Carola-Bibiane SchÃ¶nlieb

List of Publications by Year
in descending order

119 papers	4,014 citations	172207 29 h-index	138251 58 g-index
130 all docs	130 docs citations	130 times ranked	3816 citing authors

#	Article	IF	Citations
1	Common pitfalls and recommendations for using machine learning to detect and prognosticate for COVID-19 using chest radiographs and CT scans. Nature Machine Intelligence, 2021, 3, 199-217.	8.3	607
2	Solving inverse problems using data-driven models. Acta Numerica, 2019, 28, 1-174.	6.3	359
3	Learning to Diversify Deep Belief Networks for Hyperspectral Image Classification. IEEE Transactions on Geoscience and Remote Sensing, 2017, 55, 3516-3530.	2.7	270
4	A Combined First and Second Order Variational Approach for Image Reconstruction. Journal of Mathematical Imaging and Vision, 2014, 48, 308-338.	0.8	213
5	Unified Focal loss: Generalising Dice and cross entropy-based losses to handle class imbalanced medical image segmentation. Computerized Medical Imaging and Graphics, 2022, 95, 102026.	3.5	186
6	Cahnâ€“Hilliard Inpainting and a Generalization for Grayvalue Images. SIAM Journal on Imaging Sciences, 2009, 2, 1129-1167.	1.3	118
7	A deep-learning pipeline for the diagnosis and discrimination of viral, non-viral and COVID-19 pneumonia from chest X-ray images. Nature Biomedical Engineering, 2021, 5, 509-521.	11.6	106
8	Variational Depth From Focus Reconstruction. IEEE Transactions on Image Processing, 2015, 24, 5369-5378.	6.0	85
9	Unconditionally stable schemes for higher order inpainting. Communications in Mathematical Sciences, 2011, 9, 413-457.	0.5	81
10	Stochastic Primal-Dual Hybrid Gradient Algorithm with Arbitrary Sampling and Imaging Applications. SIAM Journal on Optimization, 2018, 28, 2783-2808.	1.2	76
11	Bilevel Parameter Learning for Higher-Order Total Variation Regularisation Models. Journal of Mathematical Imaging and Vision, 2017, 57, 1-25.	0.8	73
12	Imaging with Kantorovich--Rubinstein Discrepancy. SIAM Journal on Imaging Sciences, 2014, 7, 2833-2859.	1.3	72
13	Image denoising: Learning the noise model via nonsmooth PDE-constrained optimization. Inverse Problems and Imaging, 2013, 7, 1183-1214.	0.6	71
14	Liquid phase blending of metal-organic frameworks. Nature Communications, 2018, 9, 2135.	5.8	69
15	Focus U-Net: A novel dual attention-gated CNN for polyp segmentation during colonoscopy. Computers in Biology and Medicine, 2021, 137, 104815.	3.9	68
16	Superpixel Contracted Graph-Based Learning for Hyperspectral Image Classification. IEEE Transactions on Geoscience and Remote Sensing, 2020, 58, 4180-4193.	2.7	60
17	Oriented diffusion filtering for enhancing low-quality fingerprint images. IET Biometrics, 2012, 1, 105.	1.6	54
18	Individual Tree Species Classification From Airborne Multisensor Imagery Using Robust PCA. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2016, 9, 2554-2567.	2.3	53

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19	Phase reconstruction from velocity-encoded MRI measurements â€“ A survey of sparsity-promoting variational approaches. Journal of Magnetic Resonance, 2014, 238, 26-43.	1.2	51
20	Accurate Measurement of Tropical Forest Canopy Heights and Aboveground Carbon Using Structure From Motion. Remote Sensing, 2019, 11, 928.	1.8	46
21	Infimal Convolution of Data Discrepancies for Mixed Noise Removal. SIAM Journal on Imaging Sciences, 2017, 10, 1196-1233.	1.3	42
22	Subspace Correction Methods for Total Variation and ell_1-Minimization. SIAM Journal on Numerical Analysis, 2009, 47, 3397-3428.	1.1	41
23	Radiological tumour classification across imaging modality and histology. Nature Machine Intelligence, 2021, 3, 787-798.	8.3	41
24	Blind image fusion for hyperspectral imaging with the directional total variation. Inverse Problems, 2018, 34, 044003.	1.0	40
25	A Variational Model for Joint Motion Estimation and Image Reconstruction. SIAM Journal on Imaging Sciences, 2018, 11, 94-128.	1.3	40
26	3D Segmentation of Trees Through a Flexible Multiclass Graph Cut Algorithm. IEEE Transactions on Geoscience and Remote Sensing, 2020, 58, 754-776.	2.7	39
27	A convergent overlapping domain decomposition method for total variation minimization. Numerische Mathematik, 2010, 116, 645-685.	0.9	38
28	The structure of optimal parameters for image restoration problems. Journal of Mathematical Analysis and Applications, 2016, 434, 464-500.	0.5	37
29	Learning the Sampling Pattern for MRI. IEEE Transactions on Medical Imaging, 2020, 39, 4310-4321.	5.4	37
30	Deep learning as optimal control problems: Models and numerical methods. Journal of Computational Dynamics, 2019, 6, 171-198.	0.4	29
31	Infimal Convolution Regularisation Functionals of BV and $$varvec{mathrm {L}}^{varvec{p}}$$ L p Spaces. Journal of Mathematical Imaging and Vision, 2016, 55, 343-369.	0.8	27
32	Directional sinogram inpainting for limited angle tomography. Inverse Problems, 2019, 35, 024004.	1.0	27
33	GraphXCOVID: Explainable deep graph diffusion pseudo-Labelling for identifying COVID-19 on chest X-rays. Pattern Recognition, 2022, 122, 108274.	5.1	26
34	Faster PET reconstruction with non-smooth priors by randomization and preconditioning. Physics in Medicine and Biology, 2019, 64, 225019.	1.6	24
35	On Learned Operator Correction in Inverse Problems. SIAM Journal on Imaging Sciences, 2021, 14, 92-127.	1.3	24
36	Machine Learning for COVID-19 Diagnosis and Prognostication: Lessons for Amplifying the Signal While Reducing the Noise. Radiology: Artificial Intelligence, 2021, 3, e210011.	3.0	24

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37	8. Bilevel approaches for learning of variational imaging models. , 2016, , 252-290.		22
38	Graph Clustering, Variational Image Segmentation Methods and Hough Transform Scale Detection for Object Measurement in Images. Journal of Mathematical Imaging and Vision, 2017, 57, 269-291.	0.8	21
39	Linkage Between Piecewise Constant Mumford–Shah Model and Rudin–Osher–Fatemi Model and Its Virtue in Image Segmentation. SIAM Journal of Scientific Computing, 2019, 41, B1310-B1340.	1.3	21
40	Preconditioned ADMM with Nonlinear Operator Constraint. IFIP Advances in Information and Communication Technology, 2016, , 117-126.	0.5	20
41	Nonparametric Image Registration of Airborne LiDAR, Hyperspectral and Photographic Imagery of Wooded Landscapes. IEEE Transactions on Geoscience and Remote Sensing, 2015, 53, 6073-6084.	2.7	19
42	Discrete gradient methods for solving variational image regularisation models. Journal of Physics A: Mathematical and Theoretical, 2017, 50, 295201.	0.7	18
43	Phase diagrams of liquid-phase mixing in multi-component metal-organic framework glasses constructed by quantitative elemental nano-tomography. APL Materials, 2019, 7, .	2.2	18
44	Artificial intelligence in clinical imaging: a health system approach. Clinical Radiology, 2020, 75, 3-6.	0.5	18
45	Improving â€œFast Iterative Shrinkage-Thresholding Algorithmâ€: Faster, Smarter, and Greedier. SIAM Journal of Scientific Computing, 2022, 44, A1069-A1091.	1.3	18
46	Bregmanized Domain Decomposition for Image Restoration. Journal of Scientific Computing, 2013, 54, 549-576.	1.1	17
47	Enhancing joint reconstruction and segmentation with non-convex Bregman iteration. Inverse Problems, 2019, 35, 055001.	1.0	17
48	Structure-preserving deep learning. European Journal of Applied Mathematics, 2021, 32, 888-936.	1.4	17
49	Variational Osmosis for Non-Linear Image Fusion. IEEE Transactions on Image Processing, 2020, 29, 5507-5516.	6.0	16
50	Wavelet Decomposition Method for $L_2/$/TV-Image Deblurring. SIAM Journal on Imaging Sciences, 2012, 5, 857-885.	1.3	15
51	Variational Image Regularization with Euler's Elastica Using a Discrete Gradient Scheme. SIAM Journal on Imaging Sciences, 2018, 11, 2665-2691.	1.3	15
52	Higher-Order Total Directional Variation: Imaging Applications. SIAM Journal on Imaging Sciences, 2020, 13, 2063-2104.	1.3	15
53	Mathematical imaging methods for mitosis analysis in live-cell phase contrast microscopy. Methods, 2017, 115, 91-99.	1.9	14
54	Unveiling the invisible: mathematical methods for restoring and interpreting illuminated manuscripts. Heritage Science, 2018, 6, 56.	1.0	14

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55	Exploiting prior knowledge about biological macromolecules in cryo-EM structure determination. IUCrJ, 2021, 8, 60-75.	1.0	14
56	Regularized Regression and Density Estimation based on Optimal Transport. Applied Mathematics Research EXpress, 2012, , .	1.0	13
57	Analysis and Application of a Nonlocal Hessian. SIAM Journal on Imaging Sciences, 2015, 8, 2161-2202.	1.3	13
58	Mechanisms Underlying Vascular Endothelial Growth Factor Receptor Inhibitionâ€“Induced Hypertension. Hypertension, 2021, 77, 1591-1599.	1.3	13
59	ADI splitting schemes for a fourth-order nonlinear partial differential equation from image processing. Discrete and Continuous Dynamical Systems, 2014, 34, 931-957.	0.5	12
60	Inverse scale space decomposition. Inverse Problems, 2018, 34, 045008.	1.0	12
61	Task adapted reconstruction for inverse problems. Inverse Problems, 2022, 38, 075006.	1.0	12
62	Anisotropic osmosis filtering for shadow removal in images. Inverse Problems, 2019, 35, 054001.	1.0	11
63	Compressed sensing plus motion (CSÂ+ÂM): A new perspective for improving undersampled MR image reconstruction. Medical Image Analysis, 2021, 68, 101933.	7.0	11
64	Nonlinear Spectral Image Fusion. Lecture Notes in Computer Science, 2017, , 41-53.	1.0	11
65	Template-Based Image Reconstruction from Sparse Tomographic Data. Applied Mathematics and Optimization, 2020, 82, 1081-1109.	0.8	10
66	Optical flow analysis reveals that Kinesin-mediated advection impacts the orientation of microtubules in theDrosophilaoocyte. Molecular Biology of the Cell, 2020, 31, 1246-1258.	0.9	10
67	Pattern formation of a nonlocal, anisotropic interaction model. Mathematical Models and Methods in Applied Sciences, 2018, 28, 409-451.	1.7	9
68	Mirror, Mirror, on the Wall, Whoâ€™s Got the Clearest Image of Them All?â€”A Tailored Approach to Single Image Reflection Removal. IEEE Transactions on Image Processing, 2019, 28, 6185-6197.	6.0	9
69	Decoding the Interdependence of Multiparametric Magnetic Resonance Imaging to Reveal Patient Subgroups Correlated with Survivals. Neoplasia, 2019, 21, 442-449.	2.3	9
70	Accelerating variance-reduced stochastic gradient methods. Mathematical Programming, 2022, 191, 671-715.	1.6	9
71	3D deformable registration of longitudinal abdominopelvic CT images using unsupervised deep learning. Computer Methods and Programs in Biomedicine, 2021, 208, 106261.	2.6	9
72	Entropic Comparison of Atomic-Resolution Electron Tomography of Crystals and Amorphous Materials. Physical Review Letters, 2017, 119, 166101.	2.9	8

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73	Semi-Supervised Superpixel-Based Multi-Feature Graph Learning for Hyperspectral Image Data. IEEE Transactions on Geoscience and Remote Sensing, 2022, 60, 1-12.	2.7	8
74	Enhancing the spatial resolution of hyperpolarized carbonâ€13 MRI of human brain metabolism using structure guidance. Magnetic Resonance in Medicine, 2022, 87, 1301-1312.	1.9	8
75	A Stochastic Proximal Alternating Minimization for Nonsmooth and Nonconvex Optimization. SIAM Journal on Imaging Sciences, 2021, 14, 1932-1970.	1.3	8
76	Peekaboo-Where are the Objects? Structure Adjusting Superpixels. , 2018, , .		7
77	An anisotropic interaction model for simulating fingerprints. Journal of Mathematical Biology, 2019, 78, 2171-2206.	0.8	7
78	A Variational Model Dedicated to Joint Segmentation, Registration, and Atlas Generation for Shape Analysis. SIAM Journal on Imaging Sciences, 2020, 13, 351-380.	1.3	7
79	Rethinking medical image reconstruction via shape prior, going deeper and faster: Deep joint indirect registration and reconstruction. Medical Image Analysis, 2021, 68, 101930.	7.0	7
80	Dynamic Sampling Schemes for Optimal Noise Learning Under Multiple Nonsmooth Constraints. IFIP Advances in Information and Communication Technology, 2014, , 85-95.	0.5	7
81	Variational regularisation for inverse problems with imperfect forward operators and general noise models. Inverse Problems, 2020, 36, 125014.	1.0	7
82	Scanning electron diffraction tomography of strain. Inverse Problems, 2021, 37, 015003.	1.0	7
83	Faster FISTA. , 2018, , .		6
84	Multi-tasking to Correct: Motion-Compensated MRI via Joint Reconstruction and Registration. Lecture Notes in Computer Science, 2019, , 263-274.	1.0	6
85	Choose Your Path Wisely: Gradient Descent in a Bregman Distance Framework. SIAM Journal on Imaging Sciences, 2021, 14, 814-843.	1.3	6
86	Equivariant neural networks for inverse problems. Inverse Problems, 2021, 37, 085006.	1.0	6
87	Learning to Segment Microscopy Images with Lazy Labels. Lecture Notes in Computer Science, 2020, , 411-428.	1.0	6
88	Infimal Convolution Regularisation Functionals of $$mathrm {BV}$$ and $$mathrm {L}^{p}$$ Spaces. The Case $$p=infty $$. IFIP Advances in Information and Communication Technology, 2016, , 169-179.	0.5	5
89	A Primal-Dual Approach for a Total Variation Wasserstein Flow. Lecture Notes in Computer Science, 2013, , 413-421.	1.0	5
90	Stability Analysis of Line Patterns of an Anisotropic Interaction Model. SIAM Journal on Applied Dynamical Systems, 2019, 18, 1798-1845.	0.7	4

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91	A multiâ€contrast MRI approach to thalamus segmentation. Human Brain Mapping, 2020, 41, 2104-2120.	1.9	4
92	Bregman Itohâ€“Abe Methods for Sparse Optimisation. Journal of Mathematical Imaging and Vision, 2020, 62, 842-857.	0.8	4
93	Variational multi-task MRI reconstruction: Joint reconstruction, registration and super-resolution. Medical Image Analysis, 2021, 68, 101941.	7.0	4
94	A Geometric Integration Approach to Nonsmooth, Nonconvex Optimisation. Foundations of Computational Mathematics, 2022, 22, 1351-1394.	1.5	4
95	Learning parametrised regularisation functions via quotient minimisation. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 933-936.	0.2	3
96	Introduction: Big data and partial differential equations. European Journal of Applied Mathematics, 2017, 28, 877-885.	1.4	3
97	Guidefill: GPU Accelerated, Artist Guided Geometric Inpainting for 3D Conversion of Film. SIAM Journal on Imaging Sciences, 2017, 10, 2049-2090.	1.3	3
98	Joint Phase Reconstruction and Magnitude Segmentation from Velocity-Encoded MRI Data. , 2021, , 1-24.		3
99	Learning Filter Functions in Regularisers by Minimising Quotients. Lecture Notes in Computer Science, 2017, , 511-523.	1.0	3
100	HERS Superpixels: Deep Affinity Learning for Hierarchical Entropy Rate Segmentation. , 2022, , .		3
101	INSIDEnet: Interpretable NonexpanSIve Dataâ€Efficient network for denoising in grating interferometry breast CT. Medical Physics, 2022, 49, 3729-3748.	1.6	3
102	AN OPTIMIZATION PROBLEM RELATED TO THE BEST SOBOLEV TRACE CONSTANT IN THIN DOMAINS. Communications in Contemporary Mathematics, 2008, 10, 633-650.	0.6	2
103	Nonlocal higher order evolution equations. Applicable Analysis, 2010, 89, 949-960.	0.6	2
104	Mapping individual trees from airborne multi-sensor imagery. , 2015, , .		2
105	A DBN-crf for spectral-spatial classification of hyperspectral data. , 2016, , .		2
106	Adversarially Learned Iterative Reconstruction for Imaging Inverse Problems. Lecture Notes in Computer Science, 2021, , 540-552.	1.0	2
107	Learning optical flow for fast MRI reconstruction. Inverse Problems, 2021, 37, 095007.	1.0	2
108	Image Reconstruction in Light-Sheet Microscopy: Spatially Varying Deconvolution and Mixed Noise. Journal of Mathematical Imaging and Vision, 2022, 64, 968-992.	0.8	2

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109	Random simulations for generative art construction â€“ some examples. Journal of Mathematics and the Arts, 2013, 7, 29-39.	0.1	1
110	A Total Variation Based Regularizer Promoting Piecewise-Lipschitz Reconstructions. Lecture Notes in Computer Science, 2019, , 485-497.	1.0	1
111	Analysis of Artifacts in Shell-Based Image Inpainting: Why They Occur and How to Eliminate Them. Foundations of Computational Mathematics, 2020, 20, 1549-1651.	1.5	1
112	Improving a Stochastic Algorithm for Regularized PET Image Reconstruction. , 2020, , .		1
113	A generalization of Cahn-Hilliard inpainting for grayvalue images. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1041905-1041906.	0.2	0
114	Cahn-Hilliard inpainting and the Willmore functional. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1011209-1011210.	0.2	0
115	Preface for Inverse Problems special issue on learning and inverse problems. Inverse Problems, 2017, 33, 070301.	1.0	0
116	Equilibria of an anisotropic nonlocal interaction equation: Analysis and numerics. Discrete and Continuous Dynamical Systems, 2021, 41, 3985.	0.5	0
117	Joint Motion Estimation and Source Identification Using Convective Regularisation with an Application to the Analysis of Laser Nanoablations. , 2021, , 191-227.		0
118	Mini-Workshop: Deep Learning and Inverse Problems. Oberwolfach Reports, 2019, 15, 559-589.	0.0	0
119	Estimation of the zero-pressure computational start shape of atherosclerotic plaques: Improving the backward displacement method with deformation gradient tensor. Journal of Biomechanics, 2022, 131, 110910.	0.9	0