Camera-Based Navigation of a Low-Cost Quadrocopter,  

[C239] J. Sturm, N. Engelhard, F. Endres, W. Burgard and D. Cremers,  
A Benchmark for the Evaluation of RGB-D SLAM Systems,  

[C240] J. Engel, J. Sturm and D. Cremers,  
Accurate Figure Flying with a Quadrocopter Using Onboard Visual and Inertial Sensing,  

[C241] J. Sturm, W. Burgard and D. Cremers,  
Evaluating Egomotion and Structure-from-Motion Approaches Using the TUM RGB-D Benchmark,  

[C242] N. Ufer, M. Souiai and D. Cremers,  
Wehrli 2.0: An Algorithm for ”Tidying up Art”,  

[C243] 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.

[C244] M. Aubry, U. Schlickewei and D. Cremers,  
Pose-Consistent 3D Shape Segmentation Based on a Quantum Mechanical Feature Descriptor,  

[C245] T. Schoenemann, S. Masnou and D. Cremers,  
On a linear programming approach to the discrete Willmore boundary value problem and generalizations,  
[C246] E. Strekalovskiy and D. Cremers,
Total Variation for Cyclic Structures: Convex Relaxation and Efficient Minimization,

[C247] B. Goldluecke and D. Cremers,
Introducing Total Curvature for Image Processing,
IEEE International Conference on Computer Vision (ICCV), 2011.

[C248] E. Strekalovskiy, B. Goldluecke and D. Cremers,
Tight Convex Relaxations for Vector-Valued Labeling Problems,
IEEE International Conference on Computer Vision (ICCV), 2011.

[C249] 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.

[C250] E. Strekalovskiy and D. Cremers,
Generalized Ordering Constraints for Multilabel Optimization,
IEEE International Conference on Computer Vision (ICCV), 2011.

[C251] 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,

[C252] C. Nieuwenhuis, E. Toeppe and D. Cremers,
Space-Varying Color Distributions for Interactive Multiregion Segmentation: Discrete versus Continuous Approaches,

[C253] M. Klodt and D. Cremers,
A Convex Framework for Image Segmentation with Moment Constraints,
IEEE International Conference on Computer Vision (ICCV), 2011.

[C254] 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.

[C255] 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.
[C256] 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.

[C257] 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.

[C258] 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.

[C259] 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.

[C260] E. Toeppe, M. R. Oswald, D. Cremers and C. Rother, 
Silhouette-Based Variational Methods for Single View Reconstruction, 

[C261] 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, 

[C262] 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.

[C263] M. Schikora, D. Bender, D. Cremers and W. Koch, 
Passive Multi-Object Localization and Tracking Using Bearing Data, 

[C264] M. Schikora, D. Bender, W. Koch and D. Cremers, 
Multi-target multi-sensor localization and tracking using passive antenna and optical sensors on UAVs, 

[C265] 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.
[C266] 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.

[C267] 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.

[C268] 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.

[C269] B. Goldluecke and D. Cremers,
Convex Relaxation for Multilabel Problems with Product Label Spaces,

[C270] 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.

[C271] 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.

[C272] 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.

[C273] T. Pock, A. Chambolle, H. Bischof and D. Cremers,
A Convex Relaxation Approach for Computing Minimal Partitions,

[C274] A. Wedel, C. Rabe, A. Meissner, U. Franke and D. Cremers,
Detection and Segmentation of Independently Moving Objects from Dense Scene Flow,

[C275] 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.

[C276] B. Goldluecke and D. Cremers,
Superresolution Texture Maps for Multiview Reconstruction,


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.

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

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.

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

B. Rosenhahn, C. Schmaltz, T. Brox, J. Weickert, D. Cremers and H.-P. Seidel,
Markerless Motion Capture of Man-Machine Interaction,

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

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

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

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

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.

K. Kolev, M. Klodt, T. Brox and D. Cremers,
Propagated Photoconsistency and Convexity in Variational Multiview 3D Reconstruction,
[C300] K. Kolev, M. Klodt, T. Brox, S. Esedoglu and D. Cremers,
Continuous Global Optimization in Multiview 3D Reconstruction,

[C301] 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

[C302] T. Schoenemann and D. Cremers,
Globally Optimal Image Segmentation with an Elastic Shape Prior,

[C303] T. Schoenemann and D. Cremers,
Introducing Curvature into Globally Optimal Image Segmentation: Minimum
Ratio Cycles on Product Graphs,

[C304] F. R. Schmidt, D Farin and D. Cremers,
Fast Matching of Planar Shapes in Sub-cubic Runtime,

[C305] F. R. Schmidt, E. Toeppe, D. Cremers and Y. Boykov,
Intrinsic Mean for Semimetrical Shape Retrieval via Graph Cuts,

[C306] A. Wedel, T. Schoenemann, T. Brox and D. Cremers,
WarpCut - Fast obstacle segmentation in monocular video,

[C307] C. Schmaltz, B. Rosenhahn, T. Brox, D. Cremers, J. Weickert, L. Wietzke and G. Sommer,
Occlusion Modeling by Tracking Multiple Objects,

[C308] B. Rosenhahn, T. Brox, D. Cremers and H.-P. Seidel,
Online smoothing for markerless motion capture,

[C309] F. R. Schmidt, E. Toeppe, D. Cremers and Y. Boykov,
Efficient Shape Matching via Graph Cuts,

[C310] D. Cremers,
Nonlinear Dynamical Shape Priors for Level Set Segmentation,
[C311] T. Brox and D. Cremers, 
On the Statistical Interpretation of the Piecewise Smooth Mumford-Shah Functional, 

[C312] T. Brox and D. Cremers, 
Iterated Nonlocal Means for Texture Restoration, 

[C313] C. Schmaltz, B. Rosenhahn, T. Brox, D. Cremers, J. Weickert, L. Wietzke and G. Sommer, 
Region-based Pose Tracking, 

[C314] D. Cremers, O. Fluck, M. Rousson and S. Aharon, 
A probabilistic level set formulation for interactive organ segmentation, 

[C315] F. R. Schmidt, M. Clausen and D. Cremers, 
Shape Matching by Variational Computation of Geodesics on a Manifold, 

[C316] T. Schoenemann and D. Cremers, 
Near Real-time Motion Segmentation using Graph Cuts, 

[C317] T. Brox, B. Rosenhahn, U. Kersting and D. Cremers, 
Nonparametric density estimation for human pose tracking, 

[C318] K. Kolev, T. Brox and D. Cremers, 
Robust variational segmentation of 3D objects from multiple views, 

[C319] A. Wedel, U. Franke, J. Klappstein, T. Brox and D. Cremers, 
Realtime depth estimation and obstacle detection from monocular video, 

[C320] 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.
[C321] B. Rosenhahn, T. Brox, D. Cremers and H.-P. Seidel,
A comparison of shape matching methods for contour based pose estimation,

[C322] 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,

[C323] D. Cremers and L. Grady,
Statistical priors for combinatorial optimization: efficient solutions via Graph Cuts,

[C324] D. Cremers, C. Guetter and C. Xu,
Nonparametric priors on the space of joint intensity distributions for non-rigid multi-modal image registration,

[C325] O. Fluck, S. Aharon, D. Cremers and M. Rousson,
GPU histogram computation,
ACM SIGGRAPH posters and demos, 2006.

[C326] T. Kohlberger, D. Cremers, M. Rousson and R. Ramaraj,
4D shape priors for level set segmentation of the left myocardium in SPECT sequences,

[C327] D. Cremers and G. Funka-Lea,
Dynamical statistical shape priors for level set based tracking,

[C328] S. Manay, D. Cremers, A. J. Yezzi and S. Soatto,
One-shot integral invariant shape priors for variational segmentation,

[C329] M. Rousson and D. Cremers,
Efficient kernel density estimation of shape and intensity priors for level set segmentation,

[C330] D. Cremers,
Bayesian Approaches to Motion-based Image and Video Segmentation,
[C331] D. Cremers, S. J. Osher and S. Soatto,
Kernel density estimation and intrinsic alignment for knowledge-driven segmentation: Teaching level sets to walk,

[C332] D. Cremers, N. Sochen and C. Schnörr,
Multiphase dynamic labeling for variational recognition-driven image segmentation,

[C333] H. Jin, D. Cremers, A. Yezzi and S. Soatto,
Shedding light on stereoscopic segmentation,

[C334] D. Cremers,
A variational framework for image segmentation combining motion estimation and shape regularization,

[C335] D. Cremers,
A multiphase level set framework for variational motion segmentation,

[C336] D. Cremers and S. Soatto,
A pseudo-distance for shape priors in level set segmentation,

[C337] D. Cremers and S. Soatto,
Variational space-time motion segmentation,

[C338] D. Cremers, N. Sochen and C. Schnörr,
Towards Recognition-based Variational Segmentation Using Shape Priors and Dynamic Labeling,

[C339] D. Cremers and A. L. Yuille,
A generative model based approach to motion segmentation,

[C340] G. Doretto, D. Cremers, P. Favaro and S. Soatto,
Dynamic texture segmentation,
[C341] J. Keuchel, C. Schnoerr, C. Schellewald and D. Cremers,  
Unsupervised Image Partitioning with Semidefinite Programming,  

[C342] D. Cremers, T. Kohlberger and C. Schnörr,  
Nonlinear shape statistics in Mumford–Shah based segmentation,  

[C343] D. Cremers and C. Schnörr,  
Motion Competition: variational integration of motion segmentation and shape regularization,  

[C344] 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.

[C345] D. Cremers, T. Kohlberger and C. Schnörr,  
Nonlinear shape statistics via kernel spaces,  

[C346] 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.

[C347] D. Cremers, C. Schnör 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.

[C348] D. Cremers, C. Schnór, J. Weickert and C. Schellewald,  
Learning of translation invariant shape knowledge for steering diffusion snakes,  

[C349] D. Cremers, C. Schnör, J. Weickert and C. Schellewald,  
Diffusion Snakes using statistical shape knowledge,  

PhDThesis

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

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

[R2] A. Chambolle, D. Cremers and T. Pock, 
A Convex Approach for Computing Minimal Partitions, 

[R3] T. Brox, O. Kleinschmidt and D. Cremers, 
Iterated and Efficient Nonlocal Means for Denoising of Textural Patterns, 

[R4] D. Cremers, C. Schnörr, J. Weickert and C. Schellewald, 
Diffusion Snakes using statistical shape knowledge, 