Pieter R Roelfsema

List of Publications by Citations

125 papers	12,029 citations	52 h-index	109 g-index
135 ext. papers	14,232 ext. citations	9 avg, IF	6.61 L-index

#	Paper	IF	Citations
125	The distinct modes of vision offered by feedforward and recurrent processing. *Trends in Neurosciences*, **2000**, 23, 571-9	13.3	1639
124	Visuomotor integration is associated with zero time-lag synchronization among cortical areas. *Nature*, **1997**, 385, 157-61	50.4	944
123	Object-based attention in the primary visual cortex of the macaque monkey. *Nature*, **1998**, 395, 376-81	50.4	646
122	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, 14332-41	11.5	508
121	Role of reticular activation in the modulation of intracortical synchronization. *Science*, **1996**, 272, 271-4	33.3	490
120	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, 12699-704	11.5	376
119	Different states in visual working memory: when it guides attention and when it does not. *Trends in Cognitive Sciences*, **2011**, 15, 327-34	14	373
118	The Distributed Nature of Working Memory. *Trends in Cognitive Sciences*, **2017**, 21, 111-124	14	300
117	Cortical algorithms for perceptual grouping. *Annual Review of Neuroscience*, **2006**, 29, 203-27	17	288
116	Bottom-up dependent gating of frontal signals in early visual cortex. *Science*, **2008**, 321, 414-7	33.3	269
115	A deep learning framework for neuroscience. *Nature Neuroscience*, **2019**, 22, 1761-1770	25.5	245
114	Oscillatory neuronal synchronization in primary visual cortex as a correlate of stimulus selection. *Journal of Neuroscience*, **2002**, 22, 3739-54	6.6	236
113	Reduced synchronization in the visual cortex of cats with strabismic amblyopia. *European Journal of Neuroscience*, **1994**, 6, 1645-55	3.5	213
112	Perceptual learning rules based on reinforcers and attention. *Trends in Cognitive Sciences*, **2010**, 14, 64-71	14	204
111	Figure-ground segregation in a recurrent network architecture. *Journal of Cognitive Neuroscience*, **2002**, 14, 525-37	3.1	203
110	Neuronal assemblies: necessity, signature and detectability. *Trends in Cognitive Sciences*, **1997**, 1, 252-61	14	202
109	The implementation of visual routines. *Vision Research*, **2000**, 40, 1385-411	2.1	195

108	The role of primary visual cortex (V1) in visual awareness. *Vision Research*, **2000**, 40, 1507-21	2.1	189
107	Attention-gated reinforcement learning of internal representations for classification. *Neural Computation*, **2005**, 17, 2176-214	2.9	176
106	Role of the temporal domain for response selection and perceptual binding. *Cerebral Cortex*, **1997**, 7, 571-82	5.1	171
105	The threshold for conscious report: Signal loss and response bias in visual and frontal cortex. *Science*, **2018**, 360, 537-542	33.3	157
104	The role of attention in figure-ground segregation in areas V1 and V4 of the visual cortex. *Neuron*, **2012**, 75, 143-56	13.9	154
103	How precise is neuronal synchronization?. *Neural Computation*, **1995**, 7, 469-85	2.9	150
102	Synchrony and covariation of firing rates in the primary visual cortex during contour grouping. *Nature Neuroscience*, **2004**, 7, 982-91	25.5	145
101	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, 603-25	3.1	143
100	Distinct roles of the cortical layers of area V1 in figure-ground segregation. *Current Biology*, **2013**, 23, 2121-9	6.3	126
99	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, 11031-6	11.5	111
98	Chronic multiunit recordings in behaving animals: advantages and limitations. *Progress in Brain Research*, **2005**, 147, 263-82	2.9	110
97	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, 9136-41	11.5	104
96	Automatic spread of attentional response modulation along Gestalt criteria in primary visual cortex. *Nature Neuroscience*, **2011**, 14, 1243-4	25.5	104
95	Basic neuroscience research with nonhuman primates: a small but indispensable component of biomedical research. *Neuron*, **2014**, 82, 1200-4	13.9	103
94	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, 423-42	2.6	98
93	Control of synaptic plasticity in deep cortical networks. *Nature Reviews Neuroscience*, **2018**, 19, 166-180	13.5	96
92	Layer-specificity in the effects of attention and working memory on activity in primary visual cortex. *Nature Communications*, **2017**, 8, 13804	17.4	89
91	The brain's router: a cortical network model of serial processing in the primate brain. *PLoS Computational Biology*, **2010**, 6, e1000765	5	88

90	Different processing phases for features, figures, and selective attention in the primary visual cortex. *Neuron*, **2007**, 56, 785-92	13.9	88
89	A gradual spread of attention during mental curve tracing. *Perception & Psychophysics*, **2003**, 65, 1136-44		80
88	Detecting connectedness. *Cerebral Cortex*, **1998**, 8, 385-96	5.1	80
87	Early Visual Cortex as a Multiscale Cognitive Blackboard. *Annual Review of Vision Science*, **2016**, 2, 131-151	8.2	71
86	The representation of erroneously perceived stimuli in the primary visual cortex. *Neuron*, **2001**, 31, 853-63	13.9	68
85	Additive effects of attention and stimulus contrast in primary visual cortex. *Cerebral Cortex*, **2009**, 19, 2970-81	5.1	66
84	Attention lights up new object representations before the old ones fade away. *Journal of Neuroscience*, **2006**, 26, 138-42	6.6	65
83	The human Turing machine: a neural framework for mental programs. *Trends in Cognitive Sciences*, **2011**, 15, 293-300	14	62
82	Modulation of the contrast response function by electrical microstimulation of the macaque frontal eye field. *Journal of Neuroscience*, **2009**, 29, 10683-94	6.6	61
81	Incremental grouping of image elements in vision. *Attention, Perception, and Psychophysics*, **2011**, 73, 2542-72	2	60
80	Matching of visual input to only one item at any one time. *Psychological Research*, **2009**, 73, 317-26	2.5	60
79	Orientation-tuned surround suppression in mouse visual cortex. *Journal of Neuroscience*, **2014**, 34, 9290-304	6.6	59
78	Boundary assignment in a recurrent network architecture. *Vision Research*, **2007**, 47, 1153-65	2.1	59
77	Variance misperception explains illusions of confidence in simple perceptual decisions. *Consciousness and Cognition*, **2014**, 27, 246-53	2.6	56
76	Subtask sequencing in the primary visual cortex. *Proceedings of the National Academy of Sciences of the United States of America*, **2003**, 100, 5467-72	11.5	55
75	The Effects of Context and Attention on Spiking Activity in Human Early Visual Cortex. *PLoS Biology* , **2016**, 14, e1002420	9.7	53
74	Distinct Feedforward and Feedback Effects of Microstimulation in Visual Cortex Reveal Neural Mechanisms of Texture Segregation. *Neuron*, **2017**, 95, 209-220.e3	13.9	52
73	3D printing and modelling of customized implants and surgical guides for non-human primates. *Journal of Neuroscience Methods*, **2017**, 286, 38-55	3	52

72	Separable codes for attention and luminance contrast in the primary visual cortex. *Journal of Neuroscience*, **2010**, 30, 12701-11	6.6	49
71	Remembered but unused: the accessory items in working memory that do not guide attention. *Journal of Cognitive Neuroscience*, **2009**, 21, 1081-91	3.1	49
70	Noise correlations have little influence on the coding of selective attention in area V1. *Cerebral Cortex*, **2009**, 19, 543-53	5.1	48
69	Shape perception via a high-channel-count neuroprosthesis in monkey visual cortex. *Science*, **2020**, 370, 1191-1196	33.3	48
68	Ocular dominance in extrastriate cortex of strabismic amblyopic cats. *Vision Research*, **2002**, 42, 29-39	2.1	47
67	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, 6467-72	11.5	46
66	In vivo two-photon Ca2+ imaging reveals selective reward effects on stimulus-specific assemblies in mouse visual cortex. *Journal of Neuroscience*, **2013**, 33, 11540-55	6.6	45
65	Interactions between higher and lower visual areas improve shape selectivity of higher level neurons-explaining crowding phenomena. *Brain Research*, **2007**, 1157, 167-76	3.7	44
64	Texture Segregation Causes Early Figure Enhancement and Later Ground Suppression in Areas V1 and V4 of Visual Cortex. *Cerebral Cortex*, **2016**, 26, 3964-76	5.1	43
63	The effects of pair-wise and higher order correlations on the firing rate of a post-synaptic neuron. *Neural Computation*, **2000**, 12, 153-79	2.9	40
62	The spatial profile of visual attention in mental curve tracing. *Vision Research*, **2001**, 41, 2569-80	2.1	38
61	How attention can create synaptic tags for the learning of working memories in sequential tasks. *PLoS Computational Biology*, **2015**, 11, e1004060	5	36
60	Learning of anticipatory responses in single neurons of the human medial temporal lobe. *Nature Communications*, **2015**, 6, 8556	17.4	32
59	Slow brain oscillations of sleep, resting state, and vigilance. *Progress in Brain Research*, **2011**, 193, 3-15	2.9	32
58	Task-relevant and accessory items in working memory have opposite effects on activity in extrastriate cortex. *Journal of Neuroscience*, **2012**, 32, 17003-11	6.6	31
57	Elemental operations in vision. *Trends in Cognitive Sciences*, **2005**, 9, 226-33	14	30
56	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, 12712-7	11.5	29
55	Temporal constraints on the grouping of contour segments into spatially extended objects. *Vision Research*, **1999**, 39, 1509-29	2.1	29

54	The Formation of Hierarchical Decisions in the Visual Cortex. *Neuron*, **2015**, 87, 1344-1356	13.9	27
53	Decision making during the psychological refractory period. *Current Biology*, **2012**, 22, 1795-9	6.3	26
52	Belief states as a framework to explain extra-retinal influences in visual cortex. *Current Opinion in Neurobiology*, **2015**, 32, 45-52	7.6	23
51	A growth-cone model for the spread of object-based attention during contour grouping. *Current Biology*, **2014**, 24, 2869-77	6.3	23
50	Neuronal activity in the visual cortex reveals the temporal order of cognitive operations. *Journal of Neuroscience*, **2010**, 30, 16293-303	6.6	21
49	Time course of attentional modulation in the frontal eye field during curve tracing. *Journal of Neurophysiology*, **2009**, 101, 1813-22	3.2	21
48	Working memory accuracy for multiple targets is driven by reward expectation and stimulus contrast with different time-courses. *Scientific Reports*, **2017**, 7, 9082	4.9	19
47	Robot Companions for Citizens. *Procedia Computer Science*, **2011**, 7, 47-51	1.6	18
46	Solutions for the binding problem. *Zeitschrift Fur Naturforschung - Section C Journal of Biosciences*, **1998**, 53, 691-715	1.7	18
45	A learning rule that explains how rewards teach attention. *Visual Cognition*, **2015**, 23, 179-205	1.8	17
44	Frontal eye field microstimulation induces task-dependent gamma oscillations in the lateral intraparietal area. *Journal of Neurophysiology*, **2012**, 108, 1392-402	3.2	17
43	Figure-ground perception in the awake mouse and neuronal activity elicited by figure-ground stimuli in primary visual cortex. *Scientific Reports*, **2018**, 8, 17800	4.9	16
42	Location and color biases have different influences on selective attention. *Vision Research*, **2009**, 49, 996-1005	2.1	15
41	Reflections on the past two decades of neuroscience. *Nature Reviews Neuroscience*, **2020**, 21, 524-534	13.5	15
40	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	6.6	14
39	The influence of attention and reward on the learning of stimulus-response associations. *Scientific Reports*, **2017**, 7, 9036	4.9	14
38	Surfing the attentional waves during visual curve tracing: evidence from the sustained posterior contralateral negativity. *Psychophysiology*, **2011**, 48, 1510-1516	4.1	14
37	Inhibitory interneuron classes express complementary AMPA-receptor patterns in macaque primary visual cortex. *Journal of Neuroscience*, **2014**, 34, 6303-15	6.6	13

36	Reinforcement Learning of Linking and Tracing Contours in Recurrent Neural Networks. *PLoS Computational Biology*, **2015**, 11, e1004489	5	13
35	A monocular, unconscious form of visual attention. *Journal of Vision*, **2010**, 10, 17.1-23	0.4	13
34	Parallel and serial grouping of image elements in visual perception. *Journal of Experimental Psychology: Human Perception and Performance*, **2010**, 36, 1443-1459	2.6	13
33	The time course of perceptual grouping in natural scenes. *Psychological Science*, **2012**, 23, 1482-9	7.9	13
32	Visual information transfer across eye movements in the monkey. *Vision Research*, **2004**, 44, 2901-17	2.1	12
31	Precise timing of neuronal discharges within and across cortical areas: implications for synaptic transmission. *Journal of Physiology (Paris)*, **1996**, 90, 221-2		12
30	Neuroscience. Attention--voluntary control of brain cells. *Science*, **2011**, 332, 1512-3	33.3	11
29	Suppressive lateral interactions at parafoveal representations in primary visual cortex. *Journal of Neuroscience*, **2010**, 30, 12745-58	6.6	10
28	Serial grouping of 2D-image regions with object-based attention in humans. *ELife*, **2016**, 5,	8.9	9
27	Microstimulation of area V4 has little effect on spatial attention and on perception of phosphenes evoked in area V1. *Journal of Neurophysiology*, **2015**, 113, 730-9	3.2	8
26	Further evidence for the spread of attention during contour grouping: a reply to Crundall, Dewhurst, and Underwood (2008). *Attention, Perception, and Psychophysics*, **2010**, 72, 849-62	2	7
25	Theta-phase dependent neuronal coding during sequence learning in human single neurons. *Nature Communications*, **2021**, 12, 4839	17.4	7
24	Paying Attention to the Cortical Layers. *Neuron*, **2017**, 93, 9-11	13.9	5
23	Serial, parallel and hierarchical decision making in primates. *ELife*, **2017**, 6,	8.9	5
22	Contextual effects on perceived contrast: figure-ground assignment and orientation contrast. *Journal of Vision*, **2015**, 15, 2	0.4	5
21	Population receptive fields in nonhuman primates from whole-brain fMRI and large-scale neurophysiology in visual cortex. *ELife*, **2021**, 10,	8.9	5
20	The essential role of recurrent processing for figure-ground perception in mice. *Science Advances*, **2021**, 7,	14.3	5
19	Mouse visual cortex contains a region of enhanced spatial resolution. *Nature Communications*, **2021** , 12, 4029	17.4	4

18	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, 6784-5	11.5	3
17	Interocularly merged face percepts eliminate binocular rivalry. *Scientific Reports*, **2017**, 7, 7585	4.9	3
16	**2015**,		3
15	Object Selection by Automatic Spreading of Top-Down Attentional Signals in V1. *Journal of Neuroscience*, **2020**, 40, 9250-9259	6.6	3
14	Binocular rivalry outside the scope of awareness. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 8352-4	11.5	2
13	Reply to lCan neocortical feedback alter the sign of plasticity?U *Nature Reviews Neuroscience*, **2018**, 19, 637-638	13.5	2
12	Surface reconstruction, figure-ground modulation, and border-ownership. *Cognitive Neuroscience*, **2013**, 4, 50-2	1.7	2
11	A Quantitative Comparison of Inhibitory Interneuron Size and Distribution between Mouse and Macaque V1, Using Calcium-Binding Proteins. *Cerebral Cortex Communications*, **2020**, 1, tgaa068	1.9	2
10	Neuroscience: Out of Sight but Not Out of Mind. *Current Biology*, **2017**, 27, R269-R271	6.3	1
9	Learning a New Selection Rule in Visual and Frontal Cortex. *Cerebral Cortex*, **2016**, 26, 3611-26	5.1	1
8	Luminance contrast has little influence on the spread of object-based attention. *Vision Research*, **2013**, 85, 90-103	2.1	1
7	A field of dreams. *Trends in Cognitive Sciences*, **2007**, 11, 6-7	14	1
6	Envisioning the reward. *Neuron*, **2006**, 50, 188-90	13.9	1
5	Electrochemical measurement of acetylcholine in the dorsolateral prefrontal cortex: A technical report		1
4	1024-channel electrophysiological recordings in macaque V1 and V4 during resting state.. *Scientific Data*, **2022**, 9, 77	8.2	1
3	Optogenetics: eye movements at light speed. *Current Biology*, **2012**, 22, R804-6	6.3	
2	Why do schizophrenic patients hallucinate?. *Behavioral and Brain Sciences*, **2003**, 26, 101-103	0.9	
1	Which brain mechanism cannot count beyond four?. *Behavioral and Brain Sciences*, **2001**, 24, 142-143	0.9	