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	Meta-learning, social cognition and consciousness in brains and machines. Neural Networks, 2022, 145, 80-89.	3.3	15
2	Intuitive physics learning in a deep-learning model inspired by developmental psychology. Nature Human Behaviour, 2022, 6, 1257-1267.	6.2	35
3	Human-centred mechanism design with Democratic AI. Nature Human Behaviour, 2022, 6, 1398-1407.	6.2	22
4	Flexible modulation of sequence generation in the entorhinalâ€“hippocampal system. Nature Neuroscience, 2021, 24, 851-862.	7.1	38
5	Unsupervised deep learning identifies semantic disentanglement in single inferotemporal face patch neurons. Nature Communications, 2021, 12, 6456.	5.8	40
6	Deep Reinforcement Learning and Its Neuroscientific Implications. Neuron, 2020, 107, 603-616.	3.8	102
7	A distributional code for value in dopamine-based reinforcement learning. Nature, 2020, 577, 671-675.	13.7	262
8	Reinforcement Learning, Fast and Slow. Trends in Cognitive Sciences, 2019, 23, 408-422.	4.0	364
9	Hierarchical motor control in mammals and machines. Nature Communications, 2019, 10, 5489.	5.8	151
10	Widespread temporal coding of cognitive control in the human prefrontal cortex. Nature Neuroscience, 2019, 22, 1883-1891.	7.1	77
11	Subgoal- and Goal-related Reward Prediction Errors in Medial Prefrontal Cortex. Journal of Cognitive Neuroscience, 2019, 31, 8-23.	1.1	22
12	Toward a universal decoder of linguistic meaning from brain activation. Nature Communications, 2018, 9, 963.	5.8	178
13	Mental labour. Nature Human Behaviour, 2018, 2, 899-908.	6.2	140
14	Prefrontal cortex as a meta-reinforcement learning system. Nature Neuroscience, 2018, 21, 860-868.	7.1	378
15	Dissociable neural mechanisms track evidence accumulation for selection of attention versus action. Nature Communications, 2018, 9, 2485.	5.8	30
16	Neural scene representation and rendering. Science, 2018, 360, 1204-1210.	6.0	285
17	Toward a Rational and Mechanistic Account of Mental Effort. Annual Review of Neuroscience, 2017, 40, 99-124.	5.0	590
18	The hippocampus as a predictive map. Nature Neuroscience, 2017, 20, 1643-1653.	7.1	593

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19	The successor representation in human reinforcement learning. Nature Human Behaviour, 2017, 1, 680-692.	6.2	250
20	Neuroscience-Inspired Artificial Intelligence. Neuron, 2017, 95, 245-258.	3.8	934
21	Dorsal hippocampus contributes to model-based planning. Nature Neuroscience, 2017, 20, 1269-1276.	7.1	177
22	Building machines that learn and think for themselves. Behavioral and Brain Sciences, 2017, 40, e255.	0.4	17
23	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
24	Predictive representations can link model-based reinforcement learning to model-free mechanisms. PLoS Computational Biology, 2017, 13, e1005768.	1.5	203
25	Pain in the ACC?. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E2474-5.	3.3	136
26	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
27	Dorsal anterior cingulate cortex and the value of control. Nature Neuroscience, 2016, 19, 1286-1291.	7.1	424
28	Reduced model-based decision-making in schizophrenia.. Journal of Abnormal Psychology, 2016, 125, 777-787.	2.0	85
29	A comparative evaluation of off-the-shelf distributed semantic representations for modelling behavioural data. Cognitive Neuropsychology, 2016, 33, 175-190.	0.4	87
30	Statistical learning of temporal community structure in the hippocampus. Hippocampus, 2016, 26, 3-8.	0.9	220
31	Irrational time allocation in decision-making. Proceedings of the Royal Society B: Biological Sciences, 2016, 283, 20151439.	1.2	44
32	Uncovering a Missing Link in Anterior Cingulate Research. Neuron, 2015, 85, 455-457.	3.8	5
33	Reinforcement learning, efficient coding, and the statistics of natural tasks. Current Opinion in Behavioral Sciences, 2015, 5, 71-77.	2.0	61
34	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
35	Motivation and Cognitive Control: From Behavior to Neural Mechanism. Annual Review of Psychology, 2015, 66, 83-113.	9.9	618
36	Optimal Behavioral Hierarchy. PLoS Computational Biology, 2014, 10, e1003779.	1.5	91

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37	A labor/leisure tradeoff in cognitive control.. Journal of Experimental Psychology: General, 2014, 143, 131-141.	1.5	212
38	Model-based hierarchical reinforcement learning and human action control. Philosophical Transactions of the Royal Society B: Biological Sciences, 2014, 369, 20130480.	1.8	104
39	The Computational and Neural Basis of Cognitive Control: Charted Territory and New Frontiers. Cognitive Science, 2014, 38, 1249-1285.	0.8	206
40	Anterior cingulate engagement in a foraging context reflects choice difficulty, not foraging value. Nature Neuroscience, 2014, 17, 1249-1254.	7.1	217
41	Neurocognitive models of sense-making. Biologically Inspired Cognitive Architectures, 2014, 8, 82-89.	0.9	4
42	The Expected Value of Control: An Integrative Theory of Anterior Cingulate Cortex Function. Neuron, 2013, 79, 217-240.	3.8	1,585
43	Using Wikipedia to learn semantic feature representations of concrete concepts in neuroimaging experiments. Artificial Intelligence, 2013, 194, 240-252.	3.9	42
44	Hierarchical Learning Induces Two Simultaneous, But Separable, Prediction Errors in Human Basal Ganglia. Journal of Neuroscience, 2013, 33, 5797-5805.	1.7	72
45	Rats and Humans Can Optimally Accumulate Evidence for Decision-Making. Science, 2013, 340, 95-98.	6.0	526
46	Motivated Action: New Light on Prefrontal-Neuromodulatory Circuits. Current Biology, 2013, 23, R161-R163.	1.8	5
47	Neural representations of events arise from temporal community structure. Nature Neuroscience, 2013, 16, 486-492.	7.1	398
48	Simitar: Simplified Searching of Statistically Significant Similarity Structure. , 2013, , .		4
49	Neural Representation of Reward Probability: Evidence from the Illusion of Control. Journal of Cognitive Neuroscience, 2013, 25, 852-861.	1.1	19
50	The intrinsic cost of cognitive control. Behavioral and Brain Sciences, 2013, 36, 697-698.	0.4	53
51	Neural and Behavioral Evidence for an Intrinsic Cost of Self-Control. PLoS ONE, 2013, 8, e72626.	1.1	92
52	Commentary: Why I Am Not a Dynamicist. Topics in Cognitive Science, 2012, 4, 78-83.	1.1	8
53	Goal-directed decision making as probabilistic inference: A computational framework and potential neural correlates.. Psychological Review, 2012, 119, 120-154.	2.7	157
54	Distinguishing grammatical constructions with fMRI pattern analysis. Brain and Language, 2012, 123, 174-182.	0.8	86

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55	Planning as inference. Trends in Cognitive Sciences, 2012, 16, 485-488.	4.0	219
56	Errors of interpretation and modeling: A reply to Grinband et al.. NeuroImage, 2011, 57, 316-319.	2.1	73
57	Information mapping with pattern classifiers: A comparative study. NeuroImage, 2011, 56, 476-496.	2.1	126
58	A Neural Signature of Hierarchical Reinforcement Learning. Neuron, 2011, 71, 370-379.	3.8	155
59	Generating Text from Functional Brain Images. Frontiers in Human Neuroscience, 2011, 5, 72.	1.0	33
60	Decision making and the avoidance of cognitive demand.. Journal of Experimental Psychology: General, 2010, 139, 665-682.	1.5	742
61	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
62	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
63	Letting structure emerge: connectionist and dynamical systems approaches to cognition. Trends in Cognitive Sciences, 2010, 14, 348-356.	4.0	406
64	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
65	Hierarchically organized behavior and its neural foundations: A reinforcement learning perspective. Cognition, 2009, 113, 262-280.	1.1	474
66	Anticipation of cognitive demand during decision-making. Psychological Research, 2009, 73, 835-842.	1.0	76
67	An analysis of immediate serial recall performance in a macaque. Animal Cognition, 2009, 12, 671-678.	0.9	22
68	Effort discounting in human nucleus accumbens. Cognitive, Affective and Behavioral Neuroscience, 2009, 9, 16-27.	1.0	273
69	Cingulate cortex: Diverging data from humans and monkeys. Trends in Neurosciences, 2009, 32, 566-574.	4.2	119
70	Machine learning classifiers and fMRI: A tutorial overview. NeuroImage, 2009, 45, S199-S209.	2.1	1,425
71	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
72	Goal-directed decision making in prefrontal cortex: A computational framework. Advances in Neural Information Processing Systems, 2009, 21, 169-176.	2.8	13

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73	Hierarchical models of behavior and prefrontal function. Trends in Cognitive Sciences, 2008, 12, 201-208.	4.0	397
74	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
75	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
76	Short-term memory for serial order: A recurrent neural network model.. Psychological Review, 2006, 113, 201-233.	2.7	293
77	Resolving conflict: A response to Martin and Cheng (2006). Psychonomic Bulletin and Review, 2006, 13, 402-408.	1.4	67
78	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
79	Effects of domain-specific knowledge on memory for serial order. Cognition, 2005, 97, 135-151.	1.1	22
80	Regularization in Short-Term Memory for Serial Order.. Journal of Experimental Psychology: Learning Memory and Cognition, 2005, 31, 351-358.	0.7	40
81	Viewing facial expressions of pain engages cortical areas involved in the direct experience of pain. NeuroImage, 2005, 25, 312-319.	2.1	489
82	NEUROSCIENCE: Probing the Neural Basis of Body Ownership. Science, 2004, 305, 782-783.	6.0	140
83	Conflict monitoring and anterior cingulate cortex: an update. Trends in Cognitive Sciences, 2004, 8, 539-546.	4.0	2,998
84	Doing Without Schema Hierarchies: A Recurrent Connectionist Approach to Normal and Impaired Routine Sequential Action.. Psychological Review, 2004, 111, 395-429.	2.7	319
85	The Neural Basis of Error Detection: Conflict Monitoring and the Error-Related Negativity.. Psychological Review, 2004, 111, 931-959.	2.7	704
86	Representing task context: proposals based on a connectionist model of action. Psychological Research, 2002, 66, 298-311.	1.0	21
87	Anterior Cingulate Cortex, Conflict Monitoring, and Levels of Processing. NeuroImage, 2001, 14, 1302-1308.	2.1	628
88	Conflict monitoring and cognitive control.. Psychological Review, 2001, 108, 624-652.	2.7	5,904
89	Anterior cingulate and prefrontal cortex: who's in control?. Nature Neuroscience, 2000, 3, 421-423.	7.1	519
90	The Contribution of the Anterior Cingulate Cortex to Executive Processes in Cognition. Reviews in the Neurosciences, 1999, 10, 49-57.	1.4	528

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91	Conflict monitoring versus selection-for-action in anterior cingulate cortex. Nature, 1999, 402, 179-181.	13.7	1,820
92	Anterior Cingulate Cortex, Error Detection, and the Online Monitoring of Performance. Science, 1998, 280, 747-749.	6.0	2,996
93	Rubber hands â€˜feelâ€™ touch that eyes see. Nature, 1998, 391, 756-756.	13.7	3,316