Carola-Bibiane Schönlieb

List of Publications by Year
in descending order

119 papers	4,014 citations	172457 29 h-index	138484 58 g-index
130 all docs	130 docs citations	130 times ranked	3816 citing authors

#	Article	IF	Citations
1	Accelerating variance-reduced stochastic gradient methods. Mathematical Programming, 2022, 191, 671-715.	2.4	9
2	Semi-Supervised Superpixel-Based Multi-Feature Graph Learning for Hyperspectral Image Data. IEEE Transactions on Geoscience and Remote Sensing, 2022, 60, 1-12.	6.3	8
3	A Geometric Integration Approach to Nonsmooth, Nonconvex Optimisation. Foundations of Computational Mathematics, 2022, 22, 1351-1394.	2.5	4
4	Task adapted reconstruction for inverse problems. Inverse Problems, 2022, 38, 075006.	2.0	12
5	GraphXCOVID: Explainable deep graph diffusion pseudo-Labelling for identifying COVID-19 on chest X-rays. Pattern Recognition, 2022, 122, 108274.	8.1	26
6	Enhancing the spatial resolution of hyperpolarized carbon‐13 MRI of human brain metabolism using structure guidance. Magnetic Resonance in Medicine, 2022, 87, 1301-1312.	3.0	8
7	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.	5.8	186
8	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.	2.1	0
9	HERS Superpixels: Deep Affinity Learning for Hierarchical Entropy Rate Segmentation. , 2022, , .		3
10	INSIDEnet: Interpretable NonexpanSIve Data‐Efficient network for denoising in grating interferometry breast CT. Medical Physics, 2022, 49, 3729-3748.	3.0	3
11	Improving "Fast Iterative Shrinkage-Thresholding Algorithm": Faster, Smarter, and Greedier. SIAM Journal of Scientific Computing, 2022, 44, A1069-A1091.	2.8	18
12	Image Reconstruction in Light-Sheet Microscopy: Spatially Varying Deconvolution and Mixed Noise. Journal of Mathematical Imaging and Vision, 2022, 64, 968-992.	1.3	2
13	Rethinking medical image reconstruction via shape prior, going deeper and faster: Deep joint indirect registration and reconstruction. Medical Image Analysis, 2021, 68, 101930.	11.6	7
14	Compressed sensing plus motion (CSÂ+ÂM): A new perspective for improving undersampled MR image reconstruction. Medical Image Analysis, 2021, 68, 101933.	11.6	11
15	Variational multi-task MRI reconstruction: Joint reconstruction, registration and super-resolution. Medical Image Analysis, 2021, 68, 101941.	11.6	4
16	Equilibria of an anisotropic nonlocal interaction equation: Analysis and numerics. Discrete and Continuous Dynamical Systems, 2021, 41, 3985.	0.9	0
17	Joint Motion Estimation and Source Identification Using Convective Regularisation with an Application to the Analysis of Laser Nanoablations. , 2021, , 191-227.		0
18	Joint Phase Reconstruction and Magnitude Segmentation from Velocity-Encoded MRI Data. , 2021, , 1-24.		3

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19	Choose Your Path Wisely: Gradient Descent in a Bregman Distance Framework. SIAM Journal on Imaging Sciences, 2021, 14, 814-843.	2.2	6
20	Exploiting prior knowledge about biological macromolecules in cryo-EM structure determination. IUCrJ, 2021, 8, 60-75.	2.2	14
21	Adversarially Learned Iterative Reconstruction for Imaging Inverse Problems. Lecture Notes in Computer Science, 2021, , 540-552.	1.3	2
22	On Learned Operator Correction in Inverse Problems. SIAM Journal on Imaging Sciences, 2021, 14, 92-127.	2.2	24
23	Machine Learning for COVID-19 Diagnosis and Prognostication: Lessons for Amplifying the Signal While Reducing the Noise. Radiology: Artificial Intelligence, 2021, 3, e210011.	5.8	24
24	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.	16.0	607
25	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.	22.5	106
26	Mechanisms Underlying Vascular Endothelial Growth Factor Receptor Inhibition–Induced Hypertension. Hypertension, 2021, 77, 1591-1599.	2.7	13
27	Structure-preserving deep learning. European Journal of Applied Mathematics, 2021, 32, 888-936.	2.9	17
28	Equivariant neural networks for inverse problems. Inverse Problems, 2021, 37, 085006.	2.0	6
29	Radiological tumour classification across imaging modality and histology. Nature Machine Intelligence, 2021, 3, 787-798.	16.0	41
30	Learning optical flow for fast MRI reconstruction. Inverse Problems, 2021, 37, 095007.	2.0	2
31	3D deformable registration of longitudinal abdominopelvic CT images using unsupervised deep learning. Computer Methods and Programs in Biomedicine, 2021, 208, 106261.	4.7	9
32	Focus U-Net: A novel dual attention-gated CNN for polyp segmentation during colonoscopy. Computers in Biology and Medicine, 2021, 137, 104815.	7.0	68
33	Scanning electron diffraction tomography of strain. Inverse Problems, 2021, 37, 015003.	2.0	7
34	A Stochastic Proximal Alternating Minimization for Nonsmooth and Nonconvex Optimization. SIAM Journal on Imaging Sciences, 2021, 14, 1932-1970.	2.2	8
35	Template-Based Image Reconstruction from Sparse Tomographic Data. Applied Mathematics and Optimization, 2020, 82, 1081-1109.	1.6	10
36	3D Segmentation of Trees Through a Flexible Multiclass Graph Cut Algorithm. IEEE Transactions on Geoscience and Remote Sensing, 2020, 58, 754-776.	6.3	39

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37	Artificial intelligence in clinical imaging: a health system approach. Clinical Radiology, 2020, 75, 3-6.	1.1	18
38	Higher-Order Total Directional Variation: Imaging Applications. SIAM Journal on Imaging Sciences, 2020, 13, 2063-2104.	2.2	15
39	Learning the Sampling Pattern for MRI. IEEE Transactions on Medical Imaging, 2020, 39, 4310-4321.	8.9	37
40	A Variational Model Dedicated to Joint Segmentation, Registration, and Atlas Generation for Shape Analysis. SIAM Journal on Imaging Sciences, 2020, 13, 351-380.	2.2	7
41	A multi€contrast MRI approach to thalamus segmentation. Human Brain Mapping, 2020, 41, 2104-2120.	3.6	4
42	Superpixel Contracted Graph-Based Learning for Hyperspectral Image Classification. IEEE Transactions on Geoscience and Remote Sensing, 2020, 58, 4180-4193.	6.3	60
43	Optical flow analysis reveals that Kinesin-mediated advection impacts the orientation of microtubules in the *Drosophila* oocyte. Molecular Biology of the Cell, 2020, 31, 1246-1258.	2.1	10
44	Variational Osmosis for Non-Linear Image Fusion. IEEE Transactions on Image Processing, 2020, 29, 5507-5516.	9.8	16
45	Analysis of Artifacts in Shell-Based Image Inpainting: Why They Occur and How to Eliminate Them. Foundations of Computational Mathematics, 2020, 20, 1549-1651.	2.5	1
46	Bregman Itoh–Abe Methods for Sparse Optimisation. Journal of Mathematical Imaging and Vision, 2020, 62, 842-857.	1.3	4
47	Variational regularisation for inverse problems with imperfect forward operators and general noise models. Inverse Problems, 2020, 36, 125014.	2.0	7
48	Learning to Segment Microscopy Images with Lazy Labels. Lecture Notes in Computer Science, 2020, , 411-428.	1.3	6
49	Improving a Stochastic Algorithm for Regularized PET Image Reconstruction. , 2020, , .		1
50	Mirror, Mirror, on the Wall, Who's Got the Clearest Image of Them All?—A Tailored Approach to Single Image Reflection Removal. IEEE Transactions on Image Processing, 2019, 28, 6185-6197.	9.8	9
51	Multi-tasking to Correct: Motion-Compensated MRI via Joint Reconstruction and Registration. Lecture Notes in Computer Science, 2019, , 263-274.	1.3	6
52	A Total Variation Based Regularizer Promoting Piecewise-Lipschitz Reconstructions. Lecture Notes in Computer Science, 2019, , 485-497.	1.3	1
53	Faster PET reconstruction with non-smooth priors by randomization and preconditioning. Physics in Medicine and Biology, 2019, 64, 225019.	3.0	24
54	Phase diagrams of liquid-phase mixing in multi-component metal-organic framework glasses constructed by quantitative elemental nano-tomography. APL Materials, 2019, 7, .	5.1	18

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55	Accurate Measurement of Tropical Forest Canopy Heights and Aboveground Carbon Using Structure From Motion. Remote Sensing, 2019, 11, 928.	4.0	46
56	Solving inverse problems using data-driven models. Acta Numerica, 2019, 28, 1-174.	10.7	359
57	Enhancing joint reconstruction and segmentation with non-convex Bregman iteration. Inverse Problems, 2019, 35, 055001.	2.0	17
58	An anisotropic interaction model for simulating fingerprints. Journal of Mathematical Biology, 2019, 78, 2171-2206.	1.9	7
59	Decoding the Interdependence of Multiparametric Magnetic Resonance Imaging to Reveal Patient Subgroups Correlated with Survivals. Neoplasia, 2019, 21, 442-449.	5.3	9
60	Anisotropic osmosis filtering for shadow removal in images. Inverse Problems, 2019, 35, 054001.	2.0	11
61	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.	2.8	21
62	Stability Analysis of Line Patterns of an Anisotropic Interaction Model. SIAM Journal on Applied Dynamical Systems, 2019, 18, 1798-1845.	1.6	4
63	Directional sinogram inpainting for limited angle tomography. Inverse Problems, 2019, 35, 024004.	2.0	27
64	Deep learning as optimal control problems: Models and numerical methods. Journal of Computational Dynamics, 2019, 6, 171-198.	1.1	29
65	Mini-Workshop: Deep Learning and Inverse Problems. Oberwolfach Reports, 2019, 15, 559-589.	0.0	0
66	Blind image fusion for hyperspectral imaging with the directional total variation. Inverse Problems, 2018, 34, 044003.	2.0	40
67	Inverse scale space decomposition. Inverse Problems, 2018, 34, 045008.	2.0	12
68	A Variational Model for Joint Motion Estimation and Image Reconstruction. SIAM Journal on Imaging Sciences, 2018, 11, 94-128.	2.2	40
69	Pattern formation of a nonlocal, anisotropic interaction model. Mathematical Models and Methods in Applied Sciences, 2018, 28, 409-451.	3.3	9
70	Faster FISTA. , 2018, , .		6
71	Variational Image Regularization with Euler's Elastica Using a Discrete Gradient Scheme. SIAM Journal on Imaging Sciences, 2018, 11, 2665-2691.	2.2	15
72	Peekaboo-Where are the Objects? Structure Adjusting Superpixels. , 2018, , .		7

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73	Stochastic Primal-Dual Hybrid Gradient Algorithm with Arbitrary Sampling and Imaging Applications. SIAM Journal on Optimization, 2018, 28, 2783-2808.	2.0	76
74	Unveiling the invisible: mathematical methods for restoring and interpreting illuminated manuscripts. Heritage Science, 2018, 6, 56.	2.3	14
75	Liquid phase blending of metal-organic frameworks. Nature Communications, 2018, 9, 2135.	12.8	69
76	Bilevel Parameter Learning for Higher-Order Total Variation Regularisation Models. Journal of Mathematical Imaging and Vision, 2017, 57, 1-25.	1.3	73
77	Mathematical imaging methods for mitosis analysis in live-cell phase contrast microscopy. Methods, 2017, 115, 91-99.	3.8	14
78	Learning to Diversify Deep Belief Networks for Hyperspectral Image Classification. IEEE Transactions on Geoscience and Remote Sensing, 2017, 55, 3516-3530.	6.3	270
79	Entropic Comparison of Atomic-Resolution Electron Tomography of Crystals and Amorphous Materials. Physical Review Letters, 2017, 119, 166101.	7.8	8
80	Infimal Convolution of Data Discrepancies for Mixed Noise Removal. SIAM Journal on Imaging Sciences, 2017, 10, 1196-1233.	2.2	42
81	Introduction: Big data and partial differential equations. European Journal of Applied Mathematics, 2017, 28, 877-885.	2.9	3
82	Preface for <i>Inverse Problems</i> special issue on learning and inverse problems. Inverse Problems, 2017, 33, 070301.	2.0	0
83	Discrete gradient methods for solving variational image regularisation models. Journal of Physics A: Mathematical and Theoretical, 2017, 50, 295201.	2.1	18
84	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.	1.3	21
85	Guidefill: GPU Accelerated, Artist Guided Geometric Inpainting for 3D Conversion of Film. SIAM Journal on Imaging Sciences, 2017, 10, 2049-2090.	2.2	3
86	Nonlinear Spectral Image Fusion. Lecture Notes in Computer Science, 2017, , 41-53.	1.3	11
87	Learning Filter Functions in Regularisers by Minimising Quotients. Lecture Notes in Computer Science, 2017, , 511-523.	1.3	3
88	8. Bilevel approaches for learning of variational imaging models. , 2016, , 252-290.		22
89	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.	4.9	53
90	Learning parametrised regularisation functions via quotient minimisation. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 933-936.	0.2	3

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91	A DBN-crf for spectral-spatial classification of hyperspectral data. , 2016, , .		2
92	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.	1.3	27
93	The structure of optimal parameters for image restoration problems. Journal of Mathematical Analysis and Applications, 2016, 434, 464-500.	1.0	37
94	Preconditioned ADMM with Nonlinear Operator Constraint. IFIP Advances in Information and Communication Technology, 2016, , 117-126.	0.7	20
95	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.	0.7	5
96	Mapping individual trees from airborne multi-sensor imagery. , 2015, , .		2
97	Variational Depth From Focus Reconstruction. IEEE Transactions on Image Processing, 2015, 24, 5369-5378.	9.8	85
98	Nonparametric Image Registration of Airborne LiDAR, Hyperspectral and Photographic Imagery of Wooded Landscapes. IEEE Transactions on Geoscience and Remote Sensing, 2015, 53, 6073-6084.	6.3	19
99	Analysis and Application of a Nonlocal Hessian. SIAM Journal on Imaging Sciences, 2015, 8, 2161-2202.	2.2	13
100	Phase reconstruction from velocity-encoded MRI measurements â€" A survey of sparsity-promoting variational approaches. Journal of Magnetic Resonance, 2014, 238, 26-43.	2.1	51
101	ADI splitting schemes for a fourth-order nonlinear partial differential equation from image processing. Discrete and Continuous Dynamical Systems, 2014, 34, 931-957.	0.9	12
102	A Combined First and Second Order Variational Approach for Image Reconstruction. Journal of Mathematical Imaging and Vision, 2014, 48, 308-338.	1.3	213
103	Imaging with Kantorovich--Rubinstein Discrepancy. SIAM Journal on Imaging Sciences, 2014, 7, 2833-2859.	2.2	72
104	Dynamic Sampling Schemes for Optimal Noise Learning Under Multiple Nonsmooth Constraints. IFIP Advances in Information and Communication Technology, 2014, , 85-95.	0.7	7
105	Bregmanized Domain Decomposition for Image Restoration. Journal of Scientific Computing, 2013, 54, 549-576.	2.3	17
106	Random simulations for generative art construction â€" some examples. Journal of Mathematics and the Arts, 2013, 7, 29-39.	0.2	1
107	A Primal-Dual Approach for a Total Variation Wasserstein Flow. Lecture Notes in Computer Science, 2013, , 413-421.	1.3	5
108	Image denoising: Learning the noise model via nonsmooth PDE-constrained optimization. Inverse Problems and Imaging, 2013, 7, 1183-1214.	1.1	71

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109	Regularized Regression and Density Estimation based on Optimal Transport. Applied Mathematics Research EXpress, 2012, , .	1.0	13
110	Oriented diffusion filtering for enhancing low-quality fingerprint images. IET Biometrics, 2012, 1, 105.	2.5	54
111	Wavelet Decomposition Method for $L_2/$/TV-Image Deblurring. SIAM Journal on Imaging Sciences, 2012, 5, 857-885.	2.2	15
112	Unconditionally stable schemes for higher order inpainting. Communications in Mathematical Sciences, 2011, 9, 413-457.	1.0	81
113	A convergent overlapping domain decomposition method for total variation minimization. Numerische Mathematik, 2010, 116, 645-685.	1.9	38
114	Nonlocal higher order evolution equations. Applicable Analysis, 2010, 89, 949-960.	1.3	2
115	Subspace Correction Methods for Total Variation and ell_1-Minimization. SIAM Journal on Numerical Analysis, 2009, 47, 3397-3428.	2.3	41
116	Cahnâ€"Hilliard Inpainting and a Generalization for Grayvalue Images. SIAM Journal on Imaging Sciences, 2009, 2, 1129-1167.	2.2	118
117	AN OPTIMIZATION PROBLEM RELATED TO THE BEST SOBOLEV TRACE CONSTANT IN THIN DOMAINS. Communications in Contemporary Mathematics, 2008, 10, 633-650.	1.2	2
118	A generalization of Cahn-Hilliard inpainting for grayvalue images. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1041905-1041906.	0.2	0
119	Cahn-Hilliard inpainting and the Willmore functional. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1011209-1011210.	0.2	0