Michael Elad

List of Publications by Year
in descending order

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169 papers	31,256 citations	22548 61 h-index	25230 113 g-index
173 all docs	173 docs citations	173 times ranked	18254 citing authors

#	Article	IF	Citations
1	Deep K-SVD Denoising. IEEE Transactions on Image Processing, 2021, 30, 5944-5955.	6.0	63
2	Deep Energy: Task Driven Training of Deep Neural Networks. IEEE Journal on Selected Topics in Signal Processing, 2021, 15, 324-338.	7.3	8
3	Learned Greedy Method (LGM): A novel neural architecture for sparse coding and beyond. Journal of Visual Communication and Image Representation, 2021, 77, 103095.	1.7	8
4	Regularization by Denoising via Fixed-Point Projection (RED-PRO). SIAM Journal on Imaging Sciences, 2021, 14, 1374-1406.	1.3	34
5	Better Compression With Deep Pre-Editing. IEEE Transactions on Image Processing, 2021, 30, 6673-6685.	6.0	12
6	Patch Craft: Video Denoising by Deep Modeling and Patch Matching. , 2021, , .		28
7	Theoretical guarantees for graph sparse coding. Applied and Computational Harmonic Analysis, 2020, 49, 698-725.	1.1	4
8	On Multi-Layer Basis Pursuit, Efficient Algorithms and Convolutional Neural Networks. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2020, 42, 1968-1980.	9.7	50
9	Adversarial Noise Attacks of Deep Learning Architectures: Stability Analysis via Sparse-Modeled Signals. Journal of Mathematical Imaging and Vision, 2020, 62, 313-327.	0.8	7
10	Another step toward demystifying deep neural networks. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 27070-27072.	3.3	6
11	LIDIA: Lightweight Learned Image Denoising with Instance Adaptation. , 2020, , .		16
12	Unsupervised Single Image Dehazing Using Dark Channel Prior Loss. IEEE Transactions on Image Processing, 2020, 29, 2692-2701.	6.0	137
13	Variations on the Convolutional Sparse Coding Model. IEEE Transactions on Signal Processing, 2020, 68, 519-528.	3.2	9
14	MMSE Approximation For Sparse Coding Algorithms Using Stochastic Resonance. IEEE Transactions on Signal Processing, 2019, 67, 4597-4610.	3.2	11
15	Acceleration of RED via vector extrapolation. Journal of Visual Communication and Image Representation, 2019, 63, 102575.	1.7	11
16	Unified Single-Image and Video Super-Resolution via Denoising Algorithms. IEEE Transactions on Image Processing, 2019, 28, 6063-6076.	6.0	34
17	Finding GEMS: Multi-Scale Dictionaries For High-Dimensional Graph Signals. IEEE Transactions on Signal Processing, 2019, 67, 1889-1901.	3.2	11
18	Multi-Layer Sparse Coding: The Holistic Way. SIAM Journal on Mathematics of Data Science, 2019, 1, 46-77.	1.0	14

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19	SOS Boosting for Image Deblurring Algorithms. , 2019, , .		1
20	A Local Block Coordinate Descent Algorithm for the CSC Model. , 2019, , .		27
21	Example-Based Image Synthesis via Randomized Patch-Matching. IEEE Transactions on Image Processing, 2018, 27, 220-235.	6.0	3
22	Restoration by Compression. IEEE Transactions on Signal Processing, 2018, 66, 5833-5847.	3.2	6
23	Dictionary Learning for High Dimensional Graph Signals. , 2018, , .		2
24	System-Aware Compression. , 2018, , .		4
25	Compression for Multiple Reconstructions. , 2018, , .		3
26	Optimized Pre-Compensating Compression. IEEE Transactions on Image Processing, 2018, 27, 4798-4809.	6.0	8
27	Theoretical Foundations of Deep Learning via Sparse Representations: A Multilayer Sparse Model and Its Connection to Convolutional Neural Networks. IEEE Signal Processing Magazine, 2018, 35, 72-89.	4.6	91
28	Multi-Layer Convolutional Sparse Modeling: Pursuit and Dictionary Learning. IEEE Transactions on Signal Processing, 2018, , 1-1.	3.2	47
29	Style Transfer Via Texture Synthesis. IEEE Transactions on Image Processing, 2017, 26, 2338-2351.	6.0	102
30	The Little Engine That Could: Regularization by Denoising (RED). SIAM Journal on Imaging Sciences, 2017, 10, 1804-1844.	1.3	486
31	Working Locally Thinking Globally: Theoretical Guarantees for Convolutional Sparse Coding. IEEE Transactions on Signal Processing, 2017, 65, 5687-5701.	3.2	76
32	Structure-aware classification using supervised dictionary learning. , 2017, , .		10
33	On the Global-Local Dichotomy in Sparsity Modeling. Applied and Numerical Harmonic Analysis, 2017, , 1-53.	0.1	5
34	Con-Patch: When a Patch Meets Its Context. IEEE Transactions on Image Processing, 2016, 25, 3967-3978.	6.0	23
35	Image restoration via successive compression. , 2016, , .		3
36	Turning a denoiser into a super-resolver using plug and play priors. , 2016, , .		64

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37	Graph-constrained supervised dictionary learning for multi-label classification. , 2016, , .		3
38	Gaussian mixture diffusion. , 2016, , .		2
39	Trainlets: Dictionary Learning in High Dimensions. IEEE Transactions on Signal Processing, 2016, 64, 3180-3193.	3.2	72
40	Postprocessing of Compressed Images via Sequential Denoising. IEEE Transactions on Image Processing, 2016, 25, 3044-3058.	6.0	55
41	Linearized Kernel Dictionary Learning. IEEE Journal on Selected Topics in Signal Processing, 2016, 10, 726-739.	7.3	55
42	Poisson inverse problems by the Plug-and-Play scheme. Journal of Visual Communication and Image Representation, 2016, 41, 96-108.	1.7	97
43	Dual Graph Regularized Dictionary Learning. IEEE Transactions on Signal and Information Processing Over Networks, 2016, 2, 611-624.	1.6	55
44	Large Inpainting of Face Images With Trainlets. IEEE Signal Processing Letters, 2016, 23, 1839-1843.	2.1	23
45	Patch Ordering as a Regularization for Inverse Problems in Image Processing. SIAM Journal on Imaging Sciences, 2016, 9, 287-319.	1.3	12
46	Multi-Scale Patch-Based Image Restoration. IEEE Transactions on Image Processing, 2016, 25, 249-261.	6.0	192
47	Clutter Mitigation in Echocardiography Using Sparse Signal Separation. International Journal of Biomedical Imaging, 2015, 2015, 1-18.	3.0	21
48	Patch based reconstruction of undersampled data (PROUD) for high signal-to-noise ratio and high frame rate contrast enhanced liver imaging. Magnetic Resonance in Medicine, 2015, 74, 1587-1597.	1.9	7
49	Expected Patch Log Likelihood with a Sparse Prior. Lecture Notes in Computer Science, 2015, , 99-111.	1.0	29
50	Boosting of Image Denoising Algorithms. SIAM Journal on Imaging Sciences, 2015, 8, 1187-1219.	1.3	105
51	Reconstruction of highly under-sampled dynamic MRI using sparse representation of 1D temporal snippets. , 2015, , .		2
52	Self-content-based audio inpainting. Signal Processing, 2015, 111, 61-72.	2.1	25
53	Spatially-Adaptive Reconstruction in Computed Tomography Using Neural Networks. IEEE Transactions on Medical Imaging, 2015, 34, 1474-1485.	5.4	44
54	Sparse Coding with Anomaly Detection. Journal of Signal Processing Systems, 2015, 79, 179-188.	1.4	77

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55	Bi-l 0 -l 2 -norm regularization for blind motion deblurring. Journal of Visual Communication and Image Representation, 2015, 33, 42-59.	1.7	43
56	Linear-Time Subspace Clustering via Bipartite Graph Modeling. IEEE Transactions on Neural Networks and Learning Systems, 2015, 26, 2234-2246.	7.2	31
57	Fusion of ultrasound harmonic imaging with clutter removal using sparse signal separation. , 2015, , .		4
58	Image denoising through multi-scale learnt dictionaries. , 2014, , .		23
59	Sparse signal separation with an off-line learned dictionary for clutter reduction in echocardiography. , 2014, , .		3
60	Sparsity based poisson inpainting. , 2014, , .		4
61	Sparsity-Based Poisson Denoising With Dictionary Learning. IEEE Transactions on Image Processing, 2014, 23, 5057-5069.	6.0	87
62	Calibrationless parallel imaging reconstruction based on structured low-rank matrix completion. Magnetic Resonance in Medicine, 2014, 72, 959-970.	1.9	286
63	Dictionary Learning for Analysis-Synthesis Thresholding. IEEE Transactions on Signal Processing, 2014, 62, 5962-5972.	3.2	41
64	On MAP and MMSE estimators for the co-sparse analysis model. , 2014, 28, 57-74.		11
65	ESPIRiTâ€"an eigenvalue approach to autocalibrating parallel MRI: Where SENSE meets GRAPPA. Magnetic Resonance in Medicine, 2014, 71, 990-1001.	1.9	864
66	Patch-Ordering-Based Wavelet Frame and Its Use in Inverse Problems. IEEE Transactions on Image Processing, 2014, 23, 2779-2792.	6.0	23
67	A Statistical Prediction Model Based on Sparse Representations for Single Image Super-Resolution. IEEE Transactions on Image Processing, 2014, 23, 2569-2582.	6.0	349
68	Facial Image Compression using Patch-Ordering-Based Adaptive Wavelet Transform. IEEE Signal Processing Letters, 2014, 21, 1270-1274.	2.1	22
69	Single Image Interpolation Via Adaptive Nonlocal Sparsity-Based Modeling. IEEE Transactions on Image Processing, 2014, 23, 3085-3098.	6.0	105
70	Sparse coding with anomaly detection. , 2013, , .		21
71	Improving Dictionary Learning: Multiple Dictionary Updates and Coefficient Reuse. IEEE Signal Processing Letters, 2013, 20, 79-82.	2.1	178
72	Analysis K-SVD: A Dictionary-Learning Algorithm for the Analysis Sparse Model. IEEE Transactions on Signal Processing, 2013, 61, 661-677.	3.2	417

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73	Image Processing Using Smooth Ordering of its Patches. IEEE Transactions on Image Processing, 2013, 22, 2764-2774.	6.0	183
74	Performance Guarantees of the Thresholding Algorithm for the Cosparse Analysis Model. IEEE Transactions on Information Theory, 2013, 59, 1832-1845.	1.5	32
75	Probabilistic Subspace Clustering Via Sparse Representations. IEEE Signal Processing Letters, 2013, 20, 63-66.	2.1	28
76	Image denoising using NL-means via smooth patch ordering. , 2013, , .		20
77	Learned Shrinkage Approach for Low-Dose Reconstruction in Computed Tomography. International Journal of Biomedical Imaging, 2013, 2013, 1-20.	3.0	2
78	Improving K-SVD denoising by post-processing its method-noise. , 2013, , .		18
79	Can we allow linear dependencies in the dictionary in the sparse synthesis framework?. , 2013, , .		8
80	On Single Image Scale-Up Using Sparse-Representations. Lecture Notes in Computer Science, 2012, , 711-730.	1.0	1,303
81	Exploiting Statistical Dependencies in Sparse Representations for Signal Recovery. IEEE Transactions on Signal Processing, 2012, 60, 2286-2303.	3.2	106
82	Example-based cross-modal denoising. , 2012, , .		4
83	Redundant Wavelets on Graphs and High Dimensional Data Clouds. IEEE Signal Processing Letters, 2012, 19, 291-294.	2.1	33
84	K-SVD dictionary-learning for the analysis sparse model. , 2012, , .		45
85	Sparse and Redundant Representation Modelingâ€"What Next?. IEEE Signal Processing Letters, 2012, 19, 922-928.	2.1	166
86	RIP-Based Near-Oracle Performance Guarantees for SP, CoSaMP, and IHT. IEEE Transactions on Signal Processing, 2012, 60, 1465-1468.	3.2	46
87	Audio Inpainting. IEEE Transactions on Audio Speech and Language Processing, 2012, 20, 922-932.	3.8	156
88	Recovery of cosparse signals with Greedy Analysis Pursuit in the presence of noise. , 2011, , .		11
89	On MMSE and MAP Denoising Under Sparse Representation Modeling Over a Unitary Dictionary. IEEE Transactions on Signal Processing, 2011, 59, 3526-3535.	3.2	26
90	Denoising of image patches via sparse representations with learned statistical dependencies. , 2011, , .		6

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91	Generalized Tree-Based Wavelet Transform. IEEE Transactions on Signal Processing, 2011, 59, 4199-4209.	3.2	66
92	Multi-Scale Dictionary Learning Using Wavelets. IEEE Journal on Selected Topics in Signal Processing, 2011, 5, 1014-1024.	7.3	136
93	Introduction to the issue on Adaptive Sparse Representation of Data and Applications in Signal and Image Processing. IEEE Journal on Selected Topics in Signal Processing, 2011, 5, 893-895.	7.3	3
94	Cosparse analysis modeling - uniqueness and algorithms. , 2011, , .		41
95	A constrained matching pursuit approach to audio declipping. , 2011, , .		37
96	L1-L2 Optimization in Signal and Image Processing. IEEE Signal Processing Magazine, 2010, 27, 76-88.	4.6	348
97	On the Role of Sparse and Redundant Representations in Image Processing. Proceedings of the IEEE, 2010, 98, 972-982.	16.4	541
98	Dictionaries for Sparse Representation Modeling. Proceedings of the IEEE, 2010, 98, 1045-1057.	16.4	1,018
99	MCALab: Reproducible Research in Signal and Image Decomposition and Inpainting. Computing in Science and Engineering, 2010, 12, 44-63.	1.2	63
100	A Shrinkage Learning Approach for Single Image Super-Resolution with Overcomplete Representations. Lecture Notes in Computer Science, 2010, , 622-635.	1.0	14
101	Double Sparsity: Learning Sparse Dictionaries for Sparse Signal Approximation. IEEE Transactions on Signal Processing, 2010, 58, 1553-1564.	3.2	511
102	Iterative signal recovery from incomplete samples. Communications of the ACM, 2010, 53, 92-92.	3.3	0
103	Near-Oracle Performance Guarantees for Greedy-Like Methods. , 2010, , .		1
104	Pursuit Algorithms â€“ Practice. , 2010, , 35-54.		9
105	Iterative-Shrinkage Algorithms. , 2010, , 111-136.		2
106	Towards Average PerformanceAnalysis. , 2010, , 137-151.		1
107	The Dantzig-Selector Algorithm. , 2010, , 153-166.		1
108	Other Applications. , 2010, , 309-357.		9

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109	Image Compression â€“ Facial Images. , 2010, , 247-271.		0
110	Image Denoising. , 2010, , 273-307.		1
111	Sparsity-Seeking Methods in Signal Processing. , 2010, , 169-184.		5
112	MAP versus MMSE Estimation. , 2010, , 201-225.		0
113	Closed-Form MMSE Estimation for Signal Denoising Under Sparse Representation Modeling Over a Unitary Dictionary. IEEE Transactions on Signal Processing, 2010, 58, 3471-3484.	3.2	66
114	Coherence-Based Performance Guarantees for Estimating a Sparse Vector Under Random Noise. IEEE Transactions on Signal Processing, 2010, 58, 5030-5043.	3.2	181
115	Uniqueness and Uncertainty. , 2010, , 17-33.		3
116	Sparse and Redundant Representations. , 2010, , .		1,834
117	The Quest for a Dictionary. , 2010, , 227-246.		8
118	Pursuit Algorithms â€“ Guarantees. , 2010, , 55-77.		1
119	From Exact to Approximate Solutions. , 2010, , 79-109.		12
120	Direct adaptive algorithms for CT reconstruction. , 2009, , .		2
121	A Plurality of Sparse Representations Is Better Than the Sparsest One Alone. IEEE Transactions on Information Theory, 2009, 55, 4701-4714.	1.5	139
122	Image Sequence Denoising via Sparse and Redundant Representations. IEEE Transactions on Image Processing, 2009, 18, 27-35.	6.0	331
123	From Sparse Solutions of Systems of Equations to Sparse Modeling of Signals and Images. SIAM Review, 2009, 51, 34-81.	4.2	1,972
124	Super Resolution With Probabilistic Motion Estimation. IEEE Transactions on Image Processing, 2009, 18, 1899-1904.	6.0	85
125	Super-Resolution Without Explicit Subpixel Motion Estimation. IEEE Transactions on Image Processing, 2009, 18, 1958-1975.	6.0	283
126	Analysis of Basis Pursuit via Capacity Sets. Journal of Fourier Analysis and Applications, 2008, 14, 688-711.	0.5	1

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127	Prologue to Sparsity Issue. Journal of Fourier Analysis and Applications, 2008, 14, 607-608.	0.5	0
128	Compression of facial images using the K-SVD algorithm. Journal of Visual Communication and Image Representation, 2008, 19, 270-282.	1.7	284
129	On the Uniqueness of Nonnegative Sparse Solutions to Underdetermined Systems of Equations. IEEE Transactions on Information Theory, 2008, 54, 4813-4820.	1.5	210
130	Sparse Representation for Color Image Restoration. IEEE Transactions on Image Processing, 2008, 17, 53-69.	6.0	1,360
131	Sparse and Redundant Modeling of Image Content Using an Image-Signature-Dictionary. SIAM Journal on Imaging Sciences, 2008, 1, 228-247.	1.3	115
132	Learning Multiscale Sparse Representations for Image and Video Restoration. Multiscale Modeling and Simulation, 2008, 7, 214-241.	0.6	396
133	Automatic parameter setting for iterative shrinkage methods. , 2008, , .		7
134	Algorithms for signal separation exploiting sparse representations, with application to texture image separation. , 2008, , .		5
135	Closed-form mmse estimator for denoising signals under sparse representation modelling. , 2008, , .		3
136	Improving the k-svd facial image compression using a linear deblocking method. , 2008, , .		19
137	Adaptive filtered-back-projection for computed tomography. , 2008, , .		4
138	Example-Based Regularization Deployed to Super-Resolution Reconstruction of a Single Image. Computer Journal, 2008, 52, 15-30.	1.5	70
139	On the uniqueness of non-negative sparse & redundant representations. Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing, 2008, , .	1.8	13
140	Sparse non-negative solution of a linear system of equations is unique. , 2008, , .		20
141	Multiscale Sparse Image Representationwith Learned Dictionaries. , 2007, , .		29
142	Low Bit-Rate Compression of Facial Images. IEEE Transactions on Image Processing, 2007, 16, 2379-2383.	6.0	43
143	Analysis versus synthesis in signal priors. Inverse Problems, 2007, 23, 947-968.	1.0	549
144	Cross-Modal Localization via Sparsity. IEEE Transactions on Signal Processing, 2007, 55, 1390-1404.	3.2	42

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145	Optimized Projections for Compressed Sensing. IEEE Transactions on Signal Processing, 2007, 55, 5695-5702.	3.2	668
146	Coordinate and subspace optimization methods for linear least squares with non-quadratic regularization. Applied and Computational Harmonic Analysis, 2007, 23, 346-367.	1.1	190
147	Example-based single document image super-resolution: a global MAP approach with outlier rejection. Multidimensional Systems and Signal Processing, 2007, 18, 103-121.	1.7	69
148	Biblio: automatic meta-data extraction. International Journal on Document Analysis and Recognition, 2007, 10, 113-126.	2.7	3
149	Image Denoising Via Sparse and Redundant Representations Over Learned Dictionaries. IEEE Transactions on Image Processing, 2006, 15, 3736-3745.	6.0	4,197
150	Multiframe demosaicing and super-resolution of color images. IEEE Transactions on Image Processing, 2006, 15, 141-159.	6.0	262
151	On the uniqueness of overcomplete dictionaries, and a practical way to retrieve them. Linear Algebra and Its Applications, 2006, 416, 48-67.	0.4	198
152	On the stability of the basis pursuit in the presence of noise. Signal Processing, 2006, 86, 511-532.	2.1	138
153	Why Simple Shrinkage Is Still Relevant for Redundant Representations?. IEEE Transactions on Information Theory, 2006, 52, 5559-5569.	1.5	208
154	A General Iterative Regularization Framework For Image Denoising. , 2006, , .		23
155	On the Design of Filters for Gradient-Based Motion Estimation. Journal of Mathematical Imaging and Vision, 2005, 23, 345-365.	0.8	11
156	The Generalized Eigenvalue Problem for Nonsquare Pencils Using a Minimal Perturbation Approach. SIAM Journal on Matrix Analysis and Applications, 2005, 27, 582-601.	0.7	71
157	Retinex by Two Bilateral Filters. Lecture Notes in Computer Science, 2005, , 217-229.	1.0	109
158	Space-dependent color gamut mapping: a variational approach. IEEE Transactions on Image Processing, 2005, 14, 796-803.	6.0	58
159	Image decomposition via the combination of sparse representations and a variational approach. IEEE Transactions on Image Processing, 2005, 14, 1570-1582.	6.0	798
160	Improved denoising of images using modelling of a redundant contourlet transform. , 2005, , .		17
161	Redundant Multiscale Transforms and Their Application for Morphological Component Separation. Advances in Imaging and Electron Physics, 2004, 132, 287-348.	0.1	336
162	Advances and challenges in super-resolution. International Journal of Imaging Systems and Technology, 2004, 14, 47-57.	2.7	526

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163	Fast and Robust Multiframe Super Resolution. IEEE Transactions on Image Processing, 2004, 13, 1327-1344.	6.0	1,689
164	A Variational Framework for Retinex. International Journal of Computer Vision, 2003, 52, 7-23.	10.9	558
165	Optimally sparse representation in general (nonorthogonal) dictionaries via Â1 minimization. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 2197-2202.	3.3	2,396
166	Down-scaling for better transform compression. IEEE Transactions on Image Processing, 2003, 12, 1132-1144.	6.0	138
167	On the origin of the bilateral filter and ways to improve it. IEEE Transactions on Image Processing, 2002, 11, 1141-1151.	6.0	634
168	Rejection based classifier for face detection. Pattern Recognition Letters, 2002, 23, 1459-1471.	2.6	44
169	Image Denoising Via Sparse and Redundant Representations Over Learned Dictionaries. , 0, .		1