2023
Journal Articles

[J1] T Wimmer, V Golkov, HN Dang, M Zaiss, A Maier and D Cremers,
Scale-Equivariant Deep Learning for 3D Data,

[J2] HN Dang, V Golkov, T Wimmer, D Cremers, A Maier and M Zaiss,
Joint MR sequence optimization beats pure neural network approaches for
spin-echo MRI super-resolution,

[J3] M Zaiss, HN Dang, V Golkov, J Rajput, D Cremers, F Knoll and A Maier,
GPT4MR: Exploring GPT-4 as an MR Sequence and Reconstruction Pro-
gramming Assistant,

2022
Conference and Workshop Papers

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

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

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[C1] M Naeyaert, V Golkov, D Cremer, 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. Cremer,
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 bio-
medical data,
Department of Informatics, Technical University of Munich, Germany, 2021.
Keywords: Medical Imaging—biology

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2020
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[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,

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

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,

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,
Keywords: Medical Imaging—biology  List of Publications

2018

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[J1] B. T. Do, V. Golkov, G. E. Gürel and D. Cremers,
Precursor microRNA Identification Using Deep Convolutional Neural Networks,

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,
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*International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting*,
2018.

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

Dunn and M. B. Goodman,
Tau Like Proteins Reduce Torque Generation in Microtubule Bundles,

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[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,

2016

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[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,
Keywords: Medical Imaging—biology

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2015

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Conference and Workshop Papers


Keywords: Medical Imaging—biology

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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.

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.

Conference and Workshop Papers

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 Denoising 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,
Keywords: Medical Imaging—biology

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2013
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[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, 

[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.

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.

SNR-dependent Quality Assessment of Compressed-Sensing-Accelerated Diffusion Spectrum Imaging Using a Fiber Crossing Phantom, 

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Noise Reduction in Accelerated Diffusion Spectrum Imaging through Integration of SENSE Reconstruction into Joint Reconstruction in Combination with q-Space Compressed Sensing,

[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,
Label Configuration Priors for Continuous Multi-Label Optimization,

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,
Keywords: Medical Imaging—biology

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2011

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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,

[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

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[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,