Fred Rieke

List of Publications by Year
in descending order

97 papers	7,358 citations	50276 46 h-index	64796 79 g-index
148 all docs	148 docs citations	148 times ranked	4646 citing authors

#	Article	IF	Citations
1	Stimulation of functional neuronal regeneration from MÃ¼ller glia in adult mice. Nature, 2017, 548, 103-107.	27.8	423
2	Essential role of Ca2+-binding protein 4, a Cav1.4 channel regulator, in photoreceptor synaptic function. Nature Neuroscience, 2004, 7, 1079-1087.	14.8	272
3	Nonlinear Signal Transfer from Mouse Rods to Bipolar Cells and Implications for Visual Sensitivity. Neuron, 2002, 34, 773-785.	8.1	269
4	Temporal Contrast Adaptation in the Input and Output Signals of Salamander Retinal Ganglion Cells. Journal of Neuroscience, 2001, 21, 287-299.	3.6	236
5	Visual Space Is Represented by Nonmatching Topographies of Distinct Mouse Retinal Ganglion Cell Types. Current Biology, 2014, 24, 310-315.	3.9	216
6	Reliability and information transmission in spiking neurons. Trends in Neurosciences, 1992, 15, 428-434.	8.6	211
7	The Challenges Natural Images Pose for Visual Adaptation. Neuron, 2009, 64, 605-616.	8.1	207
8	The spatial structure of a nonlinear receptive field. Nature Neuroscience, 2012, 15, 1572-1580.	14.8	198
9	Timescales of Inference in Visual Adaptation. Neuron, 2009, 61, 750-761.	8.1	176
10	RETINAL PROCESSING NEAR ABSOLUTE THRESHOLD: From Behavior to Mechanism. Annual Review of Physiology, 2005, 67, 491-514.	13.1	171
11	Network Variability Limits Stimulus-Evoked Spike Timing Precision in Retinal Ganglion Cells. Neuron, 2006, 52, 511-524.	8.1	167
12	Controlling the Gain of Rod-Mediated Signals in the Mammalian Retina. Journal of Neuroscience, 2006, 26, 3959-3970.	3.6	165
13	Light adaptation in cone vision involves switching between receptor and post-receptor sites. Nature, 2007, 449, 603-606.	27.8	156
14	Temporal Contrast Adaptation in Salamander Bipolar Cells. Journal of Neuroscience, 2001, 21, 9445-9454.	3.6	148
15	Selective Transmission of Single Photon Responses by Saturation at the Rod-to-Rod Bipolar Synapse. Neuron, 2004, 41, 431-443.	8.1	144
16	Role of Photoreceptor-specific Retinol Dehydrogenase in the Retinoid Cycle in Vivo. Journal of Biological Chemistry, 2005, 280, 18822-18832.	3.4	139
17	Recovery of Visual Functions in a Mouse Model of Leber Congenital Amaurosis. Journal of Biological Chemistry, 2002, 277, 19173-19182.	3.4	138
18	Cellular and Circuit Mechanisms Shaping the Perceptual Properties of the Primate Fovea. Cell, 2017, 168, 413-426.e12.	28.9	138

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19	Origin and Functional Impact of Dark Noise in Retinal Cones. Neuron, 2000, 26, 181-186.	8.1	127
20	Pharmacological and rAAV Gene Therapy Rescue of Visual Functions in a Blind Mouse Model of Leber Congenital Amaurosis. PLoS Medicine, 2005, 2, e333.	8.4	120
21	Mechanisms Regulating Variability of the Single Photon Responses of Mammalian Rod Photoreceptors. Neuron, 2002, 35, 733-747.	8.1	119
22	Slow Na⁺Inactivation and Variance Adaptation in Salamander Retinal Ganglion Cells. Journal of Neuroscience, 2003, 23, 1506-1516.	3.6	117
23	Multiple Phosphorylation Sites Confer Reproducibility of the Rod's Single-Photon Responses. Science, 2006, 313, 530-533.	12.6	117
24	Noise correlations improve response fidelity and stimulus encoding. Nature, 2010, 468, 964-967.	27.8	117
25	Direction-Selective Circuits Shape Noise to Ensure a Precise Population Code. Neuron, 2016, 89, 369-383.	8.1	116
26	The Synaptic and Circuit Mechanisms Underlying a Change in Spatial Encoding in the Retina. Neuron, 2014, 82, 460-473.	8.1	112
27	Origin of correlated activity between parasol retinal ganglion cells. Nature Neuroscience, 2008, 11, 1343-1351.	14.8	109
28	Light Stimulates a Transducin-Independent Increase of Cytoplasmic Ca²⁺and Suppression of Current in Cones from the Zebrafish Mutant<i>nof</i>. Journal of Neuroscience, 2003, 23, 470-480.	3.6	101
29	Recoverin Improves Rod-Mediated Vision by Enhancing Signal Transmission in the Mouse Retina. Neuron, 2005, 46, 413-420.	8.1	101
30	GCAP1 rescues rod photoreceptor response in GCAP1/GCAP2 knockout mice. EMBO Journal, 2002, 21, 1545-1554.	7.8	97
31	Cone photoreceptor contributions to noise and correlations in the retinal output. Nature Neuroscience, 2011, 14, 1309-1316.	14.8	86
32	Nonlinear Spatiotemporal Integration by Electrical and Chemical Synapses in the Retina. Neuron, 2016, 90, 320-332.	8.1	86
33	Synaptic Rectification Controls Nonlinear Spatial Integration of Natural Visual Inputs. Neuron, 2016, 90, 1257-1271.	8.1	85
34	Signals and noise in an inhibitory interneuron diverge to control activity in nearby retinal ganglion cells. Nature Neuroscience, 2008, 11, 318-326.	14.8	82
35	Efficient stimulation of retinal regeneration from MÃ¼ller glia in adult mice using combinations of proneural bHLH transcription factors. Cell Reports, 2021, 37, 109857.	6.4	79
36	Origin and effect of phototransduction noise in primate cone photoreceptors. Nature Neuroscience, 2013, 16, 1692-1700.	14.8	77

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37	Nonlinear dendritic integration of electrical and chemical synaptic inputs drives fine-scale correlations. Nature Neuroscience, 2014, 17, 1759-1766.	14.8	75
38	STAT Signaling Modifies Ascl1 Chromatin Binding and Limits Neural Regeneration from Muller Glia in Adult Mouse Retina. Cell Reports, 2020, 30, 2195-2208.e5.	6.4	73
39	Bandpass Filtering at the Rod to Second-Order Cell Synapse in Salamander (Ambystoma tigrinum) Retina. Journal of Neuroscience, 2003, 23, 3796-3806.	3.6	69
40	The impact of photoreceptor noise on retinal gain controls. Current Opinion in Neurobiology, 2006, 16, 363-370.	4.2	68
41	Synchronized firing in the retina. Current Opinion in Neurobiology, 2008, 18, 396-402.	4.2	68
42	Single-Photon Absorptions Evoke Synaptic Depression in the Retina to Extend the Operational Range of Rod Vision. Neuron, 2008, 57, 894-904.	8.1	68
43	Remote switching of cellular activity and cell signaling using light in conjunction with quantum dots. Biomedical Optics Express, 2012, 3, 447.	2.9	68
44	Glutamatergic Monopolar Interneurons Provide a Novel Pathway of Excitation in the Mouse Retina. Current Biology, 2016, 26, 2070-2077.	3.9	66
45	Nonlinear spatial encoding by retinal ganglion cells: when 1 + 1 â‰ 2. Journal of General Physiology, 2011, 138, 283-290.	1.9	59
46	Bits and brains: Information flow in the nervous system. Physica A: Statistical Mechanics and Its Applications, 1993, 200, 581-593.	2.6	54
47	Receptive field center-surround interactions mediate context-dependent spatial contrast encoding in the retina. ELife, 2018, 7, .	6.0	52
48	Interplay of Cell-Autonomous and Nonautonomous Mechanisms Tailors Synaptic Connectivity of Converging Axons InÂVivo. Neuron, 2014, 82, 125-137.	8.1	48
49	Stimulus- and goal-oriented frameworks for understanding natural vision. Nature Neuroscience, 2019, 22, 15-24.	14.8	46
50	Coincidence Detection of Single-Photon Responses in the Inner Retina at the Sensitivity Limit of Vision. Current Biology, 2014, 24, 2888-2898.	3.9	45
51	Broad Thorny Ganglion Cells: A Candidate for Visual Pursuit Error Signaling in the Primate Retina. Journal of Neuroscience, 2015, 35, 5397-5408.	3.6	44
52	Parallel Processing of Rod and Cone Signals: Retinal Function and Human Perception. Annual Review of Vision Science, 2018, 4, 123-141.	4.4	44
53	How Do Efficient Coding Strategies Depend on Origins of Noise in Neural Circuits?. PLoS Computational Biology, 2016, 12, e1005150.	3.2	43
54	Scotopic Visual Signaling in the Mouse Retina Is Modulated by High-Affinity Plasma Membrane Calcium Extrusion. Journal of Neuroscience, 2006, 26, 7201-7211.	3.6	41

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55	Voltage-Gated Na Channels in AII Amacrine Cells Accelerate Scotopic Light Responses Mediated by the Rod Bipolar Cell Pathway. Journal of Neuroscience, 2010, 30, 4650-4659.	3.6	40
56	Regulation of Spatial Selectivity by Crossover Inhibition. Journal of Neuroscience, 2013, 33, 6310-6320.	3.6	39
57	Range, routing and kinetics of rod signaling in primate retina. ELife, 2018, 7, .	6.0	37
58	S-cone photoreceptors in the primate retina are functionally distinct from L and M cones. ELife, 2019, 8, .	6.0	37
59	Electrical Synaptic Input to Ganglion Cells Underlies Differences in the Output and Absolute Sensitivity of Parallel Retinal Circuits. Journal of Neuroscience, 2011, 31, 12218-12228.	3.6	36
60	Characterization of Ca2+-Binding Protein 5 Knockout Mouse Retina. , 2008, 49, 5126.		35
61	C-terminal threonines and serines play distinct roles in the desensitization of rhodopsin, a G protein-coupled receptor. ELife, 2015, 4, .	6.0	35
62	Complex inhibitory microcircuitry regulates retinal signaling near visual threshold. Journal of Neurophysiology, 2015, 114, 341-353.	1.8	34
63	Neurotransmission plays contrasting roles in the maturation of inhibitory synapses on axons and dendrites of retinal bipolar cells. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 12840-12845.	7.1	34
64	Experimental Protocols Alter Phototransduction: The Implications for Retinal Processing at Visual Threshold. Journal of Neuroscience, 2011, 31, 3670-3682.	3.6	32
65	Arrestin Competition Influences the Kinetics and Variability of the Single-Photon Responses of Mammalian Rod Photoreceptors. Journal of Neuroscience, 2009, 29, 11867-11879.	3.6	31
66	Cross-synaptic synchrony and transmission of signal and noise across the mouse retina. ELife, 2014, 3, e03892.	6.0	29
67	Flexible Neural Hardware Supports Dynamic Computations in Retina. Trends in Neurosciences, 2018, 41, 224-237.	8.6	28
68	Coordinated control of sensitivity by two splice variants of GÎ±o in retinal ON bipolar cells. Journal of General Physiology, 2010, 136, 443-454.	1.9	27
69	Distinctive receptive field and physiological properties of a wide-field amacrine cell in the macaque monkey retina. Journal of Neurophysiology, 2015, 114, 1606-1616.	1.8	25
70	LRRTM4: A Novel Regulator of Presynaptic Inhibition and Ribbon Synapse Arrangements of Retinal Bipolar Cells. Neuron, 2020, 105, 1007-1017.e5.	8.1	25
71	Dynamic assembly of ribbon synapses and circuit maintenance in a vertebrate sensory system. Nature Communications, 2019, 10, 2167.	12.8	24
72	Inferring synaptic inputs from spikes with a conductance-based neural encoding model. ELife, 2019, 8, .	6.0	23

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73	When do microcircuits produce beyond-pairwise correlations?. Frontiers in Computational Neuroscience, 2014, 8, 10.	2.1	22
74	Predicting how and when hidden neurons skew measured synaptic interactions. PLoS Computational Biology, 2018, 14, e1006490.	3.2	22
75	Simulation of visual perception and learning with a retinal prosthesis. Journal of Neural Engineering, 2019, 16, 025003.	3.5	22
76	Predictive encoding of motion begins in the primate retina. Nature Neuroscience, 2021, 24, 1280-1291.	14.8	22
77	Light Adaptation in Salamander L-Cone Photoreceptors. Journal of Neuroscience, 2008, 28, 1331-1342.	3.6	21
78	A simple retinal mechanism contributes to perceptual interactions between rod- and cone-mediated responses in primates. ELife, 2015, 4, .	6.0	20
79	GABA release selectively regulates synapse development at distinct inputs on direction-selective retinal ganglion cells. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E12083-E12090.	7.1	19
80	Development of ON and OFF cholinergic amacrine cells in the human fetal retina. Journal of Comparative Neurology, 2019, 527, 174-186.	1.6	19
81	Temporal resolution of single-photon responses in primate rod photoreceptors and limits imposed by cellular noise. Journal of Neurophysiology, 2019, 121, 255-268.	1.8	18
82	[12] Mechanisms of single-photon detection in Rod photoreceptors. Methods in Enzymology, 2000, 316, 186-202.	1.0	15
83	Controlling gain one photon at a time. ELife, 2013, 2, e00467.	6.0	15
84	Conserved circuits for direction selectivity in the primate retina. Current Biology, 2022, 32, 2529-2538.e4.	3.9	14
85	Lack of CaBP1/Caldendrin or CaBP2 Leads to Altered Ganglion Cell Responses. ENeuro, 2016, 3, ENEURO.0099-16.2016.	1.9	13
86	A High-Density Narrow-Field Inhibitory Retinal Interneuron with Direct Coupling to MÃ¼ller Glia. Journal of Neuroscience, 2021, 41, 6018-6037.	3.6	11
87	Predicting and Manipulating Cone Responses to Naturalistic Inputs. Journal of Neuroscience, 2022, 42, 1254-1274.	3.6	10
88	A computational observer model of spatial contrast sensitivity: Effects of photocurrent encoding, fixational eye movements, and inference engine. Journal of Vision, 2020, 20, 17.	0.3	9
89	Dendro-somatic synaptic inputs to ganglion cells contradict receptive field and connectivity conventions in the mammalian retina. Current Biology, 2022, 32, 315-328.e4.	3.9	8
90	Adaptation in cone photoreceptors contributes to an unexpected insensitivity of primate On parasol retinal ganglion cells to spatial structure in natural images. ELife, 2022, 11, .	6.0	8

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91	Transient expression of a GABA receptor subunit during early development is critical for inhibitory synapse maturation and function. Current Biology, 2021, 31, 4314-4326.e5.	3.9	5
92	Seeing With a Few Photons: Bridging Cellular and Circuit Mechanisms With Perception. , 2020, , 293-308.		3
93	Nonlinear convergence boosts information coding in circuits with parallel outputs. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	2
94	Computational observer modeling of the limits of human pattern resolution. Journal of Vision, 2019, 19, 46.	0.3	2
95	Remote switching of cellular activity using light through quantum dots. , 2010, , .		0
96	Identification of Multiple Noise Sources Improves Estimation of Neural Responses across Stimulus Conditions. ENeuro, 2021, 8, ENEURO.0191-21.2021.	1.9	0
97	Invited Session IV: Top-down vs. bottom-up approaches to computational modeling of vision: Retinal encoding of natural images. Journal of Vision, 2022, 22, 54.	0.3	0