Pieter R Roelfsema

List of Publications by Year
in descending order

129 papers	15,792 citations	30070 54 h-index	19749 117 g-index
135 all docs	135 docs citations	135 times ranked	10084 citing authors

#	Article	IF	Citations
1	The distinct modes of vision offered by feedforward and recurrent processing. Trends in Neurosciences, 2000, 23, 571-579.	8.6	1,996
2	Visuomotor integration is associated with zero time-lag synchronization among cortical areas. Nature, 1997, 385, 157-161.	27.8	1,075
3	Alpha and gamma oscillations characterize feedback and feedforward processing in monkey visual cortex. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 14332-14341.	7.1	772
4	Object-based attention in the primary visual cortex of the macaque monkey. Nature, 1998, 395, 376-381.	27.8	769
5	The Distributed Nature of Working Memory. Trends in Cognitive Sciences, 2017, 21, 111-124.	7.8	570
6	Role of Reticular Activation in the Modulation of Intracortical Synchronization. Science, 1996, 272, 271-274.	12.6	564
7	A deep learning framework for neuroscience. Nature Neuroscience, 2019, 22, 1761-1770.	14.8	563
8	Different states in visual working memory: when it guides attention and when it does not. Trends in Cognitive Sciences, 2011, 15, 327-34.	7.8	494
9	Synchronization of oscillatory responses in visual cortex correlates with perception in interocular rivalry. Proceedings of the National Academy of Sciences of the United States of America, 1997, 94, 12699-12704.	7.1	449
10	CORTICAL ALGORITHMS FOR PERCEPTUAL GROUPING. Annual Review of Neuroscience, 2006, 29, 203-227.	10.7	364
11	Bottom-Up Dependent Gating of Frontal Signals in Early Visual Cortex. Science, 2008, 321, 414-417.	12.6	312
12	Oscillatory Neuronal Synchronization in Primary Visual Cortex as a Correlate of Stimulus Selection. Journal of Neuroscience, 2002, 22, 3739-3754.	3.6	273
13	The threshold for conscious report: Signal loss and response bias in visual and frontal cortex. Science, 2018, 360, 537-542.	12.6	264
14	Neuronal assemblies: necessity, signature and detectability. Trends in Cognitive Sciences, 1997, 1, 252-261.	7.8	259
15	Reduced Synchronization in the Visual Cortex of Cats with Strabismic Amblyopia. European Journal of Neuroscience, 1994, 6, 1645-1655.	2.6	246
16	Perceptual learning rules based on reinforcers and attention. Trends in Cognitive Sciences, 2010, 14, 64-71.	7.8	241
17	Figureâ€"Ground Segregation in a Recurrent Network Architecture. Journal of Cognitive Neuroscience, 2002, 14, 525-537.	2.3	230
18	Attention-Gated Reinforcement Learning of Internal Representations for Classification. Neural Computation, 2005, 17, 2176-2214.	2.2	226

#	Article	IF	Citations
19	Role of the temporal domain for response selection and perceptual binding. Cerebral Cortex, 1997, 7, 571-582.	2.9	213
20	The implementation of visual routines. Vision Research, 2000, 40, 1385-1411.	1.4	205
21	The Role of Attention in Figure-Ground Segregation in Areas V1 and V4 of the Visual Cortex. Neuron, 2012, 75, 143-156.	8.1	205
22	The role of primary visual cortex (V1) in visual awareness. Vision Research, 2000, 40, 1507-1521.	1.4	200
23	How Precise is Neuronal Synchronization?. Neural Computation, 1995, 7, 469-485.	2.2	186
24	Distinct Roles of the Cortical Layers of Area V1 in Figure-Ground Segregation. Current Biology, 2013, 23, 2121-2129.	3.9	184
25	Control of synaptic plasticity in deep cortical networks. Nature Reviews Neuroscience, 2018, 19, 166-180.	10.2	176
26	Synchrony and covariation of firing rates in the primary visual cortex during contour grouping. Nature Neuroscience, 2004, 7, 982-991.	14.8	160
27	The Role of Neuronal Synchronization in Response Selection: A Biologically Plausible Theory of Structured Representations in the Visual Cortex. Journal of Cognitive Neuroscience, 1996, 8, 603-625.	2.3	156
28	Chronic multiunit recordings in behaving animals: advantages and limitations. Progress in Brain Research, 2005, 147, 263-282.	1.4	148
29	Basic Neuroscience Research with Nonhuman Primates: A Small but Indispensable Component of Biomedical Research. Neuron, 2014, 82, 1200-1204.	8.1	148
30	Shape perception via a high-channel-count neuroprosthesis in monkey visual cortex. Science, 2020, 370, 1191-1196.	12.6	146
31	Layer-specificity in the effects of attention and working memory on activity in primary visual cortex. Nature Communications, 2017, 8, 13804.	12.8	141
32	Different glutamate receptors convey feedforward and recurrent processing in macaque V1. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 11031-11036.	7.1	140
33	A unified selection signal for attention and reward in primary visual cortex. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 9136-9141.	7.1	140
34	Automatic spread of attentional response modulation along Gestalt criteria in primary visual cortex. Nature Neuroscience, 2011, 14, 1243-1244.	14.8	132
35	Early Visual Cortex as a Multiscale Cognitive Blackboard. Annual Review of Vision Science, 2016, 2, 131-151.	4.4	124
36	The effect of items in working memory on the deployment of attention and the eyes during visual search.. Journal of Experimental Psychology: Human Perception and Performance, 2006, 32, 423-442.	0.9	116

#	Article	IF	Citations
37	The Brain's Router: A Cortical Network Model of Serial Processing in the Primate Brain. PLoS Computational Biology, 2010, 6, e1000765.	3.2	113
38	The human Turing machine: a neural framework for mental programs. Trends in Cognitive Sciences, 2011, 15, 293-300.	7.8	113
39	Different Processing Phases for Features, Figures, and Selective Attention in the Primary Visual Cortex. Neuron, 2007, 56, 785-792.	8.1	99
40	Distinct Feedforward and Feedback Effects of Microstimulation in Visual Cortex Reveal Neural Mechanisms of Texture Segregation. Neuron, 2017, 95, 209-220.e3.	8.1	90
41	A gradual spread of attention. Perception & Psychophysics, 2003, 65, 1136-1144.	2.3	87
42	Detecting connectedness. Cerebral Cortex, 1998, 8, 385-396.	2.9	86
43	Incremental grouping of image elements in vision. Attention, Perception, and Psychophysics, 2011, 73, 2542-2572.	1.3	85
44	Orientation-Tuned Surround Suppression in Mouse Visual Cortex. Journal of Neuroscience, 2014, 34, 9290-9304.	3.6	84
45	3D printing and modelling of customized implants and surgical guides for non-human primates. Journal of Neuroscience Methods, 2017, 286, 38-55.	2.5	84
46	Variance misperception explains illusions of confidence in simple perceptual decisions. Consciousness and Cognition, 2014, 27, 246-253.	1.5	82
47	In Vivo Two-Photon Ca2+ Imaging Reveals Selective Reward Effects on Stimulus-Specific Assemblies in Mouse Visual Cortex. Journal of Neuroscience, 2013, 33, 11540-11555.	3.6	78
48	Matching of visual input to only one item at any one time. Psychological Research, 2009, 73, 317-326.	1.7	75
49	Boundary assignment in a recurrent network architecture. Vision Research, 2007, 47, 1153-1165.	1.4	74
50	Additive Effects of Attention and Stimulus Contrast in Primary Visual Cortex. Cerebral Cortex, 2009, 19, 2970-2981.	2.9	74
51	The Effects of Context and Attention on Spiking Activity in Human Early Visual Cortex. PLoS Biology, 2016, 14, e1002420.	5.6	74
52	Attention Lights Up New Object Representations before the Old Ones Fade Away. Journal of Neuroscience, 2006, 26, 138-142.	3.6	73
53	The Representation of Erroneously Perceived Stimuli in the Primary Visual Cortex. Neuron, 2001, 31, 853-863.	8.1	72
54	Texture Segregation Causes Early Figure Enhancement and Later Ground Suppression in Areas V1 and V4 of Visual Cortex. Cerebral Cortex, 2016, 26, 3964-3976.	2.9	72

#	Article	IF	Citations
55	Modulation of the Contrast Response Function by Electrical Microstimulation of the Macaque Frontal Eye Field. Journal of Neuroscience, 2009, 29, 10683-10694.	3.6	68
56	Subtask sequencing in the primary visual cortex. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 5467-5472.	7.1	67
57	Remembered but Unused: The Accessory Items in Working Memory that Do Not Guide Attention. Journal of Cognitive Neuroscience, 2009, 21, 1081-1091.	2.3	62
58	Simultaneous selection by object-based attention in visual and frontal cortex. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 6467-6472.	7.1	59
59	Separable Codes for Attention and Luminance Contrast in the Primary Visual Cortex. Journal of Neuroscience, 2010, 30, 12701-12711.	3.6	58
60	Ocular dominance in extrastriate cortex of strabismic amblyopic cats. Vision Research, 2002, 42, 29-39.	1.4	55
61	Noise Correlations Have Little Influence on the Coding of Selective Attention in Area V1. Cerebral Cortex, 2009, 19, 543-553.	2.9	54
62	Learning of anticipatory responses in single neurons of the human medial temporal lobe. Nature Communications, 2015, 6, 8556.	12.8	48
63	The Effects of Pair-wise and Higher-order Correlations on the Firing Rate of a Postsynaptic Neuron. Neural Computation, 2000, 12, 153-179.	2.2	47
64	Interactions between higher and lower visual areas improve shape selectivity of higher level neuronsâ€"Explaining crowding phenomena. Brain Research, 2007, 1157, 167-176.	2.2	46
65	How Attention Can Create Synaptic Tags for the Learning of Working Memories in Sequential Tasks. PLoS Computational Biology, 2015, 11, e1004060.	3.2	46
66	Slow brain oscillations of sleep, resting state, and vigilance. Progress in Brain Research, 2011, 193, 3-15.	1.4	44
67	The spatial profile of visual attention in mental curve tracing. Vision Research, 2001, 41, 2569-2580.	1.4	40
68	A Growth-Cone Model for the Spread of Object-Based Attention during Contour Grouping. Current Biology, 2014, 24, 2869-2877.	3.9	40
69	Decision Making during the Psychological Refractory Period. Current Biology, 2012, 22, 1795-1799.	3.9	39
70	The essential role of recurrent processing for figure-ground perception in mice. Science Advances, 2021, 7, .	10.3	39
71	Elemental operations in vision. Trends in Cognitive Sciences, 2005, 9, 226-233.	7.8	37
72	Task-Relevant and Accessory Items in Working Memory Have Opposite Effects on Activity in Extrastriate Cortex. Journal of Neuroscience, 2012, 32, 17003-17011.	3.6	37

#	Article	IF	Citations
73	The Formation of Hierarchical Decisions in the Visual Cortex. Neuron, 2015, 87, 1344-1356.	8.1	37
74	Correlates of transsaccadic integration in the primary visual cortex of the monkey. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 12712-12717.	7.1	35
75	Reflections on the past two decades of neuroscience. Nature Reviews Neuroscience, 2020, 21, 524-534.	10.2	35
76	Temporal constraints on the grouping of contour segments into spatially extended objects. Vision Research, 1999, 39, 1509-1529.	1.4	33
77	Theta-phase dependent neuronal coding during sequence learning in human single neurons. Nature Communications, 2021, 12, 4839.	12.8	32
78	Population receptive fields in nonhuman primates from whole-brain fMRI and large-scale neurophysiology in visual cortex. ELife, 2021, 10, .	6.0	30
79	Neuronal Activity in the Visual Cortex Reveals the Temporal Order of Cognitive Operations. Journal of Neuroscience, 2010, 30, 16293-16303.	3.6	29
80	Working memory accuracy for multiple targets is driven by reward expectation and stimulus contrast with different time-courses. Scientific Reports, 2017, 7, 9082.	3.3	28
81	Figure-ground perception in the awake mouse and neuronal activity elicited by figure-ground stimuli in primary visual cortex. Scientific Reports, 2018, 8, 17800.	3.3	27
82	Belief states as a framework to explain extra-retinal influences in visual cortex. Current Opinion in Neurobiology, 2015, 32, 45-52.	4.2	26
83	Mouse visual cortex contains a region of enhanced spatial resolution. Nature Communications, 2021, 12, 4029.	12.8	26
84	Robot Companions for Citizens. Procedia Computer Science, 2011, 7, 47-51.	2.0	24
85	The Contribution of AMPA and NMDA Receptors to Persistent Firing in the Dorsolateral Prefrontal Cortex in Working Memory. Journal of Neuroscience, 2020, 40, 2458-2470.	3.6	24
86	Reinforcement Learning of Linking and Tracing Contours in Recurrent Neural Networks. PLoS Computational Biology, 2015, 11, e1004489.	3.2	23
87	Time Course of Attentional Modulation in the Frontal Eye Field During Curve Tracing. Journal of Neurophysiology, 2009, 101, 1813-1822.	1.8	22
88	A learning rule that explains how rewards teach attention. Visual Cognition, 2015, 23, 179-205.	1.6	21
89	Serial grouping of 2D-image regions with object-based attention in humans. ELife, 2016, 5, .	6.0	21
90	Frontal eye field microstimulation induces task-dependent gamma oscillations in the lateral intraparietal area. Journal of Neurophysiology, 2012, 108, 1392-1402.	1.8	20

#	Article	IF	Citations
91	The Time Course of Perceptual Grouping in Natural Scenes. Psychological Science, 2012, 23, 1482-1489.	3.3	20
92	Solutions for the Binding Problem. Zeitschrift Fur Naturforschung - Section C Journal of Biosciences, 1998, 53, 691-715.	1.4	19
93	Location and color biases have different influences on selective attention. Vision Research, 2009, 49, 996-1005.	1.4	19
94	Parallel and serial grouping of image elements in visual perception.. Journal of Experimental Psychology: Human Perception and Performance, 2010, 36, 1443-1459.	0.9	18
95	Inhibitory Interneuron Classes Express Complementary AMPA-Receptor Patterns in Macaque Primary Visual Cortex. Journal of Neuroscience, 2014, 34, 6303-6315.	3.6	17
96	The influence of attention and reward on the learning of stimulus-response associations. Scientific Reports, 2017, 7, 9036.	3.3	17
97	A monocular, unconscious form of visual attention. Journal of Vision, 2010, 10, 1-22.	0.3	15
98	Surfing the attentional waves during visual curve tracing: Evidence from the sustained posterior contralateral negativity. Psychophysiology, 2011, 48, 1510-1516.	2.4	15
99	Visual information transfer across eye movements in the monkey. Vision Research, 2004, 44, 2901-2917.	1.4	13
100	Microstimulation of area V4 has little effect on spatial attention and on perception of phosphenes evoked in area V1. Journal of Neurophysiology, 2015, 113, 730-739.	1.8	13
101	Precise timing of neuronal discharges within and across cortical areas: Implications for synaptic transmission. Journal of Physiology (Paris), 1996, 90, 221-222.	2.1	12
102	Attentionâ€"Voluntary Control of Brain Cells. Science, 2011, 332, 1512-1513.	12.6	12
103	Object Selection by Automatic Spreading of Top-Down Attentional Signals in V1. Journal of Neuroscience, 2020, 40, 9250-9259.	3.6	12
104	Suppressive Lateral Interactions at Parafoveal Representations in Primary Visual Cortex. Journal of Neuroscience, 2010, 30, 12745-12758.	3.6	11
105	A Quantitative Comparison of Inhibitory Interneuron Size and Distribution between Mouse and Macaque V1, Using Calcium-Binding Proteins. Cerebral Cortex Communications, 2020, 1, tgaa068.	1.6	11
106	1024-channel electrophysiological recordings in macaque V1 and V4 during resting state. Scientific Data, 2022, 9, 77.	5.3	9
107	Further evidence for the spread of attention during contour grouping: A reply to Crundall, Dewhurst, and Underwood (2008). Attention, Perception, and Psychophysics, 2010, 72, 849-862.	1.3	8
108	Serial, parallel and hierarchical decision making in primates. ELife, 2017, 6, .	6.0	8

#	Article	IF	Citations
109	Contextual effects on perceived contrast: Figure-ground assignment and orientation contrast. Journal of Vision, 2015, 15, 2-2.	0.3	7
110	Interocularly merged face percepts eliminate binocular rivalry. Scientific Reports, 2017, 7, 7585.	3.3	7
111	Perceptual learning, motor learning, and automaticity. Trends in Cognitive Sciences, 2010, 14, 1.	7.8	6
112	A field of dreams. Trends in Cognitive Sciences, 2007, 11, 6-7.	7.8	5
113	Paying Attention to the Cortical Layers. Neuron, 2017, 93, 9-11.	8.1	5
114	Binocular rivalry outside the scope of awareness. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 8352-8354.	7.1	4
115	Ethical implications of visual neuroprosthesesâ€"a systematic review. Journal of Neural Engineering, 2022, 19, 026055.	3.5	4
116	Surface reconstruction, figure-ground modulation, and border-ownership. Cognitive Neuroscience, 2013, 4, 50-52.	1.4	3
117	Continuous-time on-policy neural Reinforcement Learning of working memory tasks. , 2015, , .		3
118	Scene perception in early vision: Figure-ground organization in the lateral geniculate nucleus. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 6784-6785.	7.1	3
119	Luminance contrast has little influence on the spread of object-based attention. Vision Research, 2013, 85, 90-103.	1.4	2
120	Reply to â€˜Can neocortical feedback alter the sign of plasticity?â€™. Nature Reviews Neuroscience, 2018, 19, 637-638.	10.2	2
121	Envisioning the Reward. Neuron, 2006, 50, 188-190.	8.1	1
122	Learning a New Selection Rule in Visual and Frontal Cortex. Cerebral Cortex, 2016, 26, 3611-3626.	2.9	1
123	Neuroscience: Out of Sight but Not Out of Mind. Current Biology, 2017, 27, R269-R271.	3.9	1
124	Which brain mechanism cannot count beyond four?. Behavioral and Brain Sciences, 2001, 24, 142-143.	0.7	0
125	Why do schizophrenic patients hallucinate?. Behavioral and Brain Sciences, 2003, 26, 101-103.	0.7	0
126	Optogenetics: Eye Movements atÂLight Speed. Current Biology, 2012, 22, R804-R806.	3.9	0

#	Article	IF	Citations
127	Items in working memory do not automatically attract attention in visual search. Journal of Vision, 2010, 2, 536-536.	0.3	0
128	Remapping of attentional modulation across eye movements in primary visual cortex of the monkey. Journal of Vision, 2010, 1, 220-220.	0.3	0
129	The representation of erroneously perceived stimuli in the primary visual cortex. Journal of Vision, 2010, 1, 31-31.	0.3	0