Zuowei Shen

List of Publications by Year
in descending order

138 papers	**13,231** citations	50244 **46** h-index	23514 **111** g-index
139 all docs	**139** docs citations	**139** times ranked	**6541** citing authors

#	Article	IF	Citations
1	A Singular Value Thresholding Algorithm for Matrix Completion. SIAM Journal on Optimization, 2010, 20, 1956-1982.	1.2	4,242
2	Affine Systems inL2(Rd): The Analysis of the Analysis Operator. Journal of Functional Analysis, 1997, 148, 408-447.	0.7	620
3	Framelets: MRA-based constructions of wavelet frames. Applied and Computational Harmonic Analysis, 2003, 14, 1-46.	1.1	605
4	Split Bregman Methods and Frame Based Image Restoration. Multiscale Modeling and Simulation, 2010, 8, 337-369.	0.6	531
5	Robust video denoising using low rank matrix completion. , 2010, , .		315
6	A framelet-based image inpainting algorithm. Applied and Computational Harmonic Analysis, 2008, 24, 131-149.	1.1	280
7	Frames and Stable Bases for Shift-Invariant Subspaces of $L_2(\mathbb{R}^d)$. Canadian Journal of Mathematics, 1995, 47, 1051-1094.	0.3	262
8	Image restoration: Total variation, wavelet frames, and beyond. Journal of the American Mathematical Society, 2012, 25, 1033-1089.	1.9	259
9	Linearized Bregman iterations for compressed sensing. Mathematics of Computation, 2009, 78, 1515-1536.	1.1	244
10	Affine systems inL 2 ($\mathbb{R}^d$) II: Dual systems. Journal of Fourier Analysis and Applications, 1997, 3, 617-637.	0.5	242
11	Robust Video Restoration by Joint Sparse and Low Rank Matrix Approximation. SIAM Journal on Imaging Sciences, 2011, 4, 1122-1142.	1.3	228
12	Weyl-Heisenberg frames and Riesz bases in L2($\mathbb{R}^d$). Duke Mathematical Journal, 1997, 89, 237.	0.8	214
13	Data-driven tight frame construction and image denoising. Applied and Computational Harmonic Analysis, 2014, 37, 89-105.	1.1	201
14	Framelet-Based Blind Motion Deblurring From a Single Image. IEEE Transactions on Image Processing, 2012, 21, 562-572.	6.0	192
15	Wavelet Algorithms for High-Resolution Image Reconstruction. SIAM Journal of Scientific Computing, 2003, 24, 1408-1432.	1.3	191
16	Nontensor Product Wavelet Packets in $L_2 (\mathbb{R}^s)$. SIAM Journal on Mathematical Analysis, 1995, 26, 1061-1074.	0.9	190
17	Linearized Bregman Iterations for Frame-Based Image Deblurring. SIAM Journal on Imaging Sciences, 2009, 2, 226-252.	1.3	164
18	Robust principal component analysis-based four-dimensional computed tomography. Physics in Medicine and Biology, 2011, 56, 3181-3198.	1.6	149

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19	Tight frame: an efficient way for high-resolution image reconstruction. Applied and Computational Harmonic Analysis, 2004, 17, 91-115.	1.1	142
20	Convergence of the linearized Bregman iteration for â„"â‚•norm minimization. Mathematics of Computation, 2009, 78, 2127-2136.	1.1	140
21	Refinable Function Vectors. SIAM Journal on Mathematical Analysis, 1998, 29, 235-250.	0.9	139
22	Blind motion deblurring from a single image using sparse approximation. , 2009, , .		129
23	Multiresolution and wavelets. Proceedings of the Edinburgh Mathematical Society, 1994, 37, 271-300.	0.2	123
24	Wavelet frame based blind image inpainting. Applied and Computational Harmonic Analysis, 2012, 32, 268-279.	1.1	116
25	Cine Cone Beam CT Reconstruction Using Low-Rank Matrix Factorization: Algorithm and a Proof-of-Principle Study. IEEE Transactions on Medical Imaging, 2014, 33, 1581-1591.	5.4	112
26	An algorithm for matrix extension and wavelet construction. Mathematics of Computation, 1996, 65, 723-738.	1.1	107
27	Pseudo-splines, wavelets and framelets. Applied and Computational Harmonic Analysis, 2007, 22, 78-104.	1.1	96
28	Wavelets and pre-wavelets in low dimensions. Journal of Approximation Theory, 1992, 71, 18-38.	0.5	95
29	Blind motion deblurring using multiple images. Journal of Computational Physics, 2009, 228, 5057-5071.	1.9	87
30	Deconvolution: a wavelet frame approach. Numerische Mathematik, 2007, 106, 529-587.	0.9	82
31	Compactly supported tight affine spline frames in $L_2(\mathbb R^d)$. Mathematics of Computation, 1998, 67, 191-207.	1.1	81
32	Polynomial reproduction by symmetric subdivision schemes. Journal of Approximation Theory, 2008, 155, 28-42.	0.5	79
33	Dual Wavelet Frames and Riesz Bases in Sobolev Spaces. Constructive Approximation, 2009, 29, 369-406.	1.8	77
34	Simultaneous cartoon and texture inpainting. Inverse Problems and Imaging, 2010, 4, 379-395.	0.6	76
35	Stability and Orthonormality of Multivariate Refinable Functions. SIAM Journal on Mathematical Analysis, 1997, 28, 999-1014.	0.9	74
36	Convergence analysis of tight framelet approach for missing data recovery. Advances in Computational Mathematics, 2009, 31, 87-113.	0.8	72

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37	Multidimensional Interpolatory Subdivision Schemes. SIAM Journal on Numerical Analysis, 1997, 34, 2357-2381.	1.1	69
38	X-Ray CT Image Reconstruction via Wavelet Frame Based Regularization and Radon Domain Inpainting. Journal of Scientific Computing, 2013, 54, 333-349.	1.1	66
39	Generalized Shift-Invariant Systems. Constructive Approximation, 2005, 22, 1-45.	1.8	64
40	An Accelerated Proximal Gradient Algorithm for Frame-Based Image Restoration via the Balanced Approach. SIAM Journal on Imaging Sciences, 2011, 4, 573-596.	1.3	63
41	Characterization of compactly supported refinable splines. Advances in Computational Mathematics, 1995, 3, 137-145.	0.8	61
42	Restoration of Chopped and Nodded Images by Framelets. SIAM Journal of Scientific Computing, 2008, 30, 1205-1227.	1.3	58
43	Wavelets with Short Support. SIAM Journal on Mathematical Analysis, 2006, 38, 530-556.	0.9	57
44	Multivariate Compactly Supported Fundamental Refinable Functions, Duals, and Biorthogonal Wavelets. Studies in Applied Mathematics, 1999, 102, 173-204.	1.1	52
45	On Existence and Weak Stability of Matrix Refinable Functions. Constructive Approximation, 1999, 15, 337-353.	1.8	50
46	Convergence of multidimensional cascade algorithm. Numerische Mathematik, 1998, 78, 427-438.	0.9	49
47	The Sobolev Regularity of Refinable Functions. Journal of Approximation Theory, 2000, 106, 185-225.	0.5	49
48	Image Restoration with Mixed or Unknown Noises. Multiscale Modeling and Simulation, 2014, 12, 458-487.	0.6	47
49	Deep Network Approximation for Smooth Functions. SIAM Journal on Mathematical Analysis, 2021, 53, 5465-5506.	0.9	45
50	Data-Driven Multi-scale Non-local Wavelet Frame Construction and Image Recovery. Journal of Scientific Computing, 2015, 63, 307-329.	1.1	44
51	Image restoration: A wavelet frame based model for piecewise smooth functions and beyond. Applied and Computational Harmonic Analysis, 2016, 41, 94-138.	1.1	43
52	Image Restoration: Wavelet Frame Shrinkage, Nonlinear Evolution PDEs, and Beyond. Multiscale Modeling and Simulation, 2017, 15, 606-660.	0.6	43
53	Neural network approximation: Three hidden layers are enough. Neural Networks, 2021, 141, 160-173.	3.3	43
54	Surveillance video processing using compressive sensing. Inverse Problems and Imaging, 2012, 6, 201-214.	0.6	43

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55	Deep Network Approximation Characterized by Number of Neurons. Communications in Computational Physics, 2020, 28, 1768-1811.	0.7	40
56	Simultaneously inpainting in image and transformed domains. Numerische Mathematik, 2009, 112, 509-533.	0.9	38
57	A framelet algorithm for enhancing video stills. Applied and Computational Harmonic Analysis, 2007, 23, 153-170.	1.1	36
58	Wavelet Frames and Image Restorations. , 2011, , .		36
59	Adaptive Multiresolution Analysis Structures and Shearlet Systems. SIAM Journal on Numerical Analysis, 2011, 49, 1921-1946.	1.1	36
60	L0 Norm Based Dictionary Learning by Proximal Methods with Global Convergence. , 2014, , .		36
61	Nonlinear approximation via compositions. Neural Networks, 2019, 119, 74-84.	3.3	35
62	MRA-based wavelet frames and applications. IAS/Park City Mathematics Series, 2013, , 7-158.	0.5	33
63	A reweighted l^2 method for image restoration with Poisson and mixed Poisson-Gaussian noise. Inverse Problems and Imaging, 2015, 9, 875-894.	0.6	32
64	Compactly supported (bi)orthogonal wavelets generated by interpolatory refinable functions. Advances in Computational Mathematics, 1999, 11, 81-104.	0.8	31
65	Compactly Supported Symmetric C^∞ Wavelets with Spectral Approximation Order. SIAM Journal on Mathematical Analysis, 2008, 40, 905-938.	0.9	31
66	Convergence analysis for iterative data-driven tight frame construction scheme. Applied and Computational Harmonic Analysis, 2015, 38, 510-523.	1.1	30
67	Distributional Solutions of Nonhomogeneous Discrete and Continuous Refinement Equations. SIAM Journal on Mathematical Analysis, 2000, 32, 420-434.	0.9	27
68	Symmetric and antisymmetric tight wavelet frames. Applied and Computational Harmonic Analysis, 2006, 20, 411-421.	1.1	27
69	Image restoration by minimizing zero norm of wavelet frame coefficients. Inverse Problems, 2016, 32, 115004.	1.0	27
70	Frame-based segmentation for medical images. Communications in Mathematical Sciences, 2011, 9, 551-559.	0.5	27
71	Framelet Based Deconvolution. Journal of Computational Mathematics, 2010, 28, .	0.2	26
72	Wavelet deblurring algorithms for spatially varying blur from high-resolution image reconstruction. Linear Algebra and Its Applications, 2003, 366, 139-155.	0.4	25

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73	Wavelets from the Loop Scheme. Journal of Fourier Analysis and Applications, 2005, 11, 615-637.	0.5	25
74	A data-adaptive knot selection scheme for fitting splines. IEEE Signal Processing Letters, 2001, 8, 137-139.	2.1	24
75	Construction of biorthogonal wavelets from pseudo-splines. Journal of Approximation Theory, 2006, 138, 211-231.	0.5	24
76	Wavelet Frame Based Multiphase Image Segmentation. SIAM Journal on Imaging Sciences, 2013, 6, 2521-2546.	1.3	24
77	Deep Network With Approximation Error Being Reciprocal of Width to Power of Square Root of Depth. Neural Computation, 2021, 33, 1005-1036.	1.3	22
78	Image deconvolution using a characterization of sharp images in wavelet domain. Applied and Computational Harmonic Analysis, 2012, 32, 295-304.	1.1	21
79	Surveillance video analysis using compressive sensing with low latency. Bell Labs Technical Journal, 2014, 18, 63-74.	0.7	21
80	Multiscale representation of surfaces by tight wavelet frames with applications to denoising. Applied and Computational Harmonic Analysis, 2016, 41, 561-589.	1.1	21
81	Symmetric canonical quincunx tight framelets with high vanishing moments and smoothness. Mathematics of Computation, 2017, 87, 347-379.	1.1	21
82	Convergence of cascade algorithms associated with nonhomogeneous refinement equations. Proceedings of the American Mathematical Society, 2000, 129, 415-427.	0.4	20
83	High-resolution image reconstruction with displacement errors: A framelet approach. International Journal of Imaging Systems and Technology, 2004, 14, 91-104.	2.7	20
84	Characterization of Sobolev spaces of arbitrary smoothness using nonstationary tight wavelet frames. Israel Journal of Mathematics, 2009, 172, 371-398.	0.4	19
85	Recovering Over-/Underexposed Regions in Photographs. SIAM Journal on Imaging Sciences, 2013, 6, 2213-2235.	1.3	19
86	Wavelet Frame Based Algorithm for 3D Reconstruction in Electron Microscopy. SIAM Journal of Scientific Computing, 2014, 36, B45-B69.	1.3	19
87	Optimal approximation rate of ReLU networks in terms of width and depth. Journal Des Mathematiques Pures Et Appliquees, 2022, 157, 101-135.	0.8	19
88	The wavelet dimension function is the trace function of a shift-invariant system. Proceedings of the American Mathematical Society, 2002, 131, 1385-1398.	0.4	18
89	Linear independence of pseudo-splines. Proceedings of the American Mathematical Society, 2006, 134, 2685-2694.	0.4	18
90	Scattered data reconstruction by regularization in B-spline and associated wavelet spaces. Journal of Approximation Theory, 2009, 159, 197-223.	0.5	18

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91	Tight periodic wavelet frames and approximation orders. Applied and Computational Harmonic Analysis, 2011, 31, 228-248.	1.1	18
92	Dual Gramian analysis: Duality principle and unitary extension principle. Mathematics of Computation, 2015, 85, 239-270.	1.1	18
93	Duality for Frames. Journal of Fourier Analysis and Applications, 2016, 22, 71-136.	0.5	18
94	Wavelet Based Restoration of Images with Missing or Damaged Pixels. East Asian Journal on Applied Mathematics, 2011, 1, 108-131.	0.4	17
95	Image Restoration: A General Wavelet Frame Based Model and Its Asymptotic Analysis. SIAM Journal on Mathematical Analysis, 2017, 49, 421-445.	0.9	15
96	Wavelet frame based surface reconstruction from unorganized points. Journal of Computational Physics, 2011, 230, 8247-8255.	1.9	14
97	<title>Construction of compactly supported biorthogonal wavelets: II</title>. , 1999, 3813, 264.		13
98	Wavelet frame based scene reconstruction from range data. Journal of Computational Physics, 2010, 229, 2093-2108.	1.9	13
99	Image recovery via geometrically structured approximation. Applied and Computational Harmonic Analysis, 2016, 41, 75-93.	1.1	13
100	Directional Frames for Image Recovery: Multi-scale Discrete Gabor Frames. Journal of Fourier Analysis and Applications, 2017, 23, 729-757.	0.5	13
101	Dimension of Kernels of Linear Operators. American Journal of Mathematics, 1992, 114, 157.	0.5	12
102	Computing the Sobolev Regularity of Refinable Functions by the Arnoldi Method. SIAM Journal on Matrix Analysis and Applications, 2001, 23, 57-76.	0.7	12
103	Adaptive low rank and sparse decomposition of video using compressive sensing. , 2013, , .		12
104	A pair of orthogonal frames. Journal of Approximation Theory, 2007, 147, 196-204.	0.5	11
105	B-spline tight frame based force matching method. Journal of Computational Physics, 2018, 362, 208-219.	1.9	11
106	Coherence Retrieval Using Trace Regularization. SIAM Journal on Imaging Sciences, 2018, 11, 679-706.	1.3	10
107	An analysis of wavelet frame based scattered data reconstruction. Applied and Computational Harmonic Analysis, 2017, 42, 480-507.	1.1	9
108	Wavelet frame based color image demosaicing. Inverse Problems and Imaging, 2013, 7, 777-794.	0.6	9

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109	Construction of Schauder decomposition on banach spaces of periodic functions. Proceedings of the Edinburgh Mathematical Society, 1998, 41, 61-91.	0.2	8
110	Inpainting for compressed images. Applied and Computational Harmonic Analysis, 2010, 29, 368-381.	1.1	8
111	Approximation of frame based missing data recovery. Applied and Computational Harmonic Analysis, 2011, 31, 185-204.	1.1	8
112	MRA-based wavelet frames and applications: image segmentation and surface reconstruction. , 2012, , .		8
113	On B-Spline Framelets Derived from the Unitary Extension Principle. SIAM Journal on Mathematical Analysis, 2013, 45, 127-151.	0.9	8
114	Tight wavelet frames in low dimensions with canonical filters. Journal of Approximation Theory, 2015, 196, 55-78.	0.5	8
115	Solvability of systems of linear operator equations. Proceedings of the American Mathematical Society, 1994, 120, 815-824.	0.4	8
116	Hermite Interpolation on the Lattice $\mathbb{Z}^d$. SIAM Journal on Mathematical Analysis, 1994, 25, 962-975.	0.9	7
117	General interpolation on the lattice $h\{Bbb Z\}^s$: Compactly supported fundamental solutions. Numerische Mathematik, 1995, 70, 331-351.	0.9	7
118	Examples of refinable componentwise polynomials. Applied and Computational Harmonic Analysis, 2007, 22, 368-373.	1.1	7
119	A Wavelet Frame Method with Shape Prior for Ultrasound Video Segmentation. SIAM Journal on Imaging Sciences, 2016, 9, 495-519.	1.3	7
120	An Adaptive Time–Frequency Representation and its Fast Implementation. Journal of Vibration and Acoustics, Transactions of the ASME, 2007, 129, 169-178.	1.0	6
121	Degenerate kernel schemes by wavelets for nonlinear integral equations on the real line. Applicable Analysis, 1995, 59, 163-184.	0.6	5
122	Advanced motion compensation techniques for blocking artifacts reduction in 3-D video coding systems. , 2005, , .		5
123	A New Multiscale Representation for Shapes and Its Application to Blood Vessel Recovery. SIAM Journal of Scientific Computing, 2010, 32, 1724-1739.	1.3	5
124	Digital Gabor filters with MRA structure. Multiscale Modeling and Simulation, 2018, 16, 452-476.	0.6	5
125	Digital Gabor filters do generate MRA-based wavelet tight frames. Applied and Computational Harmonic Analysis, 2019, 47, 87-108.	1.1	5
126	Componentwise polynomial solutions and distribution solutions of refinement equations. Applied and Computational Harmonic Analysis, 2009, 27, 117-123.	1.1	4

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127	Phase retrieval: A data-driven wavelet frame based approach. Applied and Computational Harmonic Analysis, 2020, 49, 971-1000.	1.1	4
128	A wavelet method for high-resolution image reconstruction with displacement errors. , 0, , .		3
129	Investigating energyâ€based pool structure selection in the structure ensemble modeling with experimental distance constraints: The example from a multidomain protein <scp>P</scp>ub1. Proteins: Structure, Function and Bioinformatics, 2018, 86, 501-514.	1.5	3
130	Blind motion deblurring from a single image using sparse approximation. , 2009, , .		3
131	Interpolatory Wavelet Packets. Applied and Computational Harmonic Analysis, 2000, 8, 320-324.	1.1	2
132	Resolution enhancement for video clips: tight frame approach. , 0, , .		2
133	Small Support Spline Riesz Wavelets in Low Dimensions. Journal of Fourier Analysis and Applications, 2011, 17, 535-566.	0.5	2
134	Tight Frame Based Method for High-Resolution Image Reconstruction. Series in Contemporary Applied Mathematics, 2010, , 1-36.	0.8	2
135	Approximation from Noisy Data. SIAM Journal on Numerical Analysis, 2021, 59, 2722-2745.	1.1	2
136	Restoring chopped and nodded images by tight frames. , 2003, , .		0
137	Multiscale Discrete Framelet Transform for Graph-Structured Signals. Multiscale Modeling and Simulation, 2020, 18, 1210-1241.	0.6	0
138	Simultaneous data recovery in image and transform domains. Methods and Applications of Analysis, 2013, 20, 425-438.	0.1	0