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, 

[C2] P. Müller, V. Golkov, V. Tomassini and D. Cremers, 
Rotation-Equivariant Deep Learning for Diffusion MRI (short version), 

2020

Journal Articles

[J1] V. Golkov, A. Becker, D. T. Plop, D. 38;268uturilo, 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, 

[J3] G Fabbro, V Golkov, T Kemp and D Cremer, 
Speech Synthesis and Control Using Differentiable DSP, 

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

[J1] F. Pasa, V. Golkov, F. Pfeiffer, D. Cremers and D. Pfeiffer, 
Efficient Deep Network Architectures for Fast Chest X-Ray Tuberculosis Screening and Visualization, 
[J2] J. Schuchardt, V. Golkov and D. Cremers, 
Learning to Evolve, 

[J3] L. Della Libera, V. Golkov, Y. Zhu, A. Mielke and D. Cremers, 
Deep Learning for 2D and 3D Rotatable Data: An Overview of Methods, 

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 Pre-
sentation.

[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 
Journal Articles

[J1] E. Aljalbout, V. Golkov, Y. Siddiqui, M. Strobel and D. Cremers, 
Clustering with Deep Learning: Taxonomy and New Methods, 

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.

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 Net-
works, 

[C4] P. Haeusser, J. Plapp, V. Golkov, E. Aljalbout and D. Cremers, 
Associative Deep Clustering - Training a Classification Network with no La-
bels, 
Proc. of the German Conference on Pattern Recognition (GCPR), October 2018.
2017

Journal Articles

[J1] J. Kukacka, V. Golkov and D. Cremers,
Regularization for Deep Learning: A Taxonomy,

Conference and Workshop Papers

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

2016

Journal Articles

Bias and Precision Analysis of Diffusional Kurtosis Imaging for Different Acquisition Schemes,
Magnetic Resonance in Medicine, 2016.

[J2] 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

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


2014

Book Chapters


Conference and Workshop Papers


Author: V. Golkov  

List of Publications

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,  

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,  

[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.


5
Phase Sensitive Reconstruction in Diffusion Spectrum Imaging Enabling Velocity Encoding and Unbiased Noise Distribution,  

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

2012  
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,  