Geoffrey J Goodhill

List of Publications by Year
in descending order

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114
papers

5,050
citations

126708
33
h-index

143772
57
g-index

159
all docs

159
docs citations

159
times ranked

6676
citing authors

#	Article	IF	Citations
1	Inference of Multiplicative Factors Underlying Neural Variability in Calcium Imaging Data. Neural Computation, 2022, , 1-27.	1.3	0
2	Cortical Maps, Intrinsic Processes. , 2022, , 1059-1061.		0
3	Spontaneous and evoked activity patterns diverge over development. ELife, 2021, 10, .	2.8	19
4	Zebrafish Chromosome 14 Gene Differential Expression in the fmr1hu2787 Model of Fragile X Syndrome. Frontiers in Genetics, 2021, 12, 625466.	1.1	4
5	Unsupervised quantification of naturalistic animal behaviors for gaining insight into the brain. Current Opinion in Neurobiology, 2021, 70, 89-100.	2.0	16
6	Altered brain-wide auditory networks in a zebrafish model of fragile X syndrome. BMC Biology, 2020, 18, 125.	1.7	92
7	Modular transient nanoclustering of activated Î²2-adrenergic receptors revealed by single-molecule tracking of conformation-specific nanobodies. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 30476-30487.	3.3	29
8	Behavioral Signatures of a Developing Neural Code. Current Biology, 2020, 30, 3352-3363.e5.	1.8	18
9	Limitations to Estimating Mutual Information in Large Neural Populations. Entropy, 2020, 22, 490.	1.1	4
10	Model-based decoupling of evoked and spontaneous neural activity in calcium imaging data. PLoS Computational Biology, 2020, 16, e1008330.	1.5	14
11	Model-based decoupling of evoked and spontaneous neural activity in calcium imaging data. , 2020, 16, e1008330.		0
12	Model-based decoupling of evoked and spontaneous neural activity in calcium imaging data. , 2020, 16, e1008330.		0
13	Model-based decoupling of evoked and spontaneous neural activity in calcium imaging data. , 2020, 16, e1008330.		0
14	Model-based decoupling of evoked and spontaneous neural activity in calcium imaging data. , 2020, 16, e1008330.		0
15	Probabilistic Encoding Models for Multivariate Neural Data. Frontiers in Neural Circuits, 2019, 13, 1.	1.4	49
16	Axon growth regulation by a bistable molecular switch. Proceedings of the Royal Society B: Biological Sciences, 2018, 285, 20172618.	1.2	10
17	Detecting neural assemblies in calcium imaging data. BMC Biology, 2018, 16, 143.	1.7	27
18	Emergence of spontaneous assembly activity in developing neural networks without afferent input. PLoS Computational Biology, 2018, 14, e1006421.	1.5	27

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19	Theoretical Models of Neural Development. IScience, 2018, 8, 183-199.	1.9	14
20	Control of neurite growth and guidance by an inhibitory cell-body signal. PLoS Computational Biology, 2018, 14, e1006218.	1.5	10
21	Principles of Functional Circuit Connectivity: Insights From Spontaneous Activity in the Zebrafish Optic Tectum. Frontiers in Neural Circuits, 2018, 12, 46.	1.4	20
22	Code Under Construction: Neural Coding Over Development. Trends in Neurosciences, 2018, 41, 599-609.	4.2	19
23	Chemotactic responses of growing neurites to precisely controlled gradients of nerve growth factor. Scientific Data, 2018, 5, 180183.	2.4	8
24	Spontaneous Activity in the Zebrafish Tectum Reorganizes over Development and Is Influenced by Visual Experience. Current Biology, 2017, 27, 2407-2419.e4.	1.8	72
25	Visualizing endocytic recycling and trafficking in live neurons by subdiffractional tracking of internalized molecules. Nature Protocols, 2017, 12, 2590-2622.	5.5	48
26	Estimating Cortical Feature Maps with Dependent Gaussian Processes. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2017, 39, 1918-1928.	9.7	2
27	A Three-Layer Network Model of Direction Selective Circuits in the Optic Tectum. Frontiers in Neural Circuits, 2017, 11, 88.	1.4	18
28	Segmenting Neuronal Growth Cones Using Deep Convolutional Neural Networks. , 2016, , .		3
29	In vivo single-molecule imaging of syntaxin1A reveals polyphosphoinositide- and activity-dependent trapping in presynaptic nanoclusters. Nature Communications, 2016, 7, 13660.	5.8	55
30	Limitations of Neural Map Topography for Decoding Spatial Information. Journal of Neuroscience, 2016, 36, 5385-5396.	1.7	21
31	Emergence of ion channel modal gating from independent subunit kinetics. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E5288-97.	3.3	13
32	Subdiffractional tracking of internalized molecules reveals heterogeneous motion states of synaptic vesicles. Journal of Cell Biology, 2016, 215, 277-292.	2.3	64
33	Axon Guidance Studies Using a Microfluidics-Based Chemotropic Gradient Generator. Methods in Molecular Biology, 2016, 1407, 273-285.	0.4	2
34	Can Molecular Gradients Wire the Brain?. Trends in Neurosciences, 2016, 39, 202-211.	4.2	49
35	Quantitative Analysis of Axonal Branch Dynamics in the Developing Nervous System. PLoS Computational Biology, 2016, 12, e1004813.	1.5	5
36	Sensory experience modifies feature map relationships in visual cortex. ELife, 2016, 5, .	2.8	27

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37	Topographic wiring of the retinotectal connection in zebrafish. Developmental Neurobiology, 2015, 75, 542-556.	1.5	36
38	The influence of activity on axon pathfinding in the optic tectum. Developmental Neurobiology, 2015, 75, 608-620.	1.5	14
39	Introduction to the special issue on from maps to circuits: Models and mechanisms for generating neural connections. Developmental Neurobiology, 2015, 75, 539-541.	1.5	0
40	Optimizing the Representation of Orientation Preference Maps in Visual Cortex. Neural Computation, 2015, 27, 32-41.	1.3	0
41	The limits of chemosensation vary across dimensions. Nature Communications, 2015, 6, 7468.	5.8	19
42	The dynamics of growth cone morphology. BMC Biology, 2015, 13, 10.	1.7	28
43	The interdependent roles of Ca²⁺ and cAMP in axon guidance. Developmental Neurobiology, 2015, 75, 402-410.	1.5	14
44	Netrin-DCC Signaling Regulates Corpus Callosum Formation Through Attraction of Pioneering Axons and by Modulating Slit2-Mediated Repulsion. Cerebral Cortex, 2014, 24, 1138-1151.	1.6	86
45	A computational model of the effect of gene misexpression on the development of cortical areas. Biological Cybernetics, 2014, 108, 203-221.	0.6	5
46	Practical costs of data sharing. Nature, 2014, 509, 33-33.	13.7	8
47	Calcium signaling in axon guidance. Trends in Neurosciences, 2014, 37, 424-432.	4.2	64
48	Stripe-rearing changes multiple aspects of the structure of primary visual cortex. NeuroImage, 2014, 95, 305-319.	2.1	2
49	Balanced Interhemispheric Cortical Activity Is Required for Correct Targeting of the Corpus Callosum. Neuron, 2014, 82, 1289-1298.	3.8	106
50	Induction of epithelialâ€“mesenchymal transition (EMT) in breast cancer cells is calcium signal dependent. Oncogene, 2014, 33, 2307-2316.	2.6	290
51	A dual compartment diffusion chamber for studying axonal chemotaxis in 3D collagen. Journal of Neuroscience Methods, 2013, 215, 53-59.	1.3	12
52	Optimality and Saturation in Axonal Chemotaxis. Neural Computation, 2013, 25, 833-853.	1.3	7
53	Sparse Coding Can Predict Primary Visual Cortex Receptive Field Changes Induced by Abnormal Visual Input. PLoS Computational Biology, 2013, 9, e1003005.	1.5	32
54	A quantitative analysis of branching, growth cone turning, and directed growth in zebrafish retinotectal axon guidance. Journal of Comparative Neurology, 2013, 521, 1409-1429.	0.9	22

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55	Sparse Coding on the Spot: Spontaneous Retinal Waves Suffice for Orientation Selectivity. Neural Computation, 2012, 24, 2422-2433.	1.3	9
56	Axonal Growth and Targeting. , 2012, , 429-458.		0
57	Calcium and cAMP Levels Interact to Determine Attraction versus Repulsion in Axon Guidance. Neuron, 2012, 74, 490-503.	3.8	54
58	Randomly oriented edge arrangements dominate naturalistic arrangements in binocular rivalry. Vision Research, 2012, 64, 49-55.	0.7	5
59	Cyclic nucleotide-dependent switching of mammalian axon guidance depends on gradient steepness. Molecular and Cellular Neurosciences, 2011, 47, 45-52.	1.0	18
60	Computational modeling of neuronal map development: insights into disease. Future Neurology, 2011, 6, 339-349.	0.9	0
61	A simple model can unify a broad range of phenomena in retinotectal map development. Biological Cybernetics, 2011, 104, 9-29.	0.6	19
62	Statistical structure of lateral connections in the primary visual cortex. Neural Systems & Circuits, 2011, 1, 3.	1.8	21
63	The Combinatorics of Neurite Self-Avoidance. Neural Computation, 2011, 23, 2746-2769.	1.3	8
64	Bayes-Optimal Chemotaxis. Neural Computation, 2011, 23, 336-373.	1.3	19
65	Optimizing chemotaxis by measuring unboundâ€"bound transitions. Physica D: Nonlinear Phenomena, 2010, 239, 477-484.	1.3	14
66	Analyzing neurite outgrowth from explants by fitting ellipses. Journal of Neuroscience Methods, 2010, 187, 52-58.	1.3	8
67	Axon guidance by growth-rate modulation. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 5202-5207.	3.3	67
68	A Boolean Model of the Gene Regulatory Network Underlying Mammalian Cortical Area Development. PLoS Computational Biology, 2010, 6, e1000936.	1.5	87
69	The influence of restricted orientation rearing on map structure in primary visual cortex. NeuroImage, 2010, 52, 875-883.	2.1	20
70	The Response of Dorsal Root Ganglion Axons to Nerve Growth Factor Gradients Depends on Spinal Level. Journal of Neurotrauma, 2010, 27, 1379-1386.	1.7	14
71	A Bayesian model predicts the response of axons to molecular gradients. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 10296-10301.	3.3	123
72	The error bars on impact. Network: Computation in Neural Systems, 2009, 20, 47-48.	2.2	0

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73	Natural scene statistics and the structure of orientation maps in the visual cortex. NeuroImage, 2009, 47, 157-172.	2.1	10
74	Chapter 1 Theoretical Models of Neural Circuit Development. Current Topics in Developmental Biology, 2009, 87, 1-51.	1.0	37
75	Assays for Eukaryotic Cell Chemotaxis. Combinatorial Chemistry and High Throughput Screening, 2009, 12, 580-588.	0.6	21
76	Quantitative Studies of Neuronal Chemotaxis in 3D. Methods in Molecular Biology, 2009, 571, 239-254.	0.4	1
77	Analysis of the growth cone turning assay for studying axon guidance. Journal of Neuroscience Methods, 2008, 170, 220-228.	1.3	44
78	Growth cone chemotaxis. Trends in Neurosciences, 2008, 31, 90-98.	4.2	151
79	The Effect of Angioscotomas on Map Structure in Primary Visual Cortex. Journal of Neuroscience, 2007, 27, 4935-4946.	1.7	10
80	Contributions of Theoretical Modeling to the Understanding of Neural Map Development. Neuron, 2007, 56, 301-311.	3.8	93
81	Computational Maps in the Visual Cortex. Clinical and Experimental Ophthalmology, 2006, 34, 705-706.	1.3	0
82	Editorial: Welcome to the new Network. Network: Computation in Neural Systems, 2006, 17, 1-2.	2.2	0
83	A Computational Model for the Development of Multiple Maps in Primary Visual Cortex. Cerebral Cortex, 2005, 15, 1222-1233.	1.6	68
84	The development of retinotectal maps: A review of models based on molecular gradients. Network: Computation in Neural Systems, 2005, 16, 5-34.	2.2	59
85	Adaptation is not required to explain the long-term response of axons to molecular gradients. Development (Cambridge), 2005, 132, 4545-4552.	1.2	31
86	Influence of Lateral Connections on the Structure of Cortical Maps. Journal of Neurophysiology, 2004, 92, 2947-2959.	0.9	40
87	Predicting Axonal Response to Molecular Gradients with a Computational Model of Filopodial Dynamics. Neural Computation, 2004, 16, 2221-2243.	1.3	44
88	A new chemotaxis assay shows the extreme sensitivity of axons to molecular gradients. Nature Neuroscience, 2004, 7, 678-682.	7.1	255
89	A Theoretical Model of Axon Guidance by the Robo Code. Neural Computation, 2003, 15, 549-564.	1.3	20
90	Are Visual Cortex Maps Optimized for Coverage?. Neural Computation, 2002, 14, 1545-1560.	1.3	10

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91	Cortical construction: from molecules to models. Nature Neuroscience, 2001, 4, 13-13.	7.1	1
92	Auto-SOM: Recursive Parameter Estimation for Guidance of Self-Organizing Feature Maps. Neural Computation, 2001, 13, 595-619.	1.3	18
93	Analysis of the elastic net model applied to the formation of ocular dominance and orientation columns. Network: Computation in Neural Systems, 2000, 11, 153-168.	2.2	31
94	Dynamics of cortical map development in the elastic net model. Neurocomputing, 2000, 32-33, 83-90.	3.5	3
95	Dating Behavior of the Retinal Ganglion Cell. Neuron, 2000, 25, 501-503.	3.8	5
96	Limitations on detection of gradients of diffusible chemicals by axons. Neurocomputing, 1999, 26-27, 39-43.	3.5	3
97	Theoretical analysis of gradient detection by growth cones. , 1999, 41, 230-241.		72
98	Retinotectal maps: molecules, models and misplaced data. Trends in Neurosciences, 1999, 22, 529-534.	4.2	96
99	Mathematical guidance for axons. Trends in Neurosciences, 1998, 21, 226-231.	4.2	81
100	Axon Guidance: Stretching Gradients to the Limit. Neural Computation, 1998, 10, 521-527.	1.3	43
101	The influence of neural activity and intracortical connectivity on the periodicity of ocular dominance stripes. Network: Computation in Neural Systems, 1998, 9, 419-432.	2.2	5
102	Objective Functions for Topography: A Comparison of Optimal Maps. Perspectives in Neural Computing, 1998, , 73-83.	0.1	1
103	A Unifying Objective Function for Topographic Mappings. Neural Computation, 1997, 9, 1291-1303.	1.3	64
104	Influences on the global structure of cortical maps. Proceedings of the Royal Society B: Biological Sciences, 1997, 264, 649-655.	1.2	15
105	Diffusion in Axon Guidance. European Journal of Neuroscience, 1997, 9, 1414-1421.	1.2	109
106	Theory meets experiment: correlated neural activity helps determine ocular dominance column periodicity. Trends in Neurosciences, 1995, 18, 437-439.	4.2	33
107	The Role of Weight Normalization in Competitive Learning. Neural Computation, 1994, 6, 255-269.	1.3	57
108	Elastic Net Model of Ocular Dominance: Overall Stripe Pattern and Monocular Deprivation. Neural Computation, 1994, 6, 615-621.	1.3	35

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109	Scaling and brain connectivity. Nature, 1994, 369, 448-449.	13.7	158
110	Topography and ocular dominance: a model exploring positive correlations. Biological Cybernetics, 1993, 69, 109-118.	0.6	127
111	The Development of Topography and Ocular Dominance. , 1991, , 338-349.		4
112	Application of the elastic net algorithm to the formation of ocular dominance stripes. Network: Computation in Neural Systems, 1990, 1, 41-59.	2.2	63
113	Analysis of the elastic net model applied to the formation of ocular dominance and orientation columns. , 0, .		14
114	Development of Columnar Structures in Visual Cortex. , 0, , 337-358.		4