Matt Botvinick

List of Publications by Year
in descending order

93 papers	36,867 citations	19636 61 h-index	40954 93 g-index
106 all docs	106 docs citations	106 times ranked	23140 citing authors

#	Article	IF	Citations
1	Conflict monitoring and cognitive control.. Psychological Review, 2001, 108, 624-652.	2.7	5,904
2	Rubber hands â€˜feelâ€™ touch that eyes see. Nature, 1998, 391, 756-756.	13.7	3,316
3	Conflict monitoring and anterior cingulate cortex: an update. Trends in Cognitive Sciences, 2004, 8, 539-546.	4.0	2,998
4	Anterior Cingulate Cortex, Error Detection, and the Online Monitoring of Performance. Science, 1998, 280, 747-749.	6.0	2,996
5	Conflict monitoring versus selection-for-action in anterior cingulate cortex. Nature, 1999, 402, 179-181.	13.7	1,820
6	The Expected Value of Control: An Integrative Theory of Anterior Cingulate Cortex Function. Neuron, 2013, 79, 217-240.	3.8	1,585
7	Machine learning classifiers and fMRI: A tutorial overview. NeuroImage, 2009, 45, S199-S209.	2.1	1,425
8	Neuroscience-Inspired Artificial Intelligence. Neuron, 2017, 95, 245-258.	3.8	934
9	Decision making and the avoidance of cognitive demand.. Journal of Experimental Psychology: General, 2010, 139, 665-682.	1.5	742
10	The Neural Basis of Error Detection: Conflict Monitoring and the Error-Related Negativity.. Psychological Review, 2004, 111, 931-959.	2.7	704
11	Anterior Cingulate Cortex, Conflict Monitoring, and Levels of Processing. NeuroImage, 2001, 14, 1302-1308.	2.1	628
12	Motivation and Cognitive Control: From Behavior to Neural Mechanism. Annual Review of Psychology, 2015, 66, 83-113.	9.9	618
13	The hippocampus as a predictive map. Nature Neuroscience, 2017, 20, 1643-1653.	7.1	593
14	Toward a Rational and Mechanistic Account of Mental Effort. Annual Review of Neuroscience, 2017, 40, 99-124.	5.0	590
15	The Contribution of the Anterior Cingulate Cortex to Executive Processes in Cognition. Reviews in the Neurosciences, 1999, 10, 49-57.	1.4	528
16	Rats and Humans Can Optimally Accumulate Evidence for Decision-Making. Science, 2013, 340, 95-98.	6.0	526
17	Anterior cingulate and prefrontal cortex: who's in control?. Nature Neuroscience, 2000, 3, 421-423.	7.1	519
18	Viewing facial expressions of pain engages cortical areas involved in the direct experience of pain. NeuroImage, 2005, 25, 312-319.	2.1	489

#	Article	IF	Citations
19	Hierarchically organized behavior and its neural foundations: A reinforcement learning perspective. Cognition, 2009, 113, 262-280.	1.1	474
20	Dorsal anterior cingulate cortex and the value of control. Nature Neuroscience, 2016, 19, 1286-1291.	7.1	424
21	Letting structure emerge: connectionist and dynamical systems approaches to cognition. Trends in Cognitive Sciences, 2010, 14, 348-356.	4.0	406
22	Neural representations of events arise from temporal community structure. Nature Neuroscience, 2013, 16, 486-492.	7.1	398
23	Hierarchical models of behavior and prefrontal function. Trends in Cognitive Sciences, 2008, 12, 201-208.	4.0	397
24	Prefrontal cortex as a meta-reinforcement learning system. Nature Neuroscience, 2018, 21, 860-868.	7.1	378
25	Reinforcement Learning, Fast and Slow. Trends in Cognitive Sciences, 2019, 23, 408-422.	4.0	364
26	Doing Without Schema Hierarchies: A Recurrent Connectionist Approach to Normal and Impaired Routine Sequential Action.. Psychological Review, 2004, 111, 395-429.	2.7	319
27	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, 20160049.	1.8	305
28	Short-term memory for serial order: A recurrent neural network model.. Psychological Review, 2006, 113, 201-233.	2.7	293
29	Neural scene representation and rendering. Science, 2018, 360, 1204-1210.	6.0	285
30	Effort discounting in human nucleus accumbens. Cognitive, Affective and Behavioral Neuroscience, 2009, 9, 16-27.	1.0	273
31	A distributional code for value in dopamine-based reinforcement learning. Nature, 2020, 577, 671-675.	13.7	262
32	The successor representation in human reinforcement learning. Nature Human Behaviour, 2017, 1, 680-692.	6.2	250
33	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, 7922-7926.	3.3	240
34	Statistical learning of temporal community structure in the hippocampus. Hippocampus, 2016, 26, 3-8.	0.9	220
35	Planning as inference. Trends in Cognitive Sciences, 2012, 16, 485-488.	4.0	219
36	Anterior cingulate engagement in a foraging context reflects choice difficulty, not foraging value. Nature Neuroscience, 2014, 17, 1249-1254.	7.1	217

#	Article	IF	Citations
37	A labor/leisure tradeoff in cognitive control.. Journal of Experimental Psychology: General, 2014, 143, 131-141.	1.5	212
38	The Computational and Neural Basis of Cognitive Control: Charted Territory and New Frontiers. Cognitive Science, 2014, 38, 1249-1285.	0.8	206
39	Predictive representations can link model-based reinforcement learning to model-free mechanisms. PLoS Computational Biology, 2017, 13, e1005768.	1.5	203
40	Toward a universal decoder of linguistic meaning from brain activation. Nature Communications, 2018, 9, 963.	5.8	178
41	Dorsal hippocampus contributes to model-based planning. Nature Neuroscience, 2017, 20, 1269-1276.	7.1	177
42	Goal-directed decision making as probabilistic inference: A computational framework and potential neural correlates.. Psychological Review, 2012, 119, 120-154.	2.7	157
43	A Neural Signature of Hierarchical Reinforcement Learning. Neuron, 2011, 71, 370-379.	3.8	155
44	Hierarchical motor control in mammals and machines. Nature Communications, 2019, 10, 5489.	5.8	151
45	NEUROSCIENCE: Probing the Neural Basis of Body Ownership. Science, 2004, 305, 782-783.	6.0	140
46	Mental labour. Nature Human Behaviour, 2018, 2, 899-908.	6.2	140
47	Pain in the ACC?. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E2474-5.	3.3	136
48	Information mapping with pattern classifiers: A comparative study. NeuroImage, 2011, 56, 476-496.	2.1	126
49	Cingulate cortex: Diverging data from humans and monkeys. Trends in Neurosciences, 2009, 32, 566-574.	4.2	119
50	Model-based hierarchical reinforcement learning and human action control. Philosophical Transactions of the Royal Society B: Biological Sciences, 2014, 369, 20130480.	1.8	104
51	Deep Reinforcement Learning and Its Neuroscientific Implications. Neuron, 2020, 107, 603-616.	3.8	102
52	From Numerosity to Ordinal Rank: A Gain-Field Model of Serial Order Representation in Cortical Working Memory. Journal of Neuroscience, 2007, 27, 8636-8642.	1.7	97
53	Neural and Behavioral Evidence for an Intrinsic Cost of Self-Control. PLoS ONE, 2013, 8, e72626.	1.1	92
54	Optimal Behavioral Hierarchy. PLoS Computational Biology, 2014, 10, e1003779.	1.5	91

#	Article	IF	Citations
55	A comparative evaluation of off-the-shelf distributed semantic representations for modelling behavioural data. Cognitive Neuropsychology, 2016, 33, 175-190.	0.4	87
56	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, 1615-1626.	1.8	86
57	Distinguishing grammatical constructions with fMRI pattern analysis. Brain and Language, 2012, 123, 174-182.	0.8	86
58	Reduced model-based decision-making in schizophrenia.. Journal of Abnormal Psychology, 2016, 125, 777-787.	2.0	85
59	Widespread temporal coding of cognitive control in the human prefrontal cortex. Nature Neuroscience, 2019, 22, 1883-1891.	7.1	77
60	Anticipation of cognitive demand during decision-making. Psychological Research, 2009, 73, 835-842.	1.0	76
61	Errors of interpretation and modeling: A reply to Grinband et al.. NeuroImage, 2011, 57, 316-319.	2.1	73
62	Hierarchical Learning Induces Two Simultaneous, But Separable, Prediction Errors in Human Basal Ganglia. Journal of Neuroscience, 2013, 33, 5797-5805.	1.7	72
63	Resolving conflict: A response to Martin and Cheng (2006). Psychonomic Bulletin and Review, 2006, 13, 402-408.	1.4	67
64	Distraction and action slips in an everyday task: Evidence for a dynamic representation of task context. Psychonomic Bulletin and Review, 2005, 12, 1011-1017.	1.4	62
65	Reinforcement learning, efficient coding, and the statistics of natural tasks. Current Opinion in Behavioral Sciences, 2015, 5, 71-77.	2.0	61
66	The intrinsic cost of cognitive control. Behavioral and Brain Sciences, 2013, 36, 697-698.	0.4	53
67	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.	1.0	53
68	Irrational time allocation in decision-making. Proceedings of the Royal Society B: Biological Sciences, 2016, 283, 20151439.	1.2	44
69	Using Wikipedia to learn semantic feature representations of concrete concepts in neuroimaging experiments. Artificial Intelligence, 2013, 194, 240-252.	3.9	42
70	Regularization in Short-Term Memory for Serial Order.. Journal of Experimental Psychology: Learning Memory and Cognition, 2005, 31, 351-358.	0.7	40
71	Unsupervised deep learning identifies semantic disentanglement in single inferotemporal face patch neurons. Nature Communications, 2021, 12, 6456.	5.8	40
72	Flexible modulation of sequence generation in the entorhinalâ€“hippocampal system. Nature Neuroscience, 2021, 24, 851-862.	7.1	38

#	Article	IF	Citations
73	Evidence integration in model-based tree search. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 11708-11713.	3.3	37
74	Intuitive physics learning in a deep-learning model inspired by developmental psychology. Nature Human Behaviour, 2022, 6, 1257-1267.	6.2	35
75	Generating Text from Functional Brain Images. Frontiers in Human Neuroscience, 2011, 5, 72.	1.0	33
76	Dissociable neural mechanisms track evidence accumulation for selection of attention versus action. Nature Communications, 2018, 9, 2485.	5.8	30
77	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, 671-683.	0.7	29
78	Effects of domain-specific knowledge on memory for serial order. Cognition, 2005, 97, 135-151.	1.1	22
79	An analysis of immediate serial recall performance in a macaque. Animal Cognition, 2009, 12, 671-678.	0.9	22
80	Subgoal- and Goal-related Reward Prediction Errors in Medial Prefrontal Cortex. Journal of Cognitive Neuroscience, 2019, 31, 8-23.	1.1	22
81	Human-centred mechanism design with Democratic AI. Nature Human Behaviour, 2022, 6, 1398-1407.	6.2	22
82	Representing task context: proposals based on a connectionist model of action. Psychological Research, 2002, 66, 298-311.	1.0	21
83	Neural Representation of Reward Probability: Evidence from the Illusion of Control. Journal of Cognitive Neuroscience, 2013, 25, 852-861.	1.1	19
84	Building machines that learn and think for themselves. Behavioral and Brain Sciences, 2017, 40, e255.	0.4	17
85	Conflict over Cingulate Cortex: Between-Species Differences in Cingulate May Support Enhanced Cognitive Flexibility in Humans. Brain, Behavior and Evolution, 2010, 75, 239-240.	0.9	16
86	Meta-learning, social cognition and consciousness in brains and machines. Neural Networks, 2022, 145, 80-89.	3.3	15
87	Goal-directed decision making in prefrontal cortex: A computational framework. Advances in Neural Information Processing Systems, 2009, 21, 169-176.	2.8	13
88	Empirical and computational support for context-dependent representations of serial order: Reply to Bowers, Damian, and Davis (2009).. Psychological Review, 2009, 116, 998-1001.	2.7	9
89	Commentary: Why I Am Not a Dynamicist. Topics in Cognitive Science, 2012, 4, 78-83.	1.1	8
90	Motivated Action: New Light on Prefrontal-Neuromodulatory Circuits. Current Biology, 2013, 23, R161-R163.	1.8	5

#	Article	IF	Citations
91	Uncovering a Missing Link in Anterior Cingulate Research. Neuron, 2015, 85, 455-457.	3.8	5
92	Simitar: Simplified Searching of Statistically Significant Similarity Structure. , 2013, , .		4
93	Neurocognitive models of sense-making. Biologically Inspired Cognitive Architectures, 2014, 8, 82-89.	0.9	4