

# Elizabeth M C Hillman

## List of Publications by Year in descending order

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137  
papers

8,346  
citations

61984

43  
h-index

51608

86  
g-index

150  
all docs

150  
docs citations

150  
times ranked

8292  
citing authors

#	ARTICLE	IF	CITATIONS
1	Swept confocally-aligned planar excitation (SCAPE) microscopy for high-speed volumetric imaging of behaving organisms. <i>Nature Photonics</i> , 2015, 9, 113-119.	31.4	494
2	Coupling Mechanism and Significance of the BOLD Signal: A Status Report. <i>Annual Review of Neuroscience</i> , 2014, 37, 161-181.	10.7	446
3	Optical brain imaging in vivo: techniques and applications from animal to man. <i>Journal of Biomedical Optics</i> , 2007, 12, 051402.	2.6	377
4	Suppressed Neuronal Activity and Concurrent Arteriolar Vasoconstriction May Explain Negative Blood Oxygenation Level-Dependent Signal. <i>Journal of Neuroscience</i> , 2007, 27, 4452-4459.	3.6	345
5	Hepatic stellate cell lipid droplets: A specialized lipid droplet for retinoid storage. <i>Biochimica Et Biophysica Acta - Molecular and Cell Biology of Lipids</i> , 2009, 1791, 467-473.	2.4	337
6	Depth-resolved optical imaging and microscopy of vascular compartment dynamics during somatosensory stimulation. <i>NeuroImage</i> , 2007, 35, 89-104.	4.2	284
7	A Critical Role for the Vascular Endothelium in Functional Neurovascular Coupling in the Brain. <i>Journal of the American Heart Association</i> , 2014, 3, e000787.	3.7	269
8	Resting-state hemodynamics are spatiotemporally coupled to synchronized and symmetric neural activity in excitatory neurons. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, E8463-E8471.	7.1	269
9	Cortical depth-specific microvascular dilation underlies laminar differences in blood oxygenation level-dependent functional MRI signal. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010, 107, 15246-15251.	7.1	267
10	A 32-channel time-resolved instrument for medical optical tomography. <i>Review of Scientific Instruments</i> , 2000, 71, 256-265.	1.3	257
11	Three-dimensional optical tomography of the premature infant brain. <i>Physics in Medicine and Biology</i> , 2002, 47, 4155-4166.	3.0	254
12	Wide-field optical mapping of neural activity and brain haemodynamics: considerations and novel approaches. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2016, 371, 20150360.	4.0	243
13	Real-time volumetric microscopy of in vivo dynamics and large-scale samples with SCAPE 2.0. <i>Nature Methods</i> , 2019, 16, 1054-1062.	19.0	222
14	Classification of NPY-Expressing Neocortical Interneurons. <i>Journal of Neuroscience</i> , 2009, 29, 3642-3659.	3.6	212
15	Diffuse optical tomography with spectral constraints and wavelength optimization. <i>Applied Optics</i> , 2005, 44, 2082.	2.1	192
16	Ultra-fast multispectral optical imaging of cortical oxygenation, blood flow, and intracellular calcium dynamics. <i>Optics Express</i> , 2009, 17, 15670.	3.4	191
17	Stimulus-Induced Changes in Blood Flow and 2-Deoxyglucose Uptake Dissociate in Ipsilateral Somatosensory Cortex. <i>Journal of Neuroscience</i> , 2008, 28, 14347-14357.	3.6	184
18	All-optical anatomical co-registration for molecular imaging of small animals using dynamic contrast. <i>Nature Photonics</i> , 2007, 1, 526-530.	31.4	173

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19	Uniqueness and wavelength optimization in continuous-wave multispectral diffuse optical tomography. <i>Optics Letters</i> , 2003, 28, 2339.	3.3	168
20	Laminar optical tomography: a demonstration of millimeter-scale depth-resolved imaging in turbid media. <i>Optics Letters</i> , 2004, 29, 1650.	3.3	149
21	<i>in vivo</i> 3D Morphology of Astrocyte-Vasculature Interactions in the Somatosensory Cortex: Implications for Neurovascular Coupling. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2011, 31, 795-806.	4.3	144
22	Time resolved optical tomography of the human forearm. <i>Physics in Medicine and Biology</i> , 2001, 46, 1117-1130.	3.0	137
23	Light-Sheet Microscopy in Neuroscience. <i>Annual Review of Neuroscience</i> , 2019, 42, 295-313.	10.7	130
24	Three-dimensional time-resolved optical tomography of a conical breast phantom. <i>Applied Optics</i> , 2001, 40, 3278.	2.1	128
25	Effective scattering coefficient of the cerebral spinal fluid in adult head models for diffuse optical imaging. <i>Applied Optics</i> , 2006, 45, 4747.	2.1	125
26	Spatiotemporal precision and hemodynamic mechanism of optical point spreads in alert primates. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 18390-18395.	7.1	117
27	High-speed vascular dynamics of the hemodynamic response. <i>NeuroImage</i> , 2011, 54, 1021-1030.	4.2	111
28	Resolving the transition from negative to positive blood oxygen level-dependent responses in the developing brain. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 4380-4385.	7.1	105
29	<i>In vivo</i> optical imaging and dynamic contrast methods for biomedical research. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2011, 369, 4620-4643.	3.4	98
30	Widespread receptor-driven modulation in peripheral olfactory coding. <i>Science</i> , 2020, 368, .	12.6	98
31	COX-2-Derived Prostaglandin E2 Produced by Pyramidal Neurons Contributes to Neurovascular Coupling in the Rodent Cerebral Cortex. <i>Journal of Neuroscience</i> , 2015, 35, 11791-11810.	3.6	85
32	Calibration techniques and datatype extraction for time-resolved optical tomography. <i>Review of Scientific Instruments</i> , 2000, 71, 3415-3427.	1.3	84
33	Characterization of Proprioceptive System Dynamics in Behaving <i>Drosophila</i> Larvae Using High-Speed Volumetric Microscopy. <i>Current Biology</i> , 2019, 29, 935-944.e4.	3.9	84
34	Direct, intraoperative observation of ~ 0.1 Hz hemodynamic oscillations in awake human cortex: Implications for fMRI. <i>NeuroImage</i> , 2014, 87, 323-331.	4.2	80
35	Neurovascular coupling and energy metabolism in the developing brain. <i>Progress in Brain Research</i> , 2016, 225, 213-242.	1.4	80
36	Depth-resolved optical imaging of transmural electrical propagation in perfused heart. <i>Optics Express</i> , 2007, 15, 17827.	3.4	78

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37	A method for three-dimensional time-resolved optical tomography. <i>International Journal of Imaging Systems and Technology</i> , 2000, 11, 2-11.	4.1	77
38	Optimal linear inverse solution with multiple priors in diffuse optical tomography. <i>Applied Optics</i> , 2005, 44, 1948.	2.1	75
39	Simultaneous reconstruction of absorption and scattering images by multichannel measurement of purely temporal data. <i>Optics Letters</i> , 1999, 24, 534.	3.3	66
40	Hyperspectral in vivo two-photon microscopy of intrinsic contrast. <i>Optics Letters</i> , 2008, 33, 2164.	3.3	66
41	Rapid Postnatal Expansion of Neural Networks Occurs in an Environment of Altered Neurovascular and Neurometabolic Coupling. <i>Journal of Neuroscience</i> , 2016, 36, 6704-6717.	3.6	63
42	Glioma-Induced Alterations in Neuronal Activity and Neurovascular Coupling during Disease Progression. <i>Cell Reports</i> , 2020, 31, 107500.	6.4	61
43	Submillimeter resolution 3D optical imaging of living tissue using laminar optical tomography. <i>Laser and Photonics Reviews</i> , 2009, 3, 159-179.	8.7	54
44	3DeeCellTracker, a deep learning-based pipeline for segmenting and tracking cells in 3D time lapse images. <i>ELife</i> , 2021, 10, .	6.0	53
45	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. <i>PLoS Computational Biology</i> , 2020, 16, e1007791.	3.2	52
46	Calcium imaging of infrared-stimulated activity in rodent brain. <i>Cell Calcium</i> , 2014, 55, 183-190.	2.4	44
47	A system for high-resolution depth-resolved optical imaging of fluorescence and absorption contrast. <i>Review of Scientific Instruments</i> , 2009, 80, 043706.	1.3	43
48	Multiple-slice imaging of a tissue-equivalent phantom by use of time-resolved optical tomography. <i>Applied Optics</i> , 2000, 39, 3380.	2.1	41
49	A human-specific modifier of cortical connectivity and circuit function. <i>Nature</i> , 2021, 599, 640-644.	27.8	40
50	Spectral Characterization and Unmixing of Intrinsic Contrast in Intact Normal and Diseased Gastric Tissues Using Hyperspectral Two-Photon Microscopy. <i>PLoS ONE</i> , 2011, 6, e19925.	2.5	38
51	Assessment of an in situ temporal calibration method for time-resolved optical tomography. <i>Journal of Biomedical Optics</i> , 2003, 8, 87.	2.6	35
52	High-speed 3D imaging of cellular activity in the brain using axially-extended beams and light sheets. <i>Current Opinion in Neurobiology</i> , 2018, 50, 190-200.	4.2	34
53	Glioblastoma Induces Vascular Dysregulation in Nonenhancing Peritumoral Regions in Humans. <i>American Journal of Roentgenology</i> , 2016, 206, 1073-1081.	2.2	30
54	High-speed light-sheet microscopy for the in-situ acquisition of volumetric histological images of living tissue. <i>Nature Biomedical Engineering</i> , 2022, 6, 569-583.	22.5	28

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55	Simple wavefront correction framework for two-photon microscopy of in-vivo brain. Biomedical Optics Express, 2015, 6, 2997.	2.9	26
56	Simultaneous multiwavelength laminar optical tomography. Optics Letters, 2008, 33, 2710.	3.3	25
57	CAM-CM: a signal deconvolution tool for <i>in vivo</i> dynamic contrast-enhanced imaging of complex tissues. Bioinformatics, 2011, 27, 2607-2609.	4.1	24
58	Quasi-3D Cytoskeletal Dynamics of Osteocytes under Fluid Flow. Biophysical Journal, 2010, 99, 2812-2820.	0.5	22
59	Analysis of skin lesions using laminar optical tomography. Biomedical Optics Express, 2012, 3, 1701.	2.9	22
60	SPLASH: Open source software for camera-based high-speed, multispectral in-vivo optical image acquisition. Biomedical Optics Express, 2010, 1, 385.	2.9	21
61	An early endothelial cell-specific requirement for Glut1 is revealed in Glut1 deficiency syndrome model mice. JCI Insight, 2021, 6, .	5.0	17
62	Neurophotonic Tools for Microscopic Measurements and Manipulation: Status Report. Neurophotonics, 2022, 9, 013001.	3.3	17
63	Simultaneous tracking of 3D actin and microtubule strains in individual MLO-Y4 osteocytes under oscillatory flow. Biochemical and Biophysical Research Communications, 2013, 431, 718-723.	2.1	16
64	Neurovascular coupling develops alongside neural circuits in the postnatal brain. Neurogenesis (Austin, Tex ), 2016, 3, e1244439.	1.5	15
65	Unsupervised Deconvolution of Dynamic Imaging Reveals Intratumor Vascular Heterogeneity and Repopulation Dynamics. PLoS ONE, 2014, 9, e112143.	2.5	15
66	Neurovascular dynamics of repeated cortical spreading depolarizations after acute brain injury. Cell Reports, 2021, 37, 109794.	6.4	15
67	A noninvasive approach to determine viscoelastic properties of an individual adherent cell under fluid flow. Journal of Biomechanics, 2014, 47, 1537-1541.	2.1	14
68	Fiber-optic and articulating arm implementations of laminar optical tomography for clinical applications. Biomedical Optics Express, 2010, 1, 780.	2.9	13
69	PLGA nano/microparticles loaded with cresyl violet as a tracer for drug delivery: Characterization and in-situ hyperspectral fluorescence and 2-photon localization. Materials Science and Engineering C, 2017, 70, 505-511.	7.3	13
70	Optical Imaging: A New Window to the Adult Brain. Journal of Neuropsychiatry and Clinical Neurosciences, 2010, 22, iv-iv.	1.8	12
71	Dynamic contrast-enhanced optical imaging of in vivo organ function. Journal of Biomedical Optics, 2012, 17, 1.	2.6	11
72	Laminar optical tomography: high-resolution 3D functional imaging of superficial tissues. , 2006, 6143, 534.		10

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73	Simultaneous multiplane in vivo nonlinear microscopy using spectral encoding. Optics Letters, 2012, 37, 2967.	3.3	8
74	<title>Differential imaging in heterogeneous media: limitations of linearization assumptions in optical tomography</title>. , 2001, , .		7
75	Wholeâ€volume clustering of time series data from zebrafish brain calcium images via mixture modeling. Statistical Analysis and Data Mining, 2018, 11, 5-16.	2.8	7
76	Theoretical Analysis of Novel Quasi-3D Microscopy of Cell Deformation. Cellular and Molecular Bioengineering, 2012, 5, 165-172.	2.1	6
77	Out for Blood. Scientific American Mind, 2014, 25, 58-65.	0.0	6
78	Perfusionâ€based fluorescence imaging method delineates diverse organs and identifies multifocal tumors using generic nearâ€infrared molecular probes. Journal of Biophotonics, 2018, 11, e201700232.	2.3	6
79	Functional optical imaging of brain activation: a multi-scale, multi-modality approach. , 2006, , .		4
80	A method for threeâ€dimensional timeâ€resolved optical tomography. International Journal of Imaging Systems and Technology, 2000, 11, 2-11.	4.1	4
81	<title>Radiosity diffusion model in 3D</title>. , 2001, , .		3
82	Video-rate two-photon microscopy of cortical hemodynamics in-vivo. , 2006, , MI1.		3
83	High-resolution 3D imaging of tissue. Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS, 2007, , .	0.0	3
84	Neurovascular and Immuno-Imaging: From Mechanisms to Therapies. Proceedings of the Inaugural Symposium. Frontiers in Neuroscience, 2016, 10, 46.	2.8	3
85	In vivo Optical Imaging / Intravital Microscopy. Journal of Biophotonics, 2017, 10, 760-761.	2.3	3
86	Simultaneous Multi-Wavelength Laminar Optical Tomography Imaging of Skin Cancer. , 2008, , .		2
87	What secrets can functional MRI reveal about the developing infant brain?. Imaging in Medicine, 2013, 5, 203-206.	0.0	2
88	Skip the salt: your brain might thank you. Nature Neuroscience, 2018, 21, 154-155.	14.8	2
89	Wide-field optical mapping of neural activity in awake mice and the importance of hemodynamic correction. , 2017, , .		2
90	<title>Optical tomography of a 3D multilayered head model</title>. , 2001, , .		1

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91	Hyperspectral in-vivo two-photon microscopy of intrinsic fluorophores. , 2008, , .		1
92	Topics in Biomedical Optics: introduction to the feature issue. Applied Optics, 2009, 48, TBO1.	2.1	1
93	3D visualization of intrinsic contrast in neoplastic colon tissue using hyperspectral two-photon microscopy. , 2010, , .		1
94	Feature Issue Introduction: Bio-Optics in Clinical Applications, Nanotechnology, and Drug Discovery. Biomedical Optics Express, 2010, 1, 746.	2.9	1
95	Advances in optics for biotechnology, medicine and surgery. Biomedical Optics Express, 2012, 3, 531.	2.9	1
96	Swept Confocally-Aligned Planar Excitation (SCAPE) Microscopy for High Speed Volumetric Imaging in Behaving Animals. Microscopy and Microanalysis, 2015, 21, 413-414.	0.4	1
97	Measuring the thermodynamic effects of neurovascular coupling in the awake, behaving mouse brain. , 2016, , .		1
98	High-speed 3D Imaging of Multiphase Systems: Applying SCAPE Microscopy to Analog Experiments in Volcanology and Earth Sciences. Geochemistry, Geophysics, Geosystems, 2021, 22, e2020GC009410.	2.5	1
99	Diffusion vs. Monte Carlo for Image Reconstruction in Mesoscopic Volumes. , 2008, , .		1
100	A Low-Cost, Portable System for High-Speed Multispectral Optical Imaging. , 2010, , .		1
101	Swept confocally-aligned planar excitation (SCAPE) microscopy for high speed volumetric imaging in behaving animals. , 2015, , .		1
102	Simultaneous wide-field imaging of neuronal activity, hemodynamics and blood flow in awake, behaving mice.. , 2015, , .		1
103	SCAPE microscopy for high-speed volumetric functional imaging of the awake, behaving brain. , 2016, , .		1
104	MesoSCAPE - Highspeed Functional Volumetric Imaging of Multi-millimeter Biological Sample with Cellular Resolution. , 2022, , .		1
105	High-resolution functional optical imaging: sub-millimeter physiology of living tissue. , 2006, , MB1.		0
106	Optical Imaging and Microscopy of the Living Brain. , 2012, , .		0
107	Fast, Volumetric Imaging of In Vivo Mouse Brain with Swept Confocally Aligned Planar Excitation (SCAPE) Microscopy. , 2015, , .		0
108	Introduction to the BIOMED 2016 feature issue. Biomedical Optics Express, 2016, 7, 4415.	2.9	0

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109	Developing SCAPE Microscopy for Real-time, 3D Cellular Imaging at the Point-of-Care. , 2017, , .		0
110	Evaluation of at-home methods for N95 filtering facepiece respirator decontamination. Scientific Reports, 2021, 11, 19750.	3.3	0
111	Initial clinical testing of the UCL 32 channel time-resolved instrument for optical tomography. , 2000, , .		0
112	Optical tomography of the breast using a 32-channel time-resolved imager. , 2002, , .		0
113	Optical tomography of a realistic head-shaped phantom. , 2002, , .		0
114	Time resolved optical imaging of the newborn infant brain: initial clinical results. , 2002, , .		0
115	Oxygen saturation and blood-volume derivation from multiwavelength time-resolved optical tomography data.. , 2002, , .		0
116	Optimum wavelengths in continuous-wave multi-spectral diffuse optical tomography. , 2004, , .		0
117	Applying optical imaging to study neurovascular coupling in cerebral cortex: from populational scale to single-cell single-vessel measurements. , 2006, , .		0
118	Dynamic Molecular Imaging: Anatomical co-registration and dynamic contrast enhancement. , 2008, , .		0
119	Multidimensional functional optical imaging of the brain. , 2008, , .		0
120	Mouse Organ Imaging. , 2008, , .		0
121	Multidimensional functional optical imaging of the brain. , 2008, , .		0
122	Feasibility of 3-D Frequency-Domain Fluorescence Lifetime Imaging based on Laminar Optical Tomography. , 2008, , .		0
123	Fiber-Optic and Articulating Arm Implementations of Laminar Optical Tomography for Clinical Applications. , 2010, , .		0
124	Laser-Scanning Intersecting Plane Tomography (L-SIPT) for High Speed 3D Optical Imaging and Microscopy. , 2010, , .		0
125	Inâ€vivo dynamic and hyperspectral microscopy. FASEB Journal, 2013, 27, 313.2.	0.5	0
126	Design of a second generation Laser-Scanning Intersecting Plane Tomography (LSIPT) system. , 2014, , .		0



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127	Simple Signal-Based Wavefront Correction for In-Vivo Two-Photon Microscopy in Mouse Brain. , 2015, , .		0
128	High Resolution Fluorescence Imaging of Human Hand Pharmacokinetics using a Low-Cost Flatbed Scanner. , 2015, , .		0
129	High-speed, 3D SCAPE Microscopy of Fresh Tissues for in situ Histopathology. , 2016, , .		0
130	Towards Two-Photon Swept Confocally Aligned Planar Excitation Microscopy (2P-SCAPE). , 2016, , .		0
131	Imaging the nervous system at different spatiotemporal scales with SCAPE microscopy. , 2017, , .		0
132	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. , 2020, 16, e1007791.		0
133	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. , 2020, 16, e1007791.		0
134	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. , 2020, 16, e1007791.		0
135	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. , 2020, 16, e1007791.		0
136	High-speed, high-content volumetric microscopy with sub-cellular resolution applied to cell-identity resolved <i>C. elegans</i> . , 2022, , .		0
137	Miniaturized MediSCAPE microscopy for label-free, real-time volumetric histological imaging at the point of care. , 2022, , .		0