Emil Y Sidky

List of Publications by Year
in descending order

121 papers	7,806 citations	257450 24 h-index	102487 66 g-index
122 all docs	122 docs citations	122 times ranked	8190 citing authors

#	Article	IF	Citations
1	MOCCA: Mirrored Convex/Concave Optimization for Nonconvex Composite Functions. Journal of Machine Learning Research, 2016, 17, 1-51.	62.4	3,761
2	Image reconstruction in circular cone-beam computed tomography by constrained, total-variation minimization. Physics in Medicine and Biology, 2008, 53, 4777-4807.	3.0	1,612
3	Evaluation of sparse-view reconstruction from flat-panel-detector cone-beam CT. Physics in Medicine and Biology, 2010, 55, 6575-6599.	3.0	314
4	Convex optimization problem prototyping for image reconstruction in computed tomography with the Chambolle–Pock algorithm. Physics in Medicine and Biology, 2012, 57, 3065-3091.	3.0	273
5	Enhanced imaging of microcalcifications in digital breast tomosynthesis through improved image‐reconstruction algorithms. Medical Physics, 2009, 36, 4920-4932.	3.0	157
6	A robust method of x-ray source spectrum estimation from transmission measurements: Demonstrated on computer simulated, scatter-free transmission data. Journal of Applied Physics, 2005, 97, 124701.	2.5	118
7	An algorithm for constrained one-step inversion of spectral CT data. Physics in Medicine and Biology, 2016, 61, 3784-3818.	3.0	118
8	Quantifying Admissible Undersampling for Sparsity-Exploiting Iterative Image Reconstruction in X-Ray CT. IEEE Transactions on Medical Imaging, 2013, 32, 460-473.	8.9	117
9	Region of interest reconstruction from truncated data in circular cone-beam CT. IEEE Transactions on Medical Imaging, 2006, 25, 869-881.	8.9	89
10	A constrained, total-variation minimization algorithm for low-intensity x-ray CT. Medical Physics, 2011, 38, S117-S125.	3.0	87
11	Constrained <formula formulatype="inline"><tex Notation="TeX">${m T}p{m V}$</tex> </formula> Minimization for Enhanced Exploitation of Gradient Sparsity: Application to CT Image Reconstruction. IEEE Journal of Translational Engineering in Health and Medicine, 2014, 2, 1-18.	3.7	68
12	Image reconstruction and scan configurations enabled by optimization-based algorithms in multispectral CT. Physics in Medicine and Biology, 2017, 62, 8763-8793.	3.0	55
13	Artifact reduction in short-scan CBCT by use of optimization-based reconstruction. Physics in Medicine and Biology, 2016, 61, 3387-3406.	3.0	48
14	Image reconstruction exploiting object sparsity in boundary-enhanced X-ray phase-contrast tomography. Optics Express, 2010, 18, 10404.	3.4	47
15	Minimum data image reconstruction algorithms with shift-invariant filtering for helical, cone-beam CT. Physics in Medicine and Biology, 2005, 50, 1643-1657.	3.0	44
16	Quantum mechanical calculation of ejected electron spectra for ion-atom collisions. Journal of Physics B: Atomic, Molecular and Optical Physics, 1998, 31, 2949-2960.	1.5	41
17	Impact of polychromatic x-ray sources on helical, cone-beam computed tomography and dual-energy methods. Physics in Medicine and Biology, 2004, 49, 2293-2303.	3.0	41
18	A Spectral CT Method to Directly Estimate Basis Material Maps From Experimental Photon-Counting Data. IEEE Transactions on Medical Imaging, 2017, 36, 1808-1819.	8.9	41

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19	Directional-TV algorithm for image reconstruction from limited-angular-range data. Medical Image Analysis, 2021, 70, 102030.	11.6	40
20	Investigation of optimization-based reconstruction with an image-total-variation constraint in PET. Physics in Medicine and Biology, 2016, 61, 6055-6084.	3.0	35
21	Investigation of discrete imaging models and iterative image reconstruction in differential X-ray phase-contrast tomography. Optics Express, 2012, 20, 10724.	3.4	34
22	Phase-amplitude method for calculating resonance energies and widths for one-dimensional potentials. Physical Review A, 1999, 60, 3586-3592.	2.5	32
23	Analysis of iterative region-of-interest image reconstruction for x-ray computed tomography. Journal of Medical Imaging, 2014, 1, 031007.	1.5	32
24	Optimization-based image reconstruction with artifact reduction in C-arm CBCT. Physics in Medicine and Biology, 2016, 61, 7300-7333.	3.0	32
25	Do CNNs Solve the CT Inverse Problem?. IEEE Transactions on Biomedical Engineering, 2021, 68, 1799-1810.	4.2	27
26	Impact-velocity dependence of ejected-electron distributions for ionization in proton-hydrogen collisions. Physical Review A, 1999, 60, 377-384.	2.5	24
27	Electrons Ejected with Half the Projectile Velocity and the Saddle Point Mechanism in Ion-Atom Collisions. Physical Review Letters, 2000, 85, 1634-1637.	7.8	24
28	Algorithmâ€enabled partialâ€angularâ€scan configurations for dualâ€energy CT. Medical Physics, 2018, 45, 1857-1870.	3.0	24
29	Velocity-matching model for electron capture in keV atomic collisions. Physical Review A, 1996, 54, 1417-1429.	2.5	23
30	Feasibility of half-data image reconstruction in 3-D reflectivity tomography with a spherical aperture. IEEE Transactions on Medical Imaging, 2005, 24, 1100-1112.	8.9	23
31	Few-view single photon emission computed tomography (SPECT) reconstruction based on a blurred piecewise constant object model. Physics in Medicine and Biology, 2013, 58, 5629-5652.	3.0	23
32	Implementation of ultra-low-dose CBCT for routine 2D orthodontic diagnostic radiographs: Cephalometric landmark identification and image quality assessment. Seminars in Orthodontics, 2015, 21, 233-247.	1.4	23
33	Non-convex primal-dual algorithm for image reconstruction in spectral CT. Computerized Medical Imaging and Graphics, 2021, 87, 101821.	5.8	23
34	Estimating the spectrum in computed tomography via Kullbackâ€"Leibler divergence constrained optimization. Medical Physics, 2019, 46, 81-92.	3.0	22
35	Firstâ€order convex feasibility algorithms for xâ€ray CT. Medical Physics, 2013, 40, 031115.	3.0	21
36	Dual-energy CT imaging with limited-angular-range data. Physics in Medicine and Biology, 2021, 66, 185020.	3.0	21

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37	Task‐based optimization of dedicated breast CT via Hotelling observer metrics. Medical Physics, 2014, 41, 101917.	3.0	18
38	Noise properties of CT images reconstructed by use of constrained total‐variation, data‐discrepancy minimization. Medical Physics, 2015, 42, 2690-2698.	3.0	18
39	Accurate image reconstruction in circular cone-beam computed tomography by total variation minimization: a preliminary investigation. , 2006, , .		17
40	Effect of the data constraint on few-view, fan-beam CT image reconstruction by TV minimization. , 2006, , .		16
41	Consistency conditions for cone-beam CT data acquired with a straight-line source trajectory. Tsinghua Science and Technology, 2010, 15, 56-61.	6.1	15
42	Empirical average-case relation between undersampling and sparsity in X-ray CT. Inverse Problems and Imaging, 2015, 9, 431-446.	1.1	15
43	Report on the AAPM deep‐learning sparse‐view CT grand challenge. Medical Physics, 2022, 49, 4935-4943.	3.0	13
44	X-ray tomography system to investigate granular materials during mechanical loading. Review of Scientific Instruments, 2014, 85, 083708.	1.3	11
45	Optimization-Based Image Reconstruction From Low-Count, List-Mode TOF-PET Data. IEEE Transactions on Biomedical Engineering, 2018, 65, 936-946.	4.2	11
46	Addressing CT metal artifacts using photon‐counting detectors and one‐step spectral CT image reconstruction. Medical Physics, 2022, 49, 3021-3040.	3.0	11
47	Noise Properties of Chord-Image Reconstruction. IEEE Transactions on Medical Imaging, 2007, 26, 1328-1344.	8.9	10
48	Investigating simulation‐based metrics for characterizing linear iterative reconstruction in digital breast tomosynthesis. Medical Physics, 2017, 44, e279-e296.	3.0	10
49	In-depth analysis of cone-beam CT image reconstruction by ideal observer performance on a detection task. , 2008, , .		7
50	Investigation of sparse data mouse imaging using micro-CT with a carbon-nanotube-based X-ray source. Tsinghua Science and Technology, 2010, 15, 74-78.	6.1	7
51	A Convex Reconstruction Model for X-Ray Tomographic Imaging With Uncertain Flat-Fields. IEEE Transactions on Computational Imaging, 2018, 4, 17-31.	4.4	7
52	The role of the potential saddle in He2++ H impact ionization. Journal of Physics B: Atomic, Molecular and Optical Physics, 2001, 34, L163-L172.	1.5	6
53	Frequency extrapolation by nonconvex compressive sensing. , 2011, , .		6
54	Dual-energy CT imaging over non-overlapping, orthogonal arcs of limited-angular ranges. Journal of X-Ray Science and Technology, 2021, 29, 975-985.	1.0	6

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55	Preliminary investigation of optimization-based image reconstruction for TOF PET with sparse configurations. , 2019, , .		6
56	Dual-energy technique at low tube voltages for small animal imaging. Tsinghua Science and Technology, 2010, 15, 79-86.	6.1	5
57	Imaging of fiber-like structures in digital breast tomosynthesis. Journal of Medical Imaging, 2019, 6, 1.	1.5	5
58	Reconstruction of 3D Regions-of-Interest from Data in Reduced Helical Cone-beam Scans. Technology in Cancer Research and Treatment, 2005, 4, 143-150.	1.9	4
59	Accurate image reconstruction in CT from projection data taken at few-views. , 2006, 6142, 784.		4
60	Optimizing algorithm parameters based on a model observer detection task for image reconstruction in digital breast tomosynthesis. , 2011, , .		4
61	Use of the Hotelling observer to optimize image reconstruction in digital breast tomosynthesis. Journal of Medical Imaging, 2015, 3, 011008.	1.5	4
62	Image reconstruction from data over two orthogonal arcs of limited‐angular ranges. Medical Physics, 2022, 49, 1468-1480.	3.0	4
63	Image reconstruction with a half-detector in single-photon emission computed tomography with nonuniform attenuation. Optical Engineering, 2003, 42, 2506.	1.0	3
64	Region of interest imaging for a general trajectory with the rebinned BPF algorithm. Tsinghua Science and Technology, 2010, 15, 68-73.	6.1	3
65	Region of interest based Hotelling observer for computed tomography with comparison to alternative methods. Journal of Medical Imaging, 2014, 1, 031010.	1.5	3
66	Basis-image reconstruction directly from sparse-view data in spectral CT. , 2014, , .		3
67	An investigation of regularization for basis image reconstruction in spectral CT. , 2015, , .		3
68	Impact of angular sampling interval on image reconstruction from limited-angular-range data. , 2022, , .		3
69	Iterative image reconstruction with variable resolution in CT. , 2011, , .		2
70	Ensuring convergence in total-variation-based reconstruction for accurate microcalcification imaging in breast X-ray CT. , 2011, , .		2
71	Constrained TV-minimization image reconstruction for industrial CT system. AIP Conference Proceedings, 2014, , .	0.4	2
72	TV-constrained incremental algorithms for low-intensity CT image reconstruction. , 2015, , .		2

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73	TV constrained CT image reconstruction with discretized natural pixels. , 2016, , .		2
74	Optimization-based algorithm for solving the discrete x-ray transform with nonlinear partial volume effect. Journal of Medical Imaging, 2020, 7, 053502.	1.5	2
75	The Phase€Amplitude Method of Solving the Wave Equation. Physics Essays, 2000, 13, 408-411.	0.4	2
76	Propensity Rules for Alignment and Orientation in Electron€Transfer Processes. Physics Essays, 2000, 13, 489-495.	0.4	2
77	Total and state-selective electron capture cross sections for $N4+$-H collisions. Physical Review A, 1999, 59, 1994-1997.	2.5	1
78	A Rebinning-type Backprojection-Filtration Algorithm for Image Reconstruction in Helical Cone-beam CT. , 2006, , .		1
79	Estimation of lesion position in computed tomography. , 2007, , .		1
80	Analysis of image-reconstruction algorithms for circular, cone-beam CT by Hotelling observer performance on a detection task. , 2009, 2009, 997-9.		1
81	Initial experience in image reconstruction from limited-angle C-arm CBCT data. , 2011, , .		1
82	Sparse-view image reconstruction from gated cardiac data. , 2011, , .		1
83	A compressed sensing algorithm for sparse-view pinhole Single Photon Emission Computed Tomography. , 2011, , .		1
84	Convergence of iterative image reconstruction algorithms for Digital Breast Tomosynthesis. , 2012, , .		1
85	Constrained TV-minimization reconstruction from exterior CT data. , 2013, , .		1
86	Optimization-based 3D variable resolution image reconstruction in cone-beam CT. , 2015, , .		1
87	Investigation of non-negativity constraint on basis images in half-rotation data reconstruction in spectral CT. , 2016, , .		1
88	Preliminary study of TV-constrained-likelihood-maximization image reconstruction from list-mode TOF-PET data. , 2016, , .		1
89	Alternating Minimization Based Framework for Simultaneous Spectral Calibration and Image Reconstruction in Spectral CT. , 2018, , .		1
90	An Investigation of Direct Image Reconstruction in DECT with Physical Data. , 2018, , .		1

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91	Reduction of Angularly-Varying-Data Truncation in C-Arm CBCT Imaging. Sensing and Imaging, 2018, 19, 1.	1.5	1
92	A signal detection model for quantifying overregularization in nonlinear image reconstruction. Medical Physics, 2021, 48, 6312-6323.	3.0	1
93	Image reconstruction from partially truncated data over limited-angular-ranges. , 2022, , .		1
94	Image Reconstruction from Sparse Data in Echo-Planar Imaging. , 2006, , .		0
95	Preliminary study on the impact of digital breast tomosynthesis scanning angle on micro-calcification imaging. , 2008, , .		0
96	Preliminary investigation of dose allocation in low-dose cone-beam CT. , 2010, , .		0
97	Low-dose CT in SPECT/CT patient scan. , 2010, , .		0
98	Investigation of low-contrast tumor detection in algorithm-enabled low-dose CBCT. , 2010, , .		0
99	Image reconstruction from a reduced number of projections in Micro-CT specimen imaging. , 2010, , .		0
100	A preliminary study of image reconstruction from low-dose data in dedicated breast CT. , 2011, , .		0
101	Characterizing a discrete-to-discrete X-ray transform for iterative image reconstruction with limited angular-range scanning in CT. , 2012, , .		0
102	A first-order primal-dual reconstruction algorithm for few-view SPECT. , 2012, , .		0
103	A preliminary investigation of CT-dose reduction in SPECT/CBCT. , 2012, , .		0
104	CT image reconstruction design by investigation of the propagation of Hotelling SNR. , 2012, , .		0
105	Algorithm-enabled high-performance C-arm cone-beam CT angiography of cerebral vasculature. , 2013, , .		0
106	Optimization of filtered back-projection for a Rayleigh task. , 2013, , .		0
107	Optimization-based image reconstruction from low-dose patient breast CT Data. , 2013, , .		0
108	Investigation of optimization-based reconstruction for intra-operative neurological imaging. , 2013, , .		0

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109	Fast, robust dynamic field-of-view adjustment for iterative reconstruction of dedicated breast CT. , 2013, , .		0
110	An efficient ordered subsets CT image reconstruction algorithm for sparse-view, noisy data. , 2014, , .		0
111	Direct inversion of spectral CT data into a materials decomposition and the effect of multiple soft tissues. , 2014, , .		0
112	Application of the entropic mirror descent algorithm to TOF PET image reconstruction. , 2014, , .		0
113	An analytic noise model to aid in the development of total-variation-penalized CT image reconstruction. , 2015, , .		0
114	Investigation of optimization-based reconstruction with an image-total-variation constraint in PET. , 2015, , .		0
115	Algorithm-enabled single-kVp-switch scan configuration for dual-energy CT. , 2017, , .		0
116	Preliminary Patient Study of TV-Constrained Image Reconstruction from Low-Statistics List-Mode TOF-PET Data. , 2017, , .		0
117	A Preliminary Study on Optimization-Based Image Reconstruction from Sparse, List-Mode TOF-PET Data. , 2018, , .		0
118	Orientation Dependent Visualization of Fibers in Digital Breast Tomosynthesis: Advantages of a Circular Source Trajectory. , 2018, , .		0
119	Artifact Reduction in Spare-view Image Reconstruction in C-arm CT. , 2018, , .		0
120	Bone sparsity model for computed tomography image reconstruction. , 2019, , .		0
121	Simultaneous correction of limited-angular-range and beam-hardening artifacts in dual-energy CT. , 2022, , .		0