Matt Botvinick

List of Publications by Citations

99 papers	28,356 citations	57 h-index	106 g-index
106 ext. papers	32,959 ext. citations	11.7 avg, IF	7.49 L-index

#	Paper	IF	Citations
99	Conflict monitoring and cognitive control. *Psychological Review*, **2001**, 108, 624-52	6.3	4938
98	Anterior cingulate cortex, error detection, and the online monitoring of performance. *Science*, **1998**, 280, 747-9	33.3	2714
97	Conflict monitoring and anterior cingulate cortex: an update. *Trends in Cognitive Sciences*, **2004**, 8, 539-46	14	2569
96	Rubber hands ‘feel’ touch that eyes see. *Nature*, **1998**, 391, 756	50.4	2430
95	Conflict monitoring versus selection-for-action in anterior cingulate cortex. *Nature*, **1999**, 402, 179-81	50.4	1620
94	The expected value of control: an integrative theory of anterior cingulate cortex function. *Neuron*, **2013**, 79, 217-40	13.9	1160
93	Machine learning classifiers and fMRI: a tutorial overview. *NeuroImage*, **2009**, 45, S199-209	7.9	1128
92	The neural basis of error detection: conflict monitoring and the error-related negativity. *Psychological Review*, **2004**, 111, 931-959	6.3	593
91	Anterior cingulate cortex, conflict monitoring, and levels of processing. *NeuroImage*, **2001**, 14, 1302-8	7.9	574
90	Decision making and the avoidance of cognitive demand. *Journal of Experimental Psychology: General*, **2010**, 139, 665-82	4.7	531
89	Neuroscience-Inspired Artificial Intelligence. *Neuron*, **2017**, 95, 245-258	13.9	526
88	Motivation and cognitive control: from behavior to neural mechanism. *Annual Review of Psychology*, **2015**, 66, 83-113	26.1	445
87	The contribution of the anterior cingulate cortex to executive processes in cognition. *Reviews in the Neurosciences*, **1999**, 10, 49-57	4.7	440
86	Viewing facial expressions of pain engages cortical areas involved in the direct experience of pain. *NeuroImage*, **2005**, 25, 312-9	7.9	439
85	Rats and humans can optimally accumulate evidence for decision-making. *Science*, **2013**, 340, 95-8	33.3	378
84	Toward a Rational and Mechanistic Account of Mental Effort. *Annual Review of Neuroscience*, **2017**, 40, 99-124	17	361
83	Hierarchically organized behavior and its neural foundations: a reinforcement learning perspective. *Cognition*, **2009**, 113, 262-280	3.5	356

82	Hierarchical models of behavior and prefrontal function. *Trends in Cognitive Sciences*, **2008**, 12, 201-8	14	342
81	Letting structure emerge: connectionist and dynamical systems approaches to cognition. *Trends in Cognitive Sciences*, **2010**, 14, 348-56	14	324
80	The hippocampus as a predictive map. *Nature Neuroscience*, **2017**, 20, 1643-1653	25.5	309
79	Dorsal anterior cingulate cortex and the value of control. *Nature Neuroscience*, **2016**, 19, 1286-91	25.5	282
78	Neural representations of events arise from temporal community structure. *Nature Neuroscience*, **2013**, 16, 486-92	25.5	275
77	Doing without schema hierarchies: a recurrent connectionist approach to normal and impaired routine sequential action. *Psychological Review*, **2004**, 111, 395-429	6.3	262
76	Short-term memory for serial order: a recurrent neural network model. *Psychological Review*, **2006**, 113, 201-33	6.3	235
75	Effort discounting in human nucleus accumbens. *Cognitive, Affective and Behavioral Neuroscience*, **2009**, 9, 16-27	3.5	225
74	Prefrontal cortex as a meta-reinforcement learning system. *Nature Neuroscience*, **2018**, 21, 860-868	25.5	211
73	Prefrontal cortex, cognitive control, and the registration of decision costs. *Proceedings of the National Academy of Sciences of the United States of America*, **2010**, 107, 7922-6	11.5	187
72	Neural scene representation and rendering. *Science*, **2018**, 360, 1204-1210	33.3	178
71	Reinforcement Learning, Fast and Slow. *Trends in Cognitive Sciences*, **2019**, 23, 408-422	14	171
70	A labor/leisure tradeoff in cognitive control. *Journal of Experimental Psychology: General*, **2014**, 143, 131-41	4.7	170
69	Anterior cingulate engagement in a foraging context reflects choice difficulty, not foraging value. *Nature Neuroscience*, **2014**, 17, 1249-54	25.5	157
68	Complementary learning systems within the hippocampus: a neural network modelling approach to reconciling episodic memory with statistical learning. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2017**, 372,	5.8	154
67	The successor representation in human reinforcement learning. *Nature Human Behaviour*, **2017**, 1, 680-692	12.8	153
66	The computational and neural basis of cognitive control: charted territory and new frontiers. *Cognitive Science*, **2014**, 38, 1249-85	2.2	151
65	Planning as inference. *Trends in Cognitive Sciences*, **2012**, 16, 485-8	14	129

64	Goal-directed decision making as probabilistic inference: a computational framework and potential neural correlates. *Psychological Review*, **2012**, 119, 120-54	6.3	128
63	Predictive representations can link model-based reinforcement learning to model-free mechanisms. *PLoS Computational Biology*, **2017**, 13, e1005768	5	127
62	A neural signature of hierarchical reinforcement learning. *Neuron*, **2011**, 71, 370-9	13.9	126
61	Statistical learning of temporal community structure in the hippocampus. *Hippocampus*, **2016**, 26, 3-8	3.5	125
60	A distributional code for value in dopamine-based reinforcement learning. *Nature*, **2020**, 577, 671-675	50.4	119
59	Neuroscience. Probing the neural basis of body ownership. *Science*, **2004**, 305, 782-3	33.3	119
58	Information mapping with pattern classifiers: a comparative study. *NeuroImage*, **2011**, 56, 476-96	7.9	104
57	Pain in the ACC?. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, E2474-5	11.5	104
56	Dorsal hippocampus contributes to model-based planning. *Nature Neuroscience*, **2017**, 20, 1269-1276	25.5	101
55	Cingulate cortex: diverging data from humans and monkeys. *Trends in Neurosciences*, **2009**, 32, 566-74	13.3	98
54	Toward a universal decoder of linguistic meaning from brain activation. *Nature Communications*, **2018**, 9, 963	17.4	97
53	Model-based hierarchical reinforcement learning and human action control. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2014**, 369,	5.8	82
52	From numerosity to ordinal rank: a gain-field model of serial order representation in cortical working memory. *Journal of Neuroscience*, **2007**, 27, 8636-42	6.6	76
51	Neural and behavioral evidence for an intrinsic cost of self-control. *PLoS ONE*, **2013**, 8, e72626	3.7	71
50	Multilevel structure in behaviour and in the brain: a model of Fuster's hierarchy. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2007**, 362, 1615-26	5.8	70
49	Mental labour. *Nature Human Behaviour*, **2018**, 2, 899-908	12.8	65
48	Anticipation of cognitive demand during decision-making. *Psychological Research*, **2009**, 73, 835-42	2.5	63
47	Hierarchical motor control in mammals and machines. *Nature Communications*, **2019**, 10, 5489	17.4	61

46	Optimal behavioral hierarchy. *PLoS Computational Biology*, **2014**, 10, e1003779	5	60
45	Errors of interpretation and modeling: a reply to Grinband et al. *NeuroImage*, **2011**, 57, 316-9	7.9	60
44	Resolving conflict: a response to Martin and Cheng (2006). *Psychonomic Bulletin and Review*, **2006**, 13, 402-8; discussion 409-11	4.1	58
43	Hierarchical learning induces two simultaneous, but separable, prediction errors in human basal ganglia. *Journal of Neuroscience*, **2013**, 33, 5797-805	6.6	57
42	Reinforcement learning, efficient coding, and the statistics of natural tasks. *Current Opinion in Behavioral Sciences*, **2015**, 5, 71-77	4	52
41	Reduced model-based decision-making in schizophrenia. *Journal of Abnormal Psychology*, **2016**, 125, 777-787	7	49
40	A comparative evaluation of off-the-shelf distributed semantic representations for modelling behavioural data. *Cognitive Neuropsychology*, **2016**, 33, 175-90	2.3	48
39	Distraction and action slips in an everyday task: evidence for a dynamic representation of task context. *Psychonomic Bulletin and Review*, **2005**, 12, 1011-7	4.1	47
38	Distinguishing grammatical constructions with fMRI pattern analysis. *Brain and Language*, **2012**, 123, 174-82	2.9	45
37	Dorsal anterior cingulate and ventromedial prefrontal cortex have inverse roles in both foraging and economic choice. *Cognitive, Affective and Behavioral Neuroscience*, **2016**, 16, 1127-1139	3.5	39
36	Deep Reinforcement Learning and Its Neuroscientific Implications. *Neuron*, **2020**, 107, 603-616	13.9	37
35	The intrinsic cost of cognitive control. *Behavioral and Brain Sciences*, **2013**, 36, 697-8; discussion 707-26	0.9	36
34	Regularization in short-term memory for serial order. *Journal of Experimental Psychology: Learning Memory and Cognition*, **2005**, 31, 351-8	2.2	35
33	Widespread temporal coding of cognitive control in the human prefrontal cortex. *Nature Neuroscience*, **2019**, 22, 1883-1891	25.5	32
32	Irrational time allocation in decision-making. *Proceedings of the Royal Society B: Biological Sciences*, **2016**, 283,	4.4	30
31	Using Wikipedia to learn semantic feature representations of concrete concepts in neuroimaging experiments. *Artificial Intelligence*, **2013**, 194, 240-252	3.6	28
30	Toward an integrated account of object and action selection: a computational analysis and empirical findings from reaching-to-grasp and tool-use. *Neuropsychologia*, **2009**, 47, 671-83	3.2	28
29	Generating text from functional brain images. *Frontiers in Human Neuroscience*, **2011**, 5, 72	3.3	25

28	Evidence integration in model-based tree search. *Proceedings of the National Academy of Sciences of the United States of America*, **2015**, 112, 11708-13	11.5	22
27	Effects of domain-specific knowledge on memory for serial order. *Cognition*, **2005**, 97, 135-51	3.5	21
26	Representing task context: proposals based on a connectionist model of action. *Psychological Research*, **2002**, 66, 298-311	2.5	18
25	Neural representation of reward probability: evidence from the illusion of control. *Journal of Cognitive Neuroscience*, **2013**, 25, 852-61	3.1	16
24	Conflict over cingulate cortex: Between-species differences in cingulate may support enhanced cognitive flexibility in humans. *Brain, Behavior and Evolution*, **2010**, 75, 239-40	1.5	16
23	An analysis of immediate serial recall performance in a macaque. *Animal Cognition*, **2009**, 12, 671-8	3.1	16
22	Subgoal- and Goal-related Reward Prediction Errors in Medial Prefrontal Cortex. *Journal of Cognitive Neuroscience*, **2019**, 31, 8-23	3.1	16
21	Value Representations in the Rodent Orbitofrontal Cortex Drive Learning, not Choice		15
20	Goal-directed decision making in prefrontal cortex: A computational framework. *Advances in Neural Information Processing Systems*, **2009**, 21, 169-176	2.2	13
19	Dissociable neural mechanisms track evidence accumulation for selection of attention versus action. *Nature Communications*, **2018**, 9, 2485	17.4	13
18	Building machines that learn and think for themselves. *Behavioral and Brain Sciences*, **2017**, 40, e255	0.9	11
17	Empirical and computational support for context-dependent representations of serial order: reply to Bowers, Damian, and Davis (2009). *Psychological Review*, **2009**, 116, 998-1002	6.3	8
16	Predictive representations can link model-based reinforcement learning to model-free mechanisms		8
15	The hippocampus as a predictive map		8
14	Flexible modulation of sequence generation in the entorhinal-hippocampal system. *Nature Neuroscience*, **2021**, 24, 851-862	25.5	8
13	Commentary: why I am not a dynamicist. *Topics in Cognitive Science*, **2012**, 4, 78-83; discussion 94-102	2.5	7
12	Unsupervised deep learning identifies semantic disentanglement in single inferotemporal face patch neurons. *Nature Communications*, **2021**, 12, 6456	17.4	5
11	Motivated action: new light on prefrontal-neuromodulatory circuits. *Current Biology*, **2013**, 23, R161-3	6.3	4

List of Publications

10	Identifying Model-Based and Model-Free Patterns in Behavior on Multi-Step Tasks		4
9	Uncovering a missing link in anterior cingulate research. *Neuron*, **2015**, 85, 455-7	13.9	3
8	Simitar: Simplified Searching of Statistically Significant Similarity Structure **2013**,		3
7	Prefrontal Cortex as a Meta-Reinforcement Learning System		3
6	Dorsal hippocampus contributes to model-based planning		3
5	Generative replay for compositional visual understanding in the prefrontal-hippocampal circuit		3
4	Neurocognitive models of sense-making. *Biologically Inspired Cognitive Architectures*, **2014**, 8, 82-89		2
3	Neural evidence for the successor representation in choice evaluation		2
2	Human dorsal anterior cingulate neurons signal conflict by amplifying task-relevant information		1
1	Meta-learning, social cognition and consciousness in brains and machines. *Neural Networks*, **2022**, 145, 80-89	9.1	0