2022
Journal Articles

[J1] C Tomani and D Cremers,
Challenger: Training with Attribution Maps,

[J2] L. von Stumberg and D. Cremers,
DM-VIO: Delayed Marginalization Visual-Inertial Odometry,

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,

[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,
Author: Cremers—coauthors

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[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.

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[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,**

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

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

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

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

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,**

[C2] T Frerix, D Kochkov, J Smith, D Cremers, M Brenner and S Hoyer,
**Variational Data Assimilation with a Learned Inverse Observation Operator,**

[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 

[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*, 

[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*, 

[C10] P. Müller, V. Golkov, V. Tomassini and D. Cremers, 
*Rotation-Equivariant Deep Learning for Diffusion MRI (short version)*, 

[C11] Q. Khan, P. Wenzel and D. Cremers, 
*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*, 

[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, 

[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, 

[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, 

[C19] S Klenk, J Chui, N Demmel and D Cremers, 
TUM-VIE: The TUM Stereo Visual-Inertial Event Dataset, 

[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.

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[J1] E. Laude, P. Ochs and D. Cremers, 
Bregman Proximal Mappings and Bregman-Moreau Envelopes under Relative Prox-Regularity, 

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

Deep Learning for Virtual Screening: Five Reasons to Use ROC Cost Functions, 
Visual-Inertial Mapping with Non-Linear Factor Recovery,

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

[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,

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

[J8] G Fabbro, V Golkov, T Kemp and D Cremers,
Speech Synthesis and Control Using Differentiable DSP,

[J9] I Chiotellis and D Cremers,
Neural Online Graph Exploration,

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[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,

[C2] L. Sang, B. Haefner and D. Cremers,
Inferring Super-Resolution Depth from a Moving Light-Source Enhanced RGB-D Sensor: A Variational Approach,

[C3] T Frerix, M Niesner and D Cremers,
Homogeneous Linear Inequality Constraints for Neural Network Activations,

[C4] R. Wang, N. Yang, J. Stueckler and D. Cremers,
DirectShape: Photometric Alignment of Shape Priors for Visual Vehicle Pose and Shape Estimation,
[C5] M. Eisenberger, Z. Lühner 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, 

[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, 

[C15] L. Koestler, N. Yang, R. Wang and D. Cremers, 
Learning Monocular 3D Vehicle Detection without 3D Bounding Box Labels, 
Author: Cremers—coauthors

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[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,

[C17] B Holzschuh, Z Lähner and D Cremers,
Simulated Annealing for 3D Shape Correspondence,

[C18] M Aygün, Z Lähner and D Cremers,
Unsupervised Dense Shape Correspondence using Heat Kernels,

[C19] N Demmel, M Gao, E Laude, T Wu and D Cremers,
Distributed Photometric Bundle Adjustment,

[C20] L. von Stumberg, P. Wenzel, N. Yang and D. Cremers,
LM-Reloc: Levenberg-Marquardt Based Direct Visual Relocalization,

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Video Object Segmentation without Temporal Information,

[J2] 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,

[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,

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

[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,
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,
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[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. Swazimna, V. Golkov, I. Lipp, E. Sgarlata, V. Tomassini, D. K. Jones and D. Cremers,
Negative-Unlabeled Learning for Diffusion MRI,

[C6] D. Schubert, N. Demmel, L. von Stumberg, V. Usenko and D. Cremers,
Rolling-Shutter Modelling for Visual-Inertial Odometry,

[C7] M. Eisenberger, Z. Lähner and D. Cremers,
Divergence-Free Shape Correspondence by Deformation,

[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,

[C11] Q. Khan, P. Wenzel, D. Cremers and L. Leal-Taixe,
Towards Generalizing Sensorimotor Control Across Weather Conditions,
Author: Cremers—coauthors

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[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,

[C15] P. Brechet, T. Wu, T. Möllenhoff and D. Cremers,
Informative GANs via Structured Regularization of Optimal Transport,

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

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

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

[J4] B Bringmann, D Cremers and F Krahmer,
The homotopy method revisited: Computing solution paths of L1-regularized problems,

[J5] J. Melou, Y. Queau, J.-D. Durou, F. Castan and D. Cremers,
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[J6] P. Bergmann, R. Wang and D. Cremers,
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[J7] E. Aljalbout, V. Golkov, Y. Siddiqui, M. Strobel and D. Cremers,
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Author: Cremers—coauthors

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[C8] T. Möllenhoff, Z. Ye, T. Wu and D. Cremers,  
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[C9] R Scona, M Jaimez, YR. Petillot, M Fallon and D Cremers,  
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[C13] P. Haeusser, J. Plapp, V. Golkov, E. Aljalbout and D. Cremers,  
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Direct Sparse Visual-Inertial Odometry using Dynamic Marginalization,  

[C16] D. Schubert, T. Goll, N. Demmel, V. Usenko, J. Stueckler and D. Cremers,  
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[C17] X. Gao, R. Wang, N. Demmel and D. Cremers,  
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[C18] Z. Lähner, D. Cremers and T. Tung,  
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[C19] N. Yang, R. Wang, J. Stueckler and D. Cremers,  
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[C20] D. Schubert, N. Demmel, V. Usenko, J. Stueckler and D. Cremers,  
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[C21] V. Usenko, N. Demmel and D. Cremers,  
The Double Sphere Camera Model,  

[C22] I. Chiotellis, F. Zimmermann, D. Cremers and R. Triebel,  
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[C23] V. Estellers, F. Schmidt and D. Cremers,  
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[C24] P. Wenzel, Q. Khan, D. Cremers and L. Leal-Taixe,  
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[J1] G. Kuschk, P. d’Angelo, D. Gaudrie, P. Reinartz and D. Cremers,  
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[J2] D. Cremers, L. Leal-Taixe and R. Vidal,  
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Regularization for Deep Learning: A Taxonomy, 

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[C1] M. Benning, M. Möller, R. Z. Nossek, M. Burger, D. Cremers and G. Gilboa, 
Nonlinear Spectral Image Fusion, 

[C2] D. Bender, W. Koch and D. Cremers, 
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[C3] G. Kuschk, A. Bozic and D. Cremers, 
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[C6] L. Ma, J. Stueckler, C. Kerl and D. Cremers,
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[C8] M. Dzitsiuk, J. Sturm, R. Maier, L. Ma and D. Cremers,
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Efficient Online Surface Correction for Real-time Large-Scale 3D Reconstruction,

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*International Conference on Computer Vision Workshops (ICCVW)*, 2017, Oral Presentation at ICCV Workshop on Color and Photometry in Computer Vision.
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