Keywords: Medical Imaging—biology

List of Publications

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,  

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

Deep Learning for Virtual Screening: Five Reasons to Use ROC Cost Functions,  

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

Conference and Workshop Papers
Keywords: Medical Imaging—biology  List of Publications

[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,

2019
Journal Articles

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

[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,

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,

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,

q-Space Deep Learning for Alzheimer’s Disease Diagnosis: Global Prediction and Weakly-Supervised Localization,

[C3] B. T. Do, V. Golkov, G. E. Gürel and D. Cremers,
Precursor microRNA Identification Using Deep Convolutional Neural Networks,
2017

Journal Articles

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,

Conference and Workshop Papers

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

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,
Keywords: Medical Imaging—biology

List of Publications

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. Stähler and D. Cremers, 
A Fast Projection Method for Connectivity Constraints in Image Segmentation, 

Using Diffusion and Structural MRI for the Automated Segmentation of Multiple Sclerosis Lesions, 

Robustness of Phase Sensitive Reconstruction in Diffusion Spectrum Imaging, 

[C4] A. Menini, V. Golkov and F. Wiesinger, 
Free-Breathing, Self-Navigated RUFIS Lung Imaging with Motion Compensated Image Reconstruction, 

q-Space Deep Learning for Twelve-Fold Shorter and Model-Free Diffusion MRI Scans, 

2014

Book Chapters

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.
Keywords: Medical Imaging—biology

List of Publications

Novel Acquisition Scheme for Diffusion Kurtosis Imaging Based on Compressed-Sensing Accelerated DSI Yielding Superior Image Quality,

Total Variation-Regularized Compressed Sensing Reconstruction for Multi-Shell Diffusion Kurtosis Imaging,

Direct Reconstruction of the Average Diffusion Propagator with Simultaneous Compressed-Sensing-Accelerated Diffusion Spectrum Imaging and Image De-noising by Means of Total Generalized Variation Regularization,

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,

2013
Journal Articles

[J1] C. Nieuwenhuis and D. Cremers,
Spatially Varying Color Distributions for Interactive Multi-Label Segmentation,

Book Chapters

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

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,
Keywords: Medical Imaging—biology

List of Publications

[C2] V. Golkov, T. Sprenger, M.I. Menzel, D. Cremers and J.I. Sperl,

[C3] V. Golkov, M.I. Menzel, T. Sprenger, A. Menini, D. Cremers and J.I. Sperl,


[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. Strekalovskiy, C. Nieuwenhuis and D. Cremers,
Keywords: Medical Imaging—biology

List of Publications

2012
Journal Articles

[J1] S. Chen, D. Cremers and R. J. Radke,

*Image segmentation with one shape prior - A template-based formulation*,


*An image classification approach to analyze the suppression of plant immunity by the human pathogen Salmonella Typhimurium*,

Conference and Workshop Papers


*Evaluation of DSI Imaging with Compressed Sensing under the Presence of Different Noise Levels on a Diffusion Phantom*,


*Comparison of Diffusion Kurtosis Tensor Estimation Methods in an Advanced Quality Assessment Framework*,

2011
Journal Articles


*A Variational Approach to Vesicle Membrane Reconstruction from Fluorescence Imaging*,

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,

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,

Book Chapters

[BC1] D. Cremers and M. Rousson,
Efficient kernel density estimation of shape and intensity priors for level set segmentation,

Conference and Workshop Papers

[C1] D. Cremers, O. Fluck, M. Rousson and S. Aharon,
A probabilistic level set formulation for interactive organ segmentation,

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,

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,
Keywords: Medical Imaging—biology  List of Publications

[C2] T. Kohlberger, D. Cremers, M. Rousson and R. Ramaraj,
4D shape priors for level set segmentation of the left myocardium in SPECT sequences,

2005
Conference and Workshop Papers

[C1] M. Rousson and D. Cremers,
Efficient kernel density estimation of shape and intensity priors for level set segmentation,

2002
Journal Articles

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