R Angus Silver

List of Publications by Year
in descending order

68 papers	7,305 citations	87888 38 h-index	123424 61 g-index
75 all docs	75 docs citations	75 times ranked	6273 citing authors

#	Article	IF	Citations
1	Shunting Inhibition Modulates Neuronal Gain during Synaptic Excitation. Neuron, 2003, 38, 433-445.	8.1	522
2	Neuronal arithmetic. Nature Reviews Neuroscience, 2010, 11, 474-489.	10.2	449
3	Synaptic connections between layer 4 spiny neuroneâ€•layer 2/3 pyramidal cell pairs in juvenile rat barrel cortex: physiology and anatomy of interlaminar signalling within a cortical column. Journal of Physiology, 2002, 538, 803-822.	2.9	428
4	Rapid-time-course miniature and evoked excitatory currents at cerebellar synapses in situ. Nature, 1992, 355, 163-166.	27.8	365
5	NeuroML: A Language for Describing Data Driven Models of Neurons and Networks with a High Degree of Biological Detail. PLoS Computational Biology, 2010, 6, e1000815.	3.2	294
6	Glutamate spillover suppresses inhibition by activating presynaptic mGluRs. Nature, 2000, 404, 498-502.	27.8	233
7	Fast vesicle reloading and a large pool sustain high bandwidth transmission at a central synapse. Nature, 2006, 439, 983-987.	27.8	223
8	High-Probability Uniquantal Transmission at Excitatory Synapses in Barrel Cortex. Science, 2003, 302, 1981-1984.	12.6	219
9	Rapid Desynchronization of an Electrically Coupled Interneuron Network with Sparse Excitatory Synaptic Input. Neuron, 2010, 67, 435-451.	8.1	214
10	Nanoscale Distribution of Presynaptic Ca2+ Channels and Its Impact on Vesicular Release during Development. Neuron, 2015, 85, 145-158.	8.1	214
11	Spillover of Glutamate onto Synaptic AMPA Receptors Enhances Fast Transmission at a Cerebellar Synapse. Neuron, 2002, 35, 521-533.	8.1	212
12	Synaptic depression enables neuronal gain control. Nature, 2009, 457, 1015-1018.	27.8	210
13	neuroConstruct: A Tool for Modeling Networks of Neurons in 3D Space. Neuron, 2007, 54, 219-235.	8.1	198
14	Modulation of Glutamate Mobility Reveals the Mechanism Underlying Slow-Rising AMPAR EPSCs and the Diffusion Coefficient in the Synaptic Cleft. Neuron, 2004, 42, 757-771.	8.1	196
15	The Contribution of Single Synapses to Sensory Representation in Vivo. Science, 2008, 321, 977-980.	12.6	195
16	Bassoon Speeds Vesicle Reloading at a Central Excitatory Synapse. Neuron, 2010, 68, 710-723.	8.1	184
17	NeuroMatic: An Integrated Open-Source Software Toolkit for Acquisition, Analysis and Simulation of Electrophysiological Data. Frontiers in Neuroinformatics, 2018, 12, 14.	2.5	184
18	Calcium hotspots caused by L-channel clustering promote morphological changes in neuronal growth cones. Nature, 1990, 343, 751-754.	27.8	168

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19	Re-evaluating Circuit Mechanisms Underlying Pattern Separation. Neuron, 2019, 101, 584-602.	8.1	166
20	Cerebellar LTD and Pattern Recognition by Purkinje Cells. Neuron, 2007, 54, 121-136.	8.1	161
21	Estimation of nonuniform quantal parameters with multiple-probability fluctuation analysis: theory, application and limitations. Journal of Neuroscience Methods, 2003, 130, 127-141.	2.5	149
22	Synaptic and Cellular Properties of the Feedforward Inhibitory Circuit within the Input Layer of the Cerebellar Cortex. Journal of Neuroscience, 2008, 28, 8955-8967.	3.6	138
23	Network Structure within the Cerebellar Input Layer Enables Lossless Sparse Encoding. Neuron, 2014, 83, 960-974.	8.1	135
24	Gap Junctions Compensate for Sublinear Dendritic Integration in an Inhibitory Network. Science, 2012, 335, 1624-1628.	12.6	127
25	A compact acousto-optic lens for 2D and 3D femtosecond based 2-photon microscopy. Optics Express, 2010, 18, 13720.	3.4	117
26	Random-access scanning microscopy for 3D imaging in awake behaving animals. Nature Methods, 2016, 13, 1001-1004.	19.0	113
27	LEMS: a language for expressing complex biological models in concise and hierarchical form and its use in underpinning NeuroML 2. Frontiers in Neuroinformatics, 2014, 8, 79.	2.5	109
28	Rapid Vesicular Release, Quantal Variability, and Spillover Contribute to the Precision and Reliability of Transmission at a Glomerular Synapse. Journal of Neuroscience, 2005, 25, 8173-8187.	3.6	101
29	Desensitization Properties of AMPA Receptors at the Cerebellar Mossy Fiberâ€“Granule Cell Synapse. Journal of Neuroscience, 2007, 27, 8344-8357.	3.6	92
30	Sparse synaptic connectivity is required for decorrelation and pattern separation in feedforward networks. Nature Communications, 2017, 8, 1116.	12.8	89
31	Toward standard practices for sharing computer code and programs in neuroscience. Nature Neuroscience, 2017, 20, 770-773.	14.8	87
32	A Commitment to Open Source in Neuroscience. Neuron, 2017, 96, 964-965.	8.1	77
33	MorphML: Level 1 of the NeuroML Standards for Neuronal Morphology Data and Model Specification. Neuroinformatics, 2007, 5, 96-104.	2.8	73
34	Monitoring synaptic and neuronal activity in 3D with synthetic and genetic indicators using a compact acousto-optic lens two-photon microscope. Journal of Neuroscience Methods, 2014, 222, 69-81.	2.5	64
35	Determinants of synaptic integration and heterogeneity in rebound firing explored with data-driven models of deep cerebellar nucleus cells. Journal of Computational Neuroscience, 2011, 30, 633-658.	1.0	61
36	Functional Properties of Dendritic Gap Junctions in Cerebellar Golgi Cells. Neuron, 2016, 90, 1043-1056.	8.1	56

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37	Open Source Brain: A Collaborative Resource for Visualizing, Analyzing, Simulating, and Developing Standardized Models of Neurons and Circuits. Neuron, 2019, 103, 395-411.e5.	8.1	56
38	NMDA Receptors with Incomplete Mg²⁺Block Enable Low-Frequency Transmission through the Cerebellar Cortex. Journal of Neuroscience, 2012, 32, 6878-6893.	3.6	53
39	Impact of wavefront distortion and scattering on 2-photon microscopy in mammalian brain tissue. Optics Express, 2011, 19, 22755.	3.4	52
40	Real-time 3D movement correction for two-photon imaging in behaving animals. Nature Methods, 2020, 17, 741-748.	19.0	51
41	Cerebellar granule cell axons support high-dimensional representations. Nature Neuroscience, 2021, 24, 1142-1150.	14.8	47
42	Physical determinants of vesicle mobility and supply at a central synapse. ELife, 2016, 5, .	6.0	47
43	Assessing the Role of Inhibition in Stabilizing Neocortical Networks Requires Large-Scale Perturbation of the Inhibitory Population. Journal of Neuroscience, 2017, 37, 12050-12067.	3.6	37
44	libNeuroML and PyLEMS: using Python to combine procedural and declarative modeling approaches in computational neuroscience. Frontiers in Neuroinformatics, 2014, 8, 38.	2.5	35
45	Errors in the estimation of the variance: Implications for multiple-probability fluctuation analysis. Journal of Neuroscience Methods, 2006, 153, 250-260.	2.5	32
46	Glutamate-Bound NMDARs Arising from In Vivo-like Network Activity Extend Spatio-temporal Integration in a L5 Cortical Pyramidal Cell Model. PLoS Computational Biology, 2014, 10, e1003590.	3.2	32
47	Data-Driven Modeling of Synaptic Transmission and Integration. Progress in Molecular Biology and Translational Science, 2014, 123, 305-350.	1.7	27
48	Dynamic wavefront shaping with an acousto-optic lens for laser scanning microscopy. Optics Express, 2016, 24, 6283.	3.4	25
49	Estimation of the time course of neurotransmitter release at central synapses from the first latency of postsynaptic currents. Journal of Neuroscience Methods, 2012, 205, 49-64.	2.5	24
50	Geppetto: a reusable modular open platform for exploring neuroscience data and models. Philosophical Transactions of the Royal Society B: Biological Sciences, 2018, 373, 20170380.	4.0	23
51	The Open Source Brain Initiative: enabling collaborative modelling in computational neuroscience. BMC Neuroscience, 2012, 13, .	1.9	18
52	Estimation of Quantal Parameters With Multiple-Probability Fluctuation Analysis. Methods in Molecular Biology, 2007, 403, 303-317.	0.9	18
53	Neurophotonic Tools for Microscopic Measurements and Manipulation: Status Report. Neurophotonics, 2022, 9, 013001.	3.3	17
54	Multidimensional population activity in an electrically coupled inhibitory circuit in the cerebellar cortex. Neuron, 2021, 109, 1739-1753.e8.	8.1	14

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55	Extracting Quantal Properties of Transmission at Central Synapses. Neuromethods, 2016, 113, 193-211.	0.3	10
56	Refreshing Connections. Science, 2008, 320, 183-184.	12.6	8
57	Development and application of a ray-based model of light propagation through a spherical acousto-optic lens. Optics Express, 2015, 23, 23493.	3.4	7
58	Development of NeuroML version 2.0: greater extensibility, support for abstract neuronal models and interaction with Systems Biology languages. BMC Neuroscience, 2011, 12, .	1.9	3
59	NeuroML. , 2012, , 489-517.		3
60	Advanced 3D visualisation of detailed neuronal models using the Open Source Brain repository and interaction with other neuroinformatics resources. BMC Neuroscience, 2013, 14, .	1.9	2
61	Open Source Brain. , 2013, , 1-3.		2
62	Synaptic connections between layer 4 spiny neurone- layer 2/3 pyramidal cell pairs in juvenile rat barrel cortex: physiology and anatomy of interlaminar signalling within a cortical column. , 2002, 538, 803.		2
63	A declarative model specification system allowing NeuroML to be extended with user-defined component types. BMC Neuroscience, 2012, 13, .	1.9	1
64	Reading dendritic activity with gap junctions. Nature Neuroscience, 2014, 17, 1625-1627.	14.8	1
65	Open Source Brain. , 2014, , 1-3.		1
66	Precompensation of 3D field distortions in remote focus two-photon microscopy. Biomedical Optics Express, 2021, 12, 3717.	2.9	0
67	Open Source Brain. , 2022, , 2537-2539.		0
68	NeuroML. , 2022, , 2297-2300.		0