

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.

2021**Journal Articles**

- [J1] P. Müller, V. Golkov, V. Tomassini and D. Cremers,
Rotation-Equivariant Deep Learning for Diffusion MRI,
arXiv preprint, 2021.

Conference and Workshop Papers

- [C1] 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.
- [C2] 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.

PhDThesis

- [PhD1] V. Golkov,
Deep learning and variational analysis for high-dimensional and geometric biomedical data,
Department of Informatics, Technical University of Munich, Germany, 2021.

2020**Journal Articles**

- [J1] V. Golkov, A. Becker, D. T. Plop, D. Cuturilo, 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.
- [J2] 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.

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.

2019

Journal Articles

- [J1] 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.
- [J2] 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.

Conference and Workshop Papers

- [C1] A. Vasilev, V. Golkov, M. Meissner, I. Lipp, E. Sgarlata, V. Tomassini, D. K. Jones and D. Cremers,
q-Space Novelty Detection with Variational Autoencoders,
MICCAI 2019 International Workshop on Computational Diffusion MRI, 2019, **Oral Presentation.**
- [C2] P. Swazinna, V. Golkov, I. Lipp, E. Sgarlata, V. Tomassini, D. K. Jones and D. Cremers,
Negative-Unlabeled Learning for Diffusion MRI,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2019.

2018

Conference and Workshop Papers

- [C1] 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.
- [C2] 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.
- [C3] B. T. Do, V. Golkov, G. E. Gürel and D. Cremers,
Precursor microRNA Identification Using Deep Convolutional Neural Networks,
bioRxiv preprint, 2018.

2017**Journal Articles**

- [J1] 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.
- [J2] 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.

Conference and Workshop Papers

- [C1] 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.

2016**Journal Articles**

- [J1] 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.**

Conference and Workshop Papers

- [C1] 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.
- [C2] 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%).**

2015**Journal Articles**

- [J1] M. Klodt, K. Herzog, R. Töpfer and D. Cremers,
Field phenotyping of grapevine growth using dense stereo reconstruction,
BMC Bioinformatics, 16(143): May 2015.

Book Chapters

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

Conference and Workshop Papers

- [C1] 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.
- [C2] P.A. Gomez, T. Sprenger, A.A. Lopez, J.I. Sperl, B. Fernandez, M. Molina-Romero, X.
Liu, V. Golkov, M. Czisch, P. Saemann, M.I. Menzel and B.H. Menze,
Using Diffusion and Structural MRI for the Automated Segmentation of Multiple
Sclerosis Lesions,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting,
2015.
- [C3] M.I. Menzel, T. Sprenger, E.T. Tan, V. Golkov, C.J. Hardy, L. Marinelli and J.I. Sperl,
Robustness of Phase Sensitive Reconstruction in Diffusion Spectrum Imaging,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting,
2015.
- [C4] A. Menini, V. Golkov and F. Wiesinger,
Free-Breathing, Self-Navigated RUFIS Lung Imaging with Motion Compensated
Image Reconstruction,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting,
2015.
- [C5] 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, Ger-
many, oct 2015.

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] T. Sprenger, J.I. Sperl, B. Fernandez, V. Golkov, E.T. Tan, C.J. Hardy, L. Marinelli, M. Czisch, P. Sämann, A. Haase and M.I. Menzel,
Novel Acquisition Scheme for Diffusion Kurtosis Imaging Based on Compressed-Sensing Accelerated DSI Yielding Superior Image Quality,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2014.
- [C2] J.I. Sperl, T. Sprenger, E.T. Tan, V. Golkov, M.I. Menzel, C.J. Hardy and L. Marinelli,
Total Variation-Regularized Compressed Sensing Reconstruction for Multi-Shell Diffusion Kurtosis Imaging,
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,
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.
- [C4] 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.
- [C5] 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.

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.

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] 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.**

- [C2] 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.
- [C3] 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.
- [C4] 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.
- [C5] T. Sprenger, B. Fernandez, J.I. Sperl, V. Golkov, M. Bach, E.T. Tan, K.F. King, C.J. Hardy, L. Marinelli, M. Czisch, P. Sämann, A. Haase and M.I. Menzel,
SNR-dependent Quality Assessment of Compressed-Sensing-Accelerated Diffusion Spectrum Imaging Using a Fiber Crossing Phantom,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 2013.
- [C6] J.I. Sperl, E.T. Tan, T. Sprenger, V. Golkov, K.F. King, C.J. Hardy, L. Marinelli and M.I. Menzel,
Phase Sensitive Reconstruction in Diffusion Spectrum Imaging Enabling Velocity Encoding and Unbiased Noise Distribution,
International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting, 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] 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.

Technical Reports

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

2012**Journal Articles**

- [J1] 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.
- [J2] 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.

Conference and Workshop Papers

- [C1] T. Sprenger, B. Fernandez, M. Bach, J.I. Sperl, V. Golkov, E.T. Tan, L. Marinelli, K.F. King, C.J. Hardy, Q. Zhu, M. Czisch, P. Sämann, A. Haase and M.I. Menzel,
Evaluation of DSI Imaging with Compressed Sensing under the Presence of Different Noise Levels on a Diffusion Phantom,
European Society for Magnetic Resonance in Medicine and Biology (ESMRMB) Annual Meeting, 2012.
- [C2] V. Golkov, J.I. Sperl, T. Sprenger, H.-J. Bungartz, M. Sedlacek, E.T. Tan, L. Marinelli, C.J. Hardy, K.F. King and M.I. Menzel,
Comparison of Diffusion Kurtosis Tensor Estimation Methods in an Advanced Quality Assessment Framework,
European Society for Magnetic Resonance in Medicine and Biology (ESMRMB) Annual Meeting, 2012.

2011**Journal Articles**

- [J1] 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.

Conference and Workshop Papers

- [C1] M. Klodt and D. Cremers,
A Convex Framework for Image Segmentation with Moment Constraints,
IEEE International Conference on Computer Vision (ICCV), 2011.
- [C2] 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.

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.

2009**Conference and Workshop Papers**

- [C1] 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.

2007**Journal Articles**

- [J1] 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.

Book Chapters

- [BC1] 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] 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.

2006**Journal Articles**

- [J1] 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.

Conference and Workshop Papers

- [C1] 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.

- [C2] 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

Conference and Workshop Papers

- [C1] 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.

2002

Journal Articles

- [J1] D. Cremers and A. V. M. Herz,
Travelling waves of excitation in neural field models: Equivalence of rate descriptions and integrate-and-fire dynamics,
Neural Computation, 14(7): 1651-1667, 2002.