

# Mathews Jacob

## List of Publications by Year in descending order

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152  
papers

4,260  
citations

212478

28  
h-index

139680

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152  
all docs

152  
docs citations

152  
times ranked

4135  
citing authors

#	ARTICLE	IF	CITATIONS
1	Multi-band and in-plane accelerated diffusion MRI enabled by model-based deep learning in $q$ -space and its extension to learning in the spherical harmonic domain. <i>Magnetic Resonance in Medicine</i> , 2022, 87, 1799-1815.	1.9	5
2	Dynamic Imaging Using Motion-Compensated Smoothness Regularization on Manifolds (MOCO-STORM). , 2022, , .		1
3	Improved Model Based Deep Learning Using Monotone Operator Learning (Mol). , 2022, , .		3
4	Joint Alignment and Reconstruction of Multislice Dynamic MRI Using Variational Manifold Learning. , 2022, , .		0
5	Dynamic imaging using motion-compensated smoothness regularization on manifolds (MoCo-SToRM). <i>Physics in Medicine and Biology</i> , 2022, 67, 144001.	1.6	6
6	Compressed sensing MRI using an interpolation-free nonlinear diffusion model. <i>Magnetic Resonance in Medicine</i> , 2021, 85, 1681-1696.	1.9	3
7	Dynamic Imaging Using a Deep Generative SToRM (Gen-SToRM) Model. <i>IEEE Transactions on Medical Imaging</i> , 2021, 40, 3102-3112.	5.4	18
8	qModel: A plug-and-play model-based reconstruction for highly accelerated multi-shot diffusion MRI using learned priors. <i>Magnetic Resonance in Medicine</i> , 2021, 86, 835-851.	1.9	19
9	Dynamic Imaging Using Deep Bilinear Unsupervised Learning (Deblur). , 2021, 2021, 1099-1102.		2
10	Reconstruction and Segmentation of Parallel MR Data Using Image Domain Deep-SLR. , 2021, 2021, .		1
11	Deep Generative Storm Model for Dynamic Imaging. , 2021, 2021, .		7
12	Ensure: Ensemble Stein's Unbiased Risk Estimator for Unsupervised Learning. , 2021, 2021, .		4
13	Recovery of Surfaces and Functions in High Dimensions: Sampling Theory and Links to Neural Networks. <i>SIAM Journal on Imaging Sciences</i> , 2021, 14, 580-619.	1.3	3
14	MoDL-MUSSELS: Model-Based Deep Learning for Multishot Sensitivity-Encoded Diffusion MRI. <i>IEEE Transactions on Medical Imaging</i> , 2020, 39, 1268-1277.	5.4	32
15	SMS MUSSELS: A navigator-free reconstruction for simultaneous multi-slice accelerated multi-shot diffusion weighted imaging. <i>Magnetic Resonance in Medicine</i> , 2020, 83, 154-169.	1.9	14
16	Hyperspectral Image Recovery Using Nonconvex Sparsity and Low-Rank Regularizations. <i>IEEE Transactions on Geoscience and Remote Sensing</i> , 2020, 58, 532-545.	2.7	12
17	Improved MUSSELS reconstruction for high-resolution multi-shot diffusion weighted imaging. <i>Magnetic Resonance in Medicine</i> , 2020, 83, 2253-2263.	1.9	19
18	Free-Breathing and Ungated Dynamic MRI Using Navigator-Less Spiral SToRM. <i>IEEE Transactions on Medical Imaging</i> , 2020, 39, 3933-3943.	5.4	20

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19	J-MoDL: Joint Model-Based Deep Learning for Optimized Sampling and Reconstruction. IEEE Journal on Selected Topics in Signal Processing, 2020, 14, 1151-1162.	7.3	53
20	Deep Generalization of Structured Low-Rank Algorithms (Deep-SLR). IEEE Transactions on Medical Imaging, 2020, 39, 4186-4197.	5.4	27
21	Sampling of Surfaces and Learning Functions in High Dimensions. , 2020, 2020, 8354-8358.		1
22	Multi-Echo Recovery with Field Inhomogeneity Compensation Using Structured Low-Rank Matrix Completion. , 2020, 2020, 1074-1077.		0
23	Model-Based Deep Learning for Reconstruction of Joint k-q Under-sampled High Resolution Diffusion MRI. , 2020, 2020, 913-916.		11
24	Dynamic MRI using deep manifold self-learning. , 2020, 2020, 1052-1055.		6
25	Calibrationless Parallel MRI Using Model Based Deep Learning (C-MODL). , 2020, 2020, 1428-1431.		1
26	Joint Optimization of Sampling Pattern and Priors in Model Based Deep Learning. , 2020, 2020, 926-929.		0
27	Structured Low-Rank Algorithms: Theory, Magnetic Resonance Applications, and Links to Machine Learning. IEEE Signal Processing Magazine, 2020, 37, 54-68.	4.6	37
28	Computational MRI: Compressive Sensing and Beyond [From the Guest Editors]. IEEE Signal Processing Magazine, 2020, 37, 21-23.	4.6	14
29	Joint Optimization of Sampling Patterns and Deep Priors for Improved Parallel MRI. , 2020, , .		2
30	MoDL: Model-Based Deep Learning Architecture for Inverse Problems. IEEE Transactions on Medical Imaging, 2019, 38, 394-405.	5.4	609
31	Optimized reconstructions of compressively sampled two-dimensional infrared spectra. Journal of Chemical Physics, 2019, 150, 234202.	1.2	4
32	Multi-Shot Sensitivity-Encoded Diffusion MRI Using Model-Based Deep Learning (Modl-Mussels). , 2019, 2019, 1541-1544.		2
33	Directionality guided non linear diffusion compressed sensing MR image reconstruction. Magnetic Resonance in Medicine, 2019, 82, 2326-2342.	1.9	3
34	Clustering of Data With Missing Entries Using Non-Convex Fusion Penalties. IEEE Transactions on Signal Processing, 2019, 67, 5865-5880.	3.2	3
35	Off-The-Grid Model Based Deep Learning (O-Modl). , 2019, , .		6
36	Free-breathing cine imaging with motion-corrected reconstruction at 3T using SPiral Acquisition with Respiratory correction and Cardiac Self-gating (SPARCS). Magnetic Resonance in Medicine, 2019, 82, 706-720.	1.9	24

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37	Dynamic MRI using model-based deep learning and STORM priors: MoDL-STORM. Magnetic Resonance in Medicine, 2019, 82, 485-494.	1.9	63
38	Calibration-Free B0 Correction of EPI Data Using Structured Low Rank Matrix Recovery. IEEE Transactions on Medical Imaging, 2019, 38, 979-990.	5.4	7
39	Free-Breathing & Ungated Cardiac MRI Using Iterative STORM (i-STORM). IEEE Transactions on Medical Imaging, 2019, 38, 2303-2313.	5.4	5
40	Manifold Recovery Using Kernel Low-Rank Regularization: Application to Dynamic Imaging. IEEE Transactions on Computational Imaging, 2019, 5, 478-491.	2.6	18
41	Sampling of Planar Curves: Theory and Fast Algorithms. IEEE Transactions on Signal Processing, 2019, 67, 6455-6467.	3.2	3
42	Bootstrapping estimates of stability for clusters, observations and model selection. Computational Statistics, 2019, 34, 349-372.	0.8	26
43	A Generalized Structured Low-Rank Matrix Completion Algorithm for MR Image Recovery. IEEE Transactions on Medical Imaging, 2019, 38, 1841-1851.	5.4	21
44	A general algorithm for compensation of trajectory errors: Application to radial imaging. Magnetic Resonance in Medicine, 2018, 80, 1605-1613.	1.9	9
45	A rapid 3D fat-water decomposition method using globally optimal surface estimation (R-GOOSE). Magnetic Resonance in Medicine, 2018, 79, 2401-2407.	1.9	17
46	Convex Recovery of Continuous Domain Piecewise Constant Images From Nonuniform Fourier Samples. IEEE Transactions on Signal Processing, 2018, 66, 236-250.	3.2	28
47	Model-Based Free-Breathing Cardiac MRI Reconstruction Using Deep Learned & Storm Priors: MODL-STORM. , 2018, 2018, 6533-6537.		6
48	Sep]ration-Free Super-Resolution from Compressed Measurements is Possible: an Orthonormal Atomic Norm Minimization Approach. , 2018, , .		9
49	Clustering of Data with Missing Entries. , 2018, 2018, 2831-2835.		5
50	Recovery of Noisy Points on Bandlimited Surfaces: Kernel Methods Re-Explained. , 2018, 2018, 4024-4028.		8
51	Adaptive structured low rank algorithm for MR image recovery. , 2018, 2018, 1260-1263.		1
52	Denoising and deinterleaving of EPSI data using structured low-rank matrix recovery. , 2018, 2018, 679-682.		2
53	Recovery of point clouds on surfaces: Application to image reconstruction. , 2018, 2018, 1272-1275.		4
54	Model based image reconstruction using deep learned priors (MODL). , 2018, 2018, 671-674.		11

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55	Efficient parallel reconstruction for high resolution multishot spiral diffusion data with low rank constraint. Magnetic Resonance in Medicine, 2017, 77, 1359-1366.	1.9	37
56	Accelerated dynamic MRI using patch regularization for implicit motion compensation. Magnetic Resonance in Medicine, 2017, 77, 1238-1248.	1.9	33
57	Compressively Sampled Two-Dimensional Infrared Spectroscopy That Preserves Line Shape Information. Journal of Physical Chemistry A, 2017, 121, 3088-3093.	1.1	6
58	Novel structured low-rank algorithm to recover spatially smooth exponential image time series. , 2017, 2017, 1-4.		3
59	Subspace Aware Recovery of Low Rank and Jointly Sparse Signals. IEEE Transactions on Computational Imaging, 2017, 3, 22-35.	2.6	3
60	Recovery of Damped Exponentials Using Structured Low Rank Matrix Completion. IEEE Transactions on Medical Imaging, 2017, 36, 2087-2098.	5.4	11
61	A Fast Algorithm for Convolutional Structured Low-Rank Matrix Recovery. IEEE Transactions on Computational Imaging, 2017, 3, 535-550.	2.6	58
62	Compartmentalized low-rank recovery for high-resolution lipid unsuppressed MRSI. Magnetic Resonance in Medicine, 2017, 78, 1267-1280.	1.9	13
63	Multi-shot sensitivity-encoded diffusion data recovery using structured low-rank matrix completion (MUSSELS). Magnetic Resonance in Medicine, 2017, 78, 494-507.	1.9	115
64	The spark of Fourier matrices: Connections to vanishing sums and coprimeness. , 2017, 61, 76-85.		5
65	Accelerating two-dimensional infrared spectroscopy while preserving lineshapes using GIRAF. Optics Letters, 2017, 42, 4573.	1.7	5
66	Compartmentalized low-rank regularization with orthogonality constraints for high-resolution MRSI. , 2016, 2016, 960-963.		1
67	Comprehensive reconstruction of multi-shot multi-channel diffusion data using musseles. , 2016, 2016, 1107-1110.		11
68	Convex clustering and recovery of partially observed data. , 2016, 2016, 3498-3502.		0
69	Accelerated dynamic MRI using structured low rank matrix completion. , 2016, 2016, 1858-1862.		4
70	A fast algorithm for structured low-rank matrix recovery with applications to undersampled MRI reconstruction. , 2016, 2016, 522-525.		11
71	Structured low-rank recovery of piecewise constant signals with performance guarantees. , 2016, 2016, 963-967.		3
72	Off-the-Grid Recovery of Piecewise Constant Images from Few Fourier Samples. SIAM Journal on Imaging Sciences, 2016, 9, 1004-1041.	1.3	86

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73	Multiple degree total variation (MDTV) regularization for image restoration. , 2016, 2016, 1958-1962.		2
74	Blind Compressed Sensing Enables 3-Dimensional Dynamic Free Breathing Magnetic Resonance Imaging of Lung Volumes and Diaphragm Motion. Investigative Radiology, 2016, 51, 387-399.	3.5	10
75	Dynamic MRI Using Smoothness Regularization on Manifolds (SToRM). IEEE Transactions on Medical Imaging, 2016, 35, 1106-1115.	5.4	65
76	Accelerated whole-brain multi-parameter mapping using blind compressed sensing. Magnetic Resonance in Medicine, 2016, 75, 1175-1186.	1.9	46
77	Fast iterative algorithm for the reconstruction of multishot non-cartesian diffusion data. Magnetic Resonance in Medicine, 2015, 74, 1086-1094.	1.9	12
78	Fat water decomposition using globally optimal surface estimation (GOOSE) algorithm. Magnetic Resonance in Medicine, 2015, 73, 1289-1299.	1.9	37
79	Recovery of piecewise smooth images from few fourier samples. , 2015, , .		18
80	Two step recovery of jointly sparse and low-rank matrices: Theoretical guarantees. , 2015, , .		1
81	Low rank recovery with manifold smoothness prior: Theory and application to accelerated dynamic MRI. , 2015, , .		2
82	Accelerated dynamic MRI using self expressiveness prior. , 2015, , .		0
83	Spark under 2-D fourier sampling. , 2015, , .		1
84	A Preliminary Study on Cleaning up Erroneous Data and Filling in Missing Values in A Medical Record—This work was supported in part by NSF CNS-1239509.. IFAC-PapersOnLine, 2015, 48, 493-498.	0.5	2
85	Iterative Shrinkage Algorithm for Patch-Smoothness Regularized Medical Image Recovery. IEEE Transactions on Medical Imaging, 2015, 34, 2417-2428.	5.4	18
86	Deformation Corrected Compressed Sensing (DC-CS): A Novel Framework for Accelerated Dynamic MRI. IEEE Transactions on Medical Imaging, 2015, 34, 72-85.	5.4	71
87	Recovery of Discontinuous Signals Using Group Sparse Higher Degree Total Variation. IEEE Signal Processing Letters, 2015, 22, 1414-1418.	2.1	8
88	Super-resolution MRI using finite rate of innovation curves. , 2015, , .		23
89	Recovery of Low Rank and Jointly Sparse Matrices with Two Sampling Matrices. IEEE Signal Processing Letters, 2015, 22, 1945-1949.	2.1	1
90	Acceleration of high angular and spatial resolution diffusion imaging using compressed sensing with multichannel spiral data. Magnetic Resonance in Medicine, 2015, 73, 126-138.	1.9	45

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91	Joint recovery of under sampled signals on a manifold: Application to free breathing cardiac MRI. , 2014, , .		4
92	A variable splitting based algorithm for fast multi-coil blind compressed sensing MRI reconstruction. , 2014, 2014, 2400-3.		5
93	Subspace based low rank & joint sparse matrix recovery. , 2014, , .		1
94	Coprime conditions for Fourier sampling for sparse recovery. , 2014, , .		6
95	Higher degree total variation for 3-D image recovery. , 2014, , .		0
96	Accelerated MRI using iterative non-local shrinkage. , 2014, 2014, 1545-8.		0
97	Mean square optimal NUFFT approximation for efficient non-Cartesian MRI reconstruction. Journal of Magnetic Resonance, 2014, 242, 126-135.	1.2	11
98	Generalized Higher Degree Total Variation (HDTV) Regularization. IEEE Transactions on Image Processing, 2014, 23, 2423-2435.	6.0	51
99	Quantitative Comparison of Reconstruction Methods for Intra-Voxel Fiber Recovery From Diffusion MRI. IEEE Transactions on Medical Imaging, 2014, 33, 384-399.	5.4	145
100	Sparse spectral deconvolution algorithm for noncartesian MR spectroscopic imaging. Magnetic Resonance in Medicine, 2014, 71, 469-476.	1.9	13
101	Nonlocal Regularization of Inverse Problems: A Unified Variational Framework. IEEE Transactions on Image Processing, 2013, 22, 3192-3203.	6.0	66
102	Blind Compressive Sensing Dynamic MRI. IEEE Transactions on Medical Imaging, 2013, 32, 1132-1145.	5.4	173
103	Blind compressed sensing with sparse dictionaries for accelerated dynamic MRI. , 2013, , 5-8.		7
104	A fast majorize minimize algorithm for higher degree total variation regularization. , 2013, , 326-329.		1
105	Accelerated dynamic MRI using sparse dictionary learning. , 2013, , .		0
106	Accelerating free breathing myocardial perfusion MRI using multi coil radial $k$ -t SLR. Physics in Medicine and Biology, 2013, 58, 7309-7327.	1.6	25
107	Improved higher degree total variation (HDTV) regularization. , 2012, , .		1
108	Robust non-local regularization framework for motion compensated dynamic imaging without explicit motion estimation. , 2012, , 1056-1059.		7

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109	A blind compressive sensing frame work for accelerated dynamic MRI. , 2012, , 1060-1063.		21
110	Accelerating non-Cartesian sense for large coil arrays: Application to motion compensation in multishot DWI. , 2012, , .		2
111	Accelerated imaging of rest and stress myocardial perfusion MRI using multi-coil k-t SLR: a feasibility study. Journal of Cardiovascular Magnetic Resonance, 2012, 14, .	1.6	1
112	A Fast Majorize&#x2013;Minimize Algorithm for the Recovery of Sparse and Low-Rank Matrices. IEEE Transactions on Image Processing, 2012, 21, 742-753.	6.0	40
113	Higher Degree Total Variation (HDTV) Regularization for Image Recovery. IEEE Transactions on Image Processing, 2012, 21, 2559-2571.	6.0	158
114	A sparse reconstruction algorithm for parallel spiral MR spectroscopic imaging. , 2011, , .		3
115	Free breathing cardiac perfusion MRI reconstruction using a sparse and low rank model: Validation with the Physiologically Improved NCAT phantom. , 2011, , .		0
116	Blind linear models for the recovery of dynamic MRI data. , 2011, , .		0
117	Accelerated Dynamic MRI Exploiting Sparsity and Low-Rank Structure: k-t SLR. IEEE Transactions on Medical Imaging, 2011, 30, 1042-1054.	5.4	510
118	Non-Iterative Regularized reconstruction Algorithm for Non-Cartesian MRI: NIRVANA. Magnetic Resonance Imaging, 2011, 29, 222-229.	1.0	6
119	A unified energy minimization framework for nonlocal regularization. , 2011, , .		6
120	Unified reconstruction and motion estimation in cardiac perfusion MRI. , 2011, , .		8
121	Image recovery using improved total variation regularization. , 2011, , .		2
122	Higher degree total variation (HDTV) algorithms for biomedical inverse problems. , 2011, , .		0
123	Accelerated first pass cardiac perfusion MRI using improved k &#x2212; t SLR. , 2011, , .		6
124	Robust Reconstruction of MRSI Data Using a Sparse Spectral Model and High Resolution MRI Priors. IEEE Transactions on Medical Imaging, 2010, 29, 1297-1309.	5.4	41
125	High&#x2013;resolution MRS in the presence of field inhomogeneity via intermolecular double&#x2013;quantum coherences on a 3&#x2013;whole&#x2013;body scanner. Magnetic Resonance in Medicine, 2010, 63, 303-311.	1.9	18
126	A fast &#x2026; accurate non-iterative algorithm for regularized non-Cartesian MRI. , 2010, , .		0



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127	Real-time cardiac MRI using low-rank and sparsity penalties. , 2010, , .		23
128	TOWARD RECONSTRUCTION OF CORONAL MASS EJECTION DENSITY FROM ONLY THREE POINTS OF VIEW. Astrophysical Journal, 2009, 695, 636-641.	1.6	23
129	Optimized non-uniform fast Fourier transform (NUFFT) for iterative tomographic reconstruction. , 2009, , .		3
130	Spatial spectral modeling for robust MRSI. , 2009, 2009, 6663-6.		1
131	Development of a noncontact 3-D fluorescence tomography system for small animal in vivo imaging. Proceedings of SPIE, 2009, 7191, nihpa106691.	0.8	11
132	Algebraic Decomposition of Fat and Water in MRI. IEEE Transactions on Medical Imaging, 2009, 28, 173-184.	5.4	22
133	Optimized Least-Square Nonuniform Fast Fourier Transform. IEEE Transactions on Signal Processing, 2009, 57, 2165-2177.	3.2	26
134	Correction of $B_0$ inhomogeneity distortion in magnetic resonance spectroscopic imaging. , 2009, , .		4
135	Reduction of distortions in MRSI using a new signal model. , 2009, , .		3
136	Efficient NUFFT algorithm for non-Cartesian MRI reconstruction. , 2009, , .		4
137	Improved IDQC reconstruction for inhomogeneity corrected MR spectroscopy. , 2008, , .		0
138	NON-ITERATIVE DIXON DECOMPOSITION OF FAT ANDWATER. , 2007, , .		1
139	MULTICHANNEL ESTIMATION OF COIL SENSITIVITIES IN PARALLEL MRI. , 2007, , .		16
140	Image reconstruction for diffuse optical tomography using sparsity regularization and expectation-maximization algorithm. Optics Express, 2007, 15, 13695.	1.7	100
141	Improved Model-Based Magnetic Resonance Spectroscopic Imaging. IEEE Transactions on Medical Imaging, 2007, 26, 1305-1318.	5.4	23
142	BSLIM: Spectral Localization by Imaging With Explicit $B_0$ Field Inhomogeneity Compensation. IEEE Transactions on Medical Imaging, 2007, 26, 990-1000.	5.4	36
143	Level-set algorithm for the reconstruction of functional activation in near-infrared spectroscopic imaging. Journal of Biomedical Optics, 2006, 11, 064029.	1.4	18
144	3-D shape estimation of DNA molecules from stereo cryo-electron micro-graphs using a projection-steerable snake. IEEE Transactions on Image Processing, 2006, 15, 214-227.	6.0	14

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145	A new level-set algorithm for the diffuse optical imaging of the brain. , 2006, 6085, 69.		0
146	Improved MRSI with field inhomogeneity compensation. , 2006, , .		2
147	3D reconstruction and comparison of shapes of DNA minicircles observed by cryo-electron microscopy. Nucleic Acids Research, 2006, 34, e125-e125.	6.5	39
148	Design of steerable filters for feature detection using canny-like criteria. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2004, 26, 1007-1019.	9.7	338
149	Efficient Energies and Algorithms for Parametric Snakes. IEEE Transactions on Image Processing, 2004, 13, 1231-1244.	6.0	164
150	Sampling of periodic signals: a quantitative error analysis. IEEE Transactions on Signal Processing, 2002, 50, 1153-1159.	3.2	28
151	An exact method for computing the area moments of wavelet and spline curves. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2001, 23, 633-642.	9.7	27
152	<title>Unifying approach and interface for spline-based snakes</title>. , 2001, , .		14