Hamish Meffin

List of Publications by Year
in descending order

91 papers	1,679 citations	331670 21 h-index	345221 36 g-index
98 all docs	98 docs citations	98 times ranked	1539 citing authors

#	Article	IF	Citations
1	Electrical stimulation of retinal ganglion cells with diamond and the development of an all diamond retinal prosthesis. Biomaterials, 2012, 33, 5812-5820.	11.4	109
2	Ultra-nanocrystalline diamond electrodes: optimization towards neural stimulation applications. Journal of Neural Engineering, 2012, 9, 016002.	3.5	100
3	An all-diamond, hermetic electrical feedthrough array for a retinal prosthesis. Biomaterials, 2014, 35, 908-915.	11.4	89
4	Spike-Timing-Dependent Plasticity: The Relationship to Rate-Based Learning for Models with Weight Dynamics Determined by a Stable Fixed Point. Neural Computation, 2004, 16, 885-940.	2.2	73
5	A Complete 256-Electrode Retinal Prosthesis Chip. IEEE Journal of Solid-State Circuits, 2014, 49, 751-765.	5.4	73
6	Diamond for neural interfacing: A review. Carbon, 2016, 102, 437-454.	10.3	61
7	An Analytical Model for the â€˜Large, Fluctuating Synaptic Conductance Stateâ€™ Typical of Neocortical Neurons In Vivo. Journal of Computational Neuroscience, 2004, 16, 159-175.	1.0	57
8	In vivo biocompatibility of boron doped and nitrogen included conductiveâ€diamond for use in medical implants. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2016, 104, 19-26.	3.4	52
9	Heating of the Eye by a Retinal Prosthesis: Modeling, Cadaver and In Vivo Study. IEEE Transactions on Biomedical Engineering, 2012, 59, 339-345.	4.2	46
10	Study of neuronal gain in a conductance-based leaky integrate-and-fire neuron model with balanced excitatory and inhibitory synaptic input. Biological Cybernetics, 2003, 89, 119-125.	1.3	45
11	Optimizing growth and post treatment of diamond for high capacitance neural interfaces. Biomaterials, 2016, 104, 32-42.	11.4	45
12	Modeling extracellular electrical stimulation: I. Derivation and interpretation of neurite equations. Journal of Neural Engineering, 2012, 9, 065005.	3.5	43
13	Hybrid diamond/ carbon fiber microelectrodes enable multimodal electrical/chemical neural interfacing. Biomaterials, 2020, 230, 119648.	11.4	41
14	Hermetic diamond capsules for biomedical implants enabled by gold active braze alloys. Biomaterials, 2015, 53, 464-474.	11.4	39
15	Stimulation Strategies for Improving the Resolution of Retinal Prostheses. Frontiers in Neuroscience, 2020, 14, 262.	2.8	38
16	Diamond Devices for High Acuity Prosthetic Vision. Advanced Biology, 2017, 1, e1600003.	3.0	35
17	Modelling intrinsic electrophysiological properties of ON and OFF retinal ganglion cells. Journal of Computational Neuroscience, 2011, 31, 547-561.	1.0	32
18	Prosthetic vision: devices, patient outcomes and retinal research. Australasian journal of optometry, The, 2015, 98, 395-410.	1.3	30

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19	A Simple and Accurate Model to Predict Responses to Multi-electrode Stimulation in the Retina. PLoS Computational Biology, 2016, 12, e1004849.	3.2	30
20	Modelling extracellular electrical stimulation: III. Derivation and interpretation of neural tissue equations. Journal of Neural Engineering, 2014, 11, 065004.	3.5	27
21	Retinal Prosthesis Safety: Alterations in Microglia Morphology due to Thermal Damage and Retinal Implant Contact. , 2012, 53, 7802.		26
22	Analysis of extracellular spike waveforms and associated receptive fields of neurons in cat primary visual cortex. Journal of Physiology, 2021, 599, 2211-2238.	2.9	25
23	Minimizing activation of overlying axons with epiretinal stimulation: The role of fiber orientation and electrode configuration. PLoS ONE, 2018, 13, e0193598.	2.5	24
24	Modeling extracellular electrical stimulation: II. Computational validation and numerical results. Journal of Neural Engineering, 2012, 9, 065006.	3.5	23
25	Modelling extracellular electrical stimulation: IV. Effect of the cellular composition of neural tissue on its spatio-temporal filtering properties. Journal of Neural Engineering, 2014, 11, 065005.	3.5	23
26	Fabrication of planarised conductively patterned diamond for bio-applications. Materials Science and Engineering C, 2014, 43, 135-144.	7.3	23
27	Improved visual acuity using a retinal implant and an optimized stimulation strategy. Journal of Neural Engineering, 2020, 17, 016018.	3.5	23
28	Learning a Sparse Code for Temporal Sequences Using STDP and Sequence Compression. Neural Computation, 2011, 23, 2567-2598.	2.2	21
29	Neural Responses to Multielectrode Stimulation of Healthy and Degenerate Retina. , 2017, 58, 3770.		21
30	Global activity shaping strategies for a retinal implant. Journal of Neural Engineering, 2019, 16, 026008.	3.5	21
31	Selective filtering to spurious localization cues in the mammalian auditory brainstem. Journal of the Acoustical Society of America, 2009, 126, 2437-2454.	1.1	19
32	The effect of morphology upon electrophysiological responses of retinal ganglion cells: simulation results. Journal of Computational Neuroscience, 2014, 36, 157-175.	1.0	19
33	Upper stimulation threshold for retinal ganglion cell activation. Journal of Neural Engineering, 2018, 15, 046012.	3.5	19
34	Prediction of cortical responses to simultaneous electrical stimulation of the retina. Journal of Neural Engineering, 2017, 14, 016006.	3.5	18
35	Spectral distribution of local field potential responses to electrical stimulation of the retina. Journal of Neural Engineering, 2016, 13, 036003.	3.5	15
36	Biophysical basis of the linear electrical receptive fields of retinal ganglion cells. Journal of Neural Engineering, 2018, 15, 055001.	3.5	15

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37	Electrical receptive fields of retinal ganglion cells: Influence of presynaptic neurons. PLoS Computational Biology, 2018, 14, e1005997.	3.2	15
38	Toward a Biologically Plausible Model of LGN-V1 Pathways Based on Efficient Coding. Frontiers in Neural Circuits, 2019, 13, 13.	2.8	15
39	Brazing techniques for the fabrication of biocompatible carbon-based electronic devices. Carbon, 2016, 107, 180-189.	10.3	14
40	A Channel Model for Inferring the Optimal Number of Electrodes for Future Cochlear Implants. IEEE Transactions on Information Theory, 2010, 56, 928-940.	2.4	13
41	An investigation of dendritic delay in octopus cells of the mammalian cochlear nucleus. Frontiers in Computational Neuroscience, 2012, 6, 83.	2.1	13
42	Mechanisms of Feature Selectivity and Invariance in Primary Visual Cortex. Cerebral Cortex, 2020, 30, 5067-5087.	2.9	13
43	Spatial phase sensitivity of complex cells in primary visual cortex depends on stimulus contrast. Journal of Neurophysiology, 2015, 114, 3326-3338.	1.8	12
44	Thermal heating of a retinal prosthesis: Thermal model and in-vitro study. , 2010, 2010, 1597-600.		10
45	Single-compartment models of retinal ganglion cells with different electrophysiologies. Network: Computation in Neural Systems, 2017, 28, 74-93.	3.6	10
46	High Fidelity Bidirectional Neural Interfacing with Carbon Fiber Microelectrodes Coated with Boronâ€Doped Carbon Nanowalls: An Acute Study. Advanced Functional Materials, 2020, 30, 2006101.	14.9	10
47	The electrotonic length constant: A theoretical estimate for neuroprosthetic electrical stimulation. Biomedical Signal Processing and Control, 2011, 6, 105-111.	5.7	9
48	Development of a Magnetic Attachment Method for Bionic Eye Applications. Artificial Organs, 2016, 40, E12-24.	1.9	9
49	Broadband Onset Inhibition Can Suppress Spectral Splatter in the Auditory Brainstem. PLoS ONE, 2015, 10, e0126500.	2.5	8
50	Compensation for Traveling Wave Delay Through Selection of Dendritic Delays Using Spike-Timing-Dependent Plasticity in a Model of the Auditory Brainstem. Frontiers in Computational Neuroscience, 2018, 12, 36.	2.1	8
51	Feasibility of Nitrogen Doped Ultrananocrystalline Diamond Microelectrodes for Electrophysiological Recording From Neural Tissue. Frontiers in Bioengineering and Biotechnology, 2018, 6, 85.	4.1	8
52	26th Annual Computational Neuroscience Meeting (CNS*2017): Part 3. BMC Neuroscience, 2017, 18, .	1.9	7
53	26th Annual Computational Neuroscience Meeting (CNS*2017): Part 2. BMC Neuroscience, 2017, 18, .	1.9	7
54	Learning receptive field properties of complex cells in V1. PLoS Computational Biology, 2021, 17, e1007957.	3.2	7

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55	Differential stimulation of ON and OFF retinal ganglion cells: A modeling study. , 2010, 2010, 4246-9.		6
56	In vitro assessment of the differences in retinal ganglion cell responses to intra- and extracellular electrical stimulation. Journal of Neural Engineering, 2018, 15, 046022.	3.5	6
57	Minimizing axon bundle activation of retinal ganglion cells with oriented rectangular electrodes. Journal of Neural Engineering, 2020, 17, 036016.	3.5	6
58	Synaptic Basis for Contrast-Dependent Shifts in Functional Identity in Mouse V1. ENeuro, 2019, 6, ENEURO.0480-18.2019.	1.9	6
59	Epiretinal electrical stimulation and the inner limiting membrane in rat retina. , 2012, 2012, 2989-92.		5
60	Information theoretic inference of the optimal number of electrodes for future cochlear implants using a spiral cochlea model. , 2012, 2012, 2965-8.		5
61	Spike history neural response model. Journal of Computational Neuroscience, 2015, 38, 463-481.	1.0	5
62	Internal inconsistencies in models of electrical stimulation in neural tissue. , 2013, 2013, 5946-9.		4
63	A comparison of open-loop and closed-loop stimulation strategies to control excitation of retinal ganglion cells. Biomedical Signal Processing and Control, 2014, 14, 164-174.	5.7	4
64	The effects of temperature changes on retinal ganglion cell responses to electrical stimulation. , 2015, 2015, 7506-9.		4
65	In vivo feasibility of epiretinal stimulation using ultrananocrystalline diamond electrodes. Journal of Neural Engineering, 2020, 17, 045014.	3.5	4
66	Spiking Neuron Model for Temporal Sequence Recognition. Neural Computation, 2010, 22, 61-93.	2.2	3
67	Viability of the inner retina in a novel mouse model of retinitis pigmentosa. , 2010, 2010, 553-6.		3
68	Predicting phosphene elicitation in patients with retinal implants: A mathematical study. , 2011, 2011, 6246-9.		3
69	Modeling intrinsic electrophysiology of AII amacrine cells: Preliminary results. , 2013, 2013, 6551-4.		3
70	What limits spatial perception with retinal implants?. , 2013, , .		3
71	Effect of soma polarization on electrical stimulation thresholds of retinal ganglion cells. , 2013, , .		2
72	A computational model of orientation-dependent activation of retinal ganglion cells. , 2016, 2016, 5447-5450.		2

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73	Bistability in Hodgkin-Huxley-type equations. , 2018, 2018, 4728-4731.		2
74	Neural activity shaping utilizing a partitioned target pattern. Journal of Neural Engineering, 2021, 18, 046025.	3.5	2
75	Sinusoidal Stimulation of Retinal Bipolar Cells: A Modelling Study. , 2012, , .		2
76	Dynamically adjustable contrast enhancement from cortical background activity. Neurocomputing, 2005, 65-66, 633-639.	5.9	1
77	Constraining neural microcircuits with surrogate physiological data and genetic algorithms. BMC Neuroscience, 2007, 8, .	1.9	1
78	Theoretical framework for estimating the conductivity map of the retina through finite element analysis. , 2011, 2011, 6721-4.		1
79	Minimisation of required charge for desired neuronal spike rate. , 2012, 2012, 3009-12.		1
80	Determining the electrical impedance of the retina from a complex voltage map. , 2012, 2012, 3005-8.		1
81	Multicompartment retinal ganglion cells response to high frequency bi-phasic pulse train stimulation: Simulation results. , 2013, 2013, 69-72.		1
82	The Bionic Eye: a review of multielectrode arrays. , 0, , 294-312.		1
83	Determination of the electrical impedance of neural tissue from its microscopic cellular constituents. Journal of Neural Engineering, 2020, 17, 016037.	3.5	1
84	Analysis of the power spectra, autocorrelation function and EEG time-series signal of a network of leaky integrate-and-fire neurons with conductance-based synapses. BMC Neuroscience, 2009, 10, .	1.9	0
85	Amplitude modulation in the stellate microcircuit of the cochlear nucleus. , 2011, , .		0
86	A bifurcation analysis of a modified neural field model: conductance-based synapses act as an anti-epileptic regulatory mechanism. BMC Neuroscience, 2011, 12, .	1.9	0
87	Retinal ganglion cells electrophysiology: The effect of cell morphology on impulse waveform. , 2013, 2013, 2583-6.		0
88	Feedback stimulation strategy: Control of retinal ganglion cells activation. , 2014, 2014, 1703-6.		0
89	Electrical stimulation of neural tissue modeled as a cellular composite: Point Source electrode in an isotropic tissue. , 2014, 2014, 4856-9.		0
90	Neuroprostheses: method to evaluate the information content of stimulation strategies. , 2018, 2018, 4724-4727.		0

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91	How Stimulus Statistics Affect the Receptive Fields of Cells in Primary Visual Cortex. Journal of Neuroscience, 0, , JN-RM-0664-21.	3.6	0