

# Lei Tian

## List of Publications by Year in descending order

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Version: 2024-02-01

177  
papers

5,664  
citations

87888

38  
h-index

79698

73  
g-index

183  
all docs

183  
docs citations

183  
times ranked

3258  
citing authors

#	ARTICLE	IF	CITATIONS
1	Multiplexed coded illumination for Fourier Ptychography with an LED array microscope. Biomedical Optics Express, 2014, 5, 2376.	2.9	452
2	3D intensity and phase imaging from light field measurements in an LED array microscope. Optica, 2015, 2, 104.	9.3	403
3	Deep speckle correlation: a deep learning approach toward scalable imaging through scattering media. Optica, 2018, 5, 1181.	9.3	352
4	Transport of Intensity imaging with higher order derivatives. Optics Express, 2010, 18, 12552.	3.4	321
5	Transport of intensity phase retrieval and computational imaging for partially coherent fields: The phase space perspective. Optics and Lasers in Engineering, 2015, 71, 20-32.	3.8	268
6	Computational illumination for high-speed in vitro Fourier ptychographic microscopy. Optica, 2015, 2, 904.	9.3	243
7	Quantitative differential phase contrast imaging in an LED array microscope. Optics Express, 2015, 23, 11394.	3.4	242
8	Experimental robustness of Fourier ptychography phase retrieval algorithms. Optics Express, 2015, 23, 33214.	3.4	226
9	Deep learning approach for Fourier ptychography microscopy. Optics Express, 2018, 26, 26470.	3.4	188
10	3D differential phase-contrast microscopy with computational illumination using an LED array. Optics Letters, 2014, 39, 1326.	3.3	146
11	Transport of Intensity phase imaging by intensity spectrum fitting of exponentially spaced defocus planes. Optics Express, 2014, 22, 10661.	3.4	136
12	Roadmap on digital holography [Invited]. Optics Express, 2021, 29, 35078.	3.4	133
13	Quantitative measurement of size and three-dimensional position of fast-moving bubbles in air-water mixture flows using digital holography. Applied Optics, 2010, 49, 1549.	2.1	127
14	Reliable deep-learning-based phase imaging with uncertainty quantification. Optica, 2019, 6, 618.	9.3	127
15	The transport of intensity equation for optical path length recovery using partially coherent illumination. Optics Express, 2013, 21, 14430.	3.4	108
16	High-speed in vitro intensity diffraction tomography. Advanced Photonics, 2019, 1, 1.	11.8	100
17	From Two-Dimensional Colloidal Self-Assembly to Three-Dimensional Nanolithography. Nano Letters, 2011, 11, 2533-2537.	9.1	98
18	Real-time brightfield, darkfield, and phase contrast imaging in a light-emitting diode array microscope. Journal of Biomedical Optics, 2014, 19, 1.	2.6	89

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19	3D differential phase contrast microscopy. Biomedical Optics Express, 2016, 7, 3940.	2.9	89
20	Multi-Contrast Imaging and Digital Refocusing on a Mobile Microscope with a Domed LED Array. PLoS ONE, 2015, 10, e0124938.	2.5	82
21	High-throughput intensity diffraction tomography with a computational microscope. Biomedical Optics Express, 2018, 9, 2130.	2.9	79
22	Structured illumination microscopy with unknown patterns and a statistical prior. Biomedical Optics Express, 2017, 8, 695.	2.9	72
23	3D imaging in volumetric scattering media using phase-space measurements. Optics Express, 2015, 23, 14461.	3.4	67
24	Path-independent phase unwrapping using phase gradient and total-variation (TV) denoising. Optics Express, 2012, 20, 14075.	3.4	65
25	Nonlinear diffusion regularization for transport of intensity phase imaging. Optics Letters, 2012, 37, 4131.	3.3	61
26	Single-shot 3D wide-field fluorescence imaging with a Computational Miniature Mesoscope. Science Advances, 2020, 6, .	10.3	59
27	Microsecond fingerprint stimulated Raman spectroscopic imaging by ultrafast tuning and spatial-spectral learning. Nature Communications, 2021, 12, 3052.	12.8	58
28	Machine learning for 3D microscopy. Nature, 2015, 523, 416-417.	27.8	53
29	Optimal illumination scheme for isotropic quantitative differential phase contrast microscopy. Photonics Research, 2019, 7, 890.	7.0	53
30	Self-learning based Fourier ptychographic microscopy. Optics Express, 2015, 23, 18471.	3.4	52
31	Plasmonic ommatidia for lensless compound-eye vision. Nature Communications, 2020, 11, 1637.	12.8	51
32	Review of bio-optical imaging systems with a high space-bandwidth product. Advanced Photonics, 2021, 3, .	11.8	48
33	High-throughput, volumetric quantitative phase imaging with multiplexed intensity diffraction tomography. Biomedical Optics Express, 2019, 10, 6432.	2.9	48
34	Experimental compressive phase space tomography. Optics Express, 2012, 20, 8296.	3.4	47
35	Single-cell cytometry via multiplexed fluorescence prediction by label-free reflectance microscopy. Science Advances, 2021, 7, .	10.3	47
36	Compressive x-ray phase tomography based on the transport of intensity equation. Optics Letters, 2013, 38, 3418.	3.3	45

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37	Iterative nonlinear beam propagation using Hamiltonian ray tracing and Wigner distribution function. Optics Letters, 2010, 35, 4148.	3.3	44
38	Low-noise phase imaging by hybrid uniform and structured illumination transport of intensity equation. Optics Express, 2014, 22, 26696.	3.4	40
39	Nonlinear Optimization Algorithm for Partially Coherent Phase Retrieval and Source Recovery. IEEE Transactions on Computational Imaging, 2016, 2, 310-322.	4.4	34
40	Displacement-agnostic coherent imaging through scatter with an interpretable deep neural network. Optics Express, 2021, 29, 2244.	3.4	34
41	Scanning-free compressive holography for object localization with subpixel accuracy. Optics Letters, 2012, 37, 3357.	3.3	33
42	Compressive holographic video. Optics Express, 2017, 25, 250.	3.4	32
43	Deep Learning in Biomedical Optics. Lasers in Surgery and Medicine, 2021, 53, 748-775.	2.1	32
44	SIMBA: Scalable Inversion in Optical Tomography Using Deep Denoising Priors. IEEE Journal on Selected Topics in Signal Processing, 2020, 14, 1163-1175.	10.8	30
45	Development of a beam propagation method to simulate the point spread function degradation in scattering media. Optics Letters, 2019, 44, 4989.	3.3	30
46	Partially coherent phase imaging with simultaneous source recovery. Biomedical Optics Express, 2015, 6, 257.	2.9	28
47	Single-shot Ultraviolet Compressed Ultrafast Photography. Laser and Photonics Reviews, 2020, 14, 2000122.	8.7	26
48	High-Throughput, High-Resolution Interferometric Light Microscopy of Biological Nanoparticles. ACS Nano, 2020, 14, 2002-2013.	14.6	26
49	Relaxation of mask design for single-shot phase imaging with a coded aperture. Applied Optics, 2016, 55, 1830.	2.1	25
50	Transport of intensity phase imaging in the presence of curl effects induced by strongly absorbing photomasks. Applied Optics, 2014, 53, J1.	2.1	24
51	Regularized Fourier Ptychography Using an Online Plug-and-play Algorithm. , 2019, , .		22
52	Deep spectral learning for label-free optical imaging oximetry with uncertainty quantification. Light: Science and Applications, 2019, 8, 102.	16.6	22
53	Comparing the fundamental imaging depth limit of two-photon, three-photon, and non-degenerate two-photon microscopy. Optics Letters, 2020, 45, 2934.	3.3	21
54	Wigner function measurement using a lenslet array. Optics Express, 2013, 21, 10511.	3.4	20

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55	Empirical concentration bounds for compressive holographic bubble imaging based on a Mie scattering model. Optics Express, 2015, 23, 4715.	3.4	20
56	Design of a high-resolution light field miniscope for volumetric imaging in scattering tissue. Biomedical Optics Express, 2020, 11, 1662.	2.9	20
57	Adaptive 3D descattering with a dynamic synthesis network. Light: Science and Applications, 2022, 11, 42.	16.6	20
58	Holographic particle localization under multiple scattering. Advanced Photonics, 2019, 1, 1.	11.8	19
59	Compressive holographic two-dimensional localization with $1/30^2$ subpixel accuracy. Optics Express, 2014, 22, 9774.	3.4	18
60	Resolution-enhanced intensity diffraction tomography in high numerical aperture label-free microscopy. Photonics Research, 2020, 8, 1818.	7.0	18
61	Neurophotonic Tools for Microscopic Measurements and Manipulation: Status Report. Neurophotonics, 2022, 9, 013001.	3.3	17
62	Motion deblurring with temporally coded illumination in an LED array microscope. Optics Letters, 2015, 40, 2281.	3.3	15
63	Anatomical Modeling of Brain Vasculature in Two-Photon Microscopy by Generalizable Deep Learning. BME Frontiers, 2021, 2021, 1-12.	4.5	15
64	Large-scale holographic particle 3D imaging with the beam propagation model. Optics Express, 2021, 29, 17159.	3.4	13
65	Inverse scattering for reflection intensity phase microscopy. Biomedical Optics Express, 2020, 11, 911.	2.9	13
66	Acousto-optic ptychography. Optica, 2021, 8, 936.	9.3	12
67	Aperiodic subwavelength L <sup>1</sup> / <sub>4</sub> neburg lens with nonlinear Kerr effect compensation. Optics Express, 2011, 19, 2257.	3.4	9
68	Anatomical Modeling of Brain Vasculature in Two-Photon Microscopy by Generalizable Deep Learning. BME Frontiers, 2020, 2020, .	4.5	7
69	Algorithmic self-calibration of illumination angles in Fourier ptychographic microscopy. , 2016, , .		6
70	LED array reflectance microscopy for scattering-based multi-contrast imaging. Optics Letters, 2020, 45, 1647.	3.3	6
71	Diffuser-based computational imaging funduscope. Optics Express, 2020, 28, 19641.	3.4	6
72	A deep-learning approach for high-speed Fourier ptychographic microscopy. , 2018, , .		4

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73	3D Phase Retrieval with Computational Illumination. , 2015, , .		4
74	Improved axial resolution of digital holography via compressive reconstruction. , 2012, , .		3
75	Defocus-based quantitative phase imaging by coded illumination. Proceedings of SPIE, 2014, , .	0.8	3
76	Study of a seal whiskerâ€“inspired flow sensor using compressive holography. , 2013, , .		3
77	Computer-free computational imaging: optical computing for seeing through random media. Light: Science and Applications, 2022, 11, 37.	16.6	3
78	Computational techniques in propagation-based x-ray phase imaging. , 2014, , .		2
79	High-speed in vitro intensity diffraction tomography. , 2019, , .		2
80	Wave-field Imaging with Partially Coherent Light. , 2012, , .		2
81	Digital holographic imaging of multi-phase flows. , 2011, , .		2
82	Experimental robustness of Fourier Ptychographic phase retrieval algorithms. , 2015, , .		2
83	Compressive holographic inversion of particle scattering. , 2011, , .		2
84	Two dimensional sub-pixel movement detection using spiral phase filtering and compressive holography. , 2012, , .		2
85	Partially Coherent Phase Recovery by Kalman Filtering. , 2013, , .		2
86	Transport of Intensity Imaging with Higher Order Derivatives. , 2009, , .		2
87	Deep learning approach to scalable imaging through scattering media. , 2019, , .		2
88	Nonlinear Kerr effect aperiodic L&#x00FC;neburg lens. , 2010, , .		1
89	Wigner functions defined with Laplace transform kernels. Optics Express, 2011, 19, 21938.	3.4	1
90	Compressive Phase Retrieval. , 2011, , .		1

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91	Digital holography with nonlinear diffusion regularization. , 2013, , .		1
92	Partially coherent phase microscopy with arbitrary illumination source shape. , 2014, , .		1
93	Multiplexed coded illumination in Fourier Ptychography. , 2014, , .		1
94	Hamiltonian and phase-space representation of spatial solitons. Optics Communications, 2014, 318, 199-204.	2.1	1
95	Quantitative phase recovery from asymmetric illumination on an LED array microscope. , 2015, , .		1
96	High-speed gigapixel and 3D phase microscopy using coded illumination (Conference Presentation). , 2016, , .		1
97	Computational microscopy: illumination coding and nonlinear optimization enables Gigapixel 3D phase imaging. , 2017, , .		1
98	Model and learning-based computational 3D phase microscopy with intensity diffraction tomography. , 2021, , .		1
99	Deep learning in computational microscopy. , 2019, , .		1
100	The transport of intensity equation and partially coherent fields. , 2012, , .		1
101	Directional Plasmonic Image Sensors for Lens-Free Compound-Eye Vision. , 2018, , .		1
102	Path-independent phase unwrapping using phase derivative and total-variation (TV) denoising. , 2012, , .		1
103	Illumination coding for fast Fourier Ptychography with large field-of-view and high-resolution. , 2014, , .		1
104	Compressive holographic inversion of particle scattering. , 2011, , .		1
105	Compressive X-ray phase tomography based intensity transport. , 2013, , .		1
106	High-speed and high-resolution phase-space imaging with digital micromirror devices. , 2014, , .		1
107	3D Fourier Ptychographic imaging from light field measurements in an LED array microscope. , 2015, , .		1
108	Differential Phase Contrast and Digital Refocusing in a Computational Reflection Interferometric Microscope for Nanoparticle Imaging. , 2017, , .		1

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109	Sampling and processing for multiple scattering in inline compressive holography. , 2018, , .		1
110	Deep learning augmented microscopy: a faster, wider view, higher resolution autofluorescence-harmonic microscopy. Light: Science and Applications, 2022, 11, 109.	16.6	1
111	Talbot lithography using aperiodic structures. , 2011, , .		0
112	Wigner functions for evanescent waves. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2012, 29, 1927.	1.5	0
113	Implementation of the GRIN solid immersion lens. , 2012, , .		0
114	Visible and x-ray quantitative phase imaging. , 2013, , .		0
115	Compressive Phase Space Tomography. , 2013, , .		0
116	Coherence engineering. , 2014, , .		0
117	Non-uniform sampling and Gaussian process regression in transport of intensity phase imaging. , 2014, , .		0
118	High resolution 3D computational imaging in scattering media. , 2015, , .		0
119	Phase microscopy and 3D imaging with partially coherent light. , 2015, , .		0
120	Large-scale phase retrieval for metrology invited talk. , 2015, , .		0
121	Multi-mode microscopy in real-time with LED array illumination. Proceedings of SPIE, 2015, , .	0.8	0
122	Partially coherent phase imaging with source shapes estimation. Proceedings of SPIE, 2015, , .	0.8	0
123	3D differential phase contrast microscopy. , 2016, , .		0
124	Computational microscopy: illumination coding and nonlinear optimization enables gigapixel 3D phase imaging. Proceedings of SPIE, 2017, , .	0.8	0
125	Coherent Diffractive Imaging. , 2018, , 146-155.		0
126	Plasmonic Directional Photodetectors for Edge Enhancement. , 2021, , .		0



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127	Computational Miniature Mesoscope for large-scale 3D fluorescence imaging. , 2021, , .		0
128	Deep-learning Augmented Reflectance Microscopy for Label-free Multiplexed Cytometry. , 2021, , .		0
129	Bubble Size Measurement in High-Density Air-water Mixture Flows with Wide Size Distributions Using Digital Holography. , 2009, , .		0
130	Hamiltonian Ray-tracing with Wigner Distribution Function for Wave Propagation in Inhomogeneous Media. , 2010, , .		0
131	Digital Holography Applied to Quantitative Measurement of Oil-drop in Oil-Water Two-Phase Flows. , 2010, , .		0
132	Sub-pixel Movement Detection with Compressive Holography. , 2011, , .		0
133	Compressive phase space tomography. , 2011, , .		0
134	Compressive phase space tomography. , 2011, , .		0
135	Hamiltonian Description of Spatial Solitons. , 2011, , .		0
136	Imaging past obstructions. , 2011, , .		0
137	Transport of intensity imaging with TV regularization and nonlinear diffusion denoising. , 2012, , .		0
138	Experimental 4D compressive phase space tomography. , 2012, , .		0
139	Source diversity for transport of intensity phase imaging. , 2013, , .		0
140	Coded Aperture Pair for Phase Imaging. , 2014, , .		0
141	Computational illumination for 3D differential phase contrast imaging. , 2014, , .		0
142	Coherence engineering for phase microscopy. , 2014, , .		0
143	Rapid, high-resolution phase images for live cell imaging. SPIE Newsroom, 0, , .	0.1	0
144	Effects of Particle Concentration on Compressive Holographic Particle Flow Imaging. , 2015, , .		0

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145	Computational CellScope: Multi-Contrast Imaging on a Smartphone-Based Microscope Using a Domed Programmable LED Array. , 2015, , .		0
146	Source Shape Estimation in Partially Coherent Phase Imaging with Defocused Intensity. , 2015, , .		0
147	A Learning Approach to Compressive Holography. , 2017, , .		0
148	Computational imaging in multiple scattering with recursive models. , 2017, , .		0
149	Computational high-throughput microscopy using coded illumination. , 2017, , .		0
150	Special Section Guest Editorial: Optical Computational Imaging. Optical Engineering, 2017, 56, 041301.	1.0	0
151	Direct inversion of intensity diffraction tomography with a computational microscope. , 2018, , .		0
152	First Born model for reflection-mode Fourier ptychographic microscopy. , 2018, , .		0
153	Multiplexed Intensity Diffraction Tomography (mIDT) for Dynamic, Label-Free Volumetric Biological Imaging. , 2019, , .		0
154	High-resolution Imaging of Nanoparticles in Wide-field Interferometric Scattering Microscopy. , 2019, , .		0
155	A deep learning approach to high space-bandwidth product phase microscopy with coded illumination (Conference Presentation). , 2019, , .		0
156	A one-for-all deep learning approach for imaging through diffusers (Conference Presentation). , 2019, , .		0
157	Learning approach to computational microscopy. , 2019, , .		0
158	Intensity-only reflection quantitative phase imaging for biological sample characterization (Conference Presentation). , 2019, , .		0
159	Learning speckle correlations for imaging through scattering (Conference Presentation). , 2019, , .		0
160	Predicting immunofluorescence images from reflectance microscopy via deep learning. , 2020, , .		0
161	Towards Large-scale Volumetric Fluorescence Imaging: Computational Miniature Mesoscope. , 2020, , .		0
162	Physics-Embedded Deep Learning for Intensity Diffraction Tomography. , 2020, , .		0

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163	Plasmonic Computational Compound-Eye Camera. Optics and Photonics News, 2020, 31, 41.	0.5	0
164	Virtual immunofluorescence staining from reflectance microscopy by deep learning. , 2020, , .		0
165	Computational Miniature Mesoscope for Single-shot 3D Fluorescence Imaging. , 2020, , .		0
166	Imaging depth limit analysis in multiphoton microscopy using the beam propagation method. , 2020, , .		0
167	Imaging through diffusers with extended depth-of-field using a deep neural network. , 2020, , .		0
168	Coherent imaging through scatter using an interpretable deep neural network. , 2020, , .		0
169	Holographic particle localization using beam propagation method. , 2020, , .		0
170	Deep-Learning-based Computational Biomedical Microscopy with Uncertainty Quantification. , 2020, , .		0
171	Computational microscopy for quantitative phase imaging and refractive index tomography using annular illumination. , 2020, , .		0
172	Intensity diffraction tomography with a non-paraxial multiple-scattering model. , 2021, , .		0
173	Computational illumination for high-throughput intensity diffraction tomography of dynamic biological samples (Conference Presentation). , 2020, , .		0
174	Label-free quantitative 3D intensity diffraction tomographic imaging in high numerical aperture microscopy. , 2020, , .		0
175	Diffuser-based computational funduscopy. , 2021, , .		0
176	Deep-learning-enabled virtual immunofluorescence staining based on reflectance microscopy. , 2020, , .		0
177	Physics-embedded deep learning for intensity diffraction tomography. , 2020, , .		0