## Decision Making Under Uncertainty: A Neural Model Ba Decision Processes

Frontiers in Computational Neuroscience

4,146

DOI: 10.3389/fncom.2010.00146

**Citation Report** 

#	Article	IF	CITATIONS
1	How Should Prey Animals Respond to Uncertain Threats?. Frontiers in Computational Neuroscience, 2011, 5, 20.	1.2	10
2	Emulation as an integrating principle for cognition. Frontiers in Human Neuroscience, 2011, 5, 54.	1.0	17
3	Optimal Temporal Risk Assessment. Frontiers in Integrative Neuroscience, 2011, 5, 56.	1.0	64
4	Multiplicity of control in the basal ganglia: computational roles of striatal subregions. Current Opinion in Neurobiology, 2011, 21, 374-380.	2.0	89
5	Multiple representations and algorithms for reinforcement learning in the cortico-basal ganglia circuit. Current Opinion in Neurobiology, 2011, 21, 368-373.	2.0	108
6	A Neuroscientific View on the Role of Emotions in Behaving Cognitive Agents. KI - Kunstliche Intelligenz, 2011, 25, 235-244.	2.2	6
7	The Cost of Accumulating Evidence in Perceptual Decision Making. Journal of Neuroscience, 2012, 32, 3612-3628.	1.7	430
8	Internal signal correlates neural populations and biases perceptual decision reports. Proceedings of the United States of America, 2012, 109, 18938-18943.	3.3	34
9	Planning with Markov Decision Processes: An Al Perspective. Synthesis Lectures on Artificial Intelligence and Machine Learning, 2012, 6, 1-210.	0.6	53
10	Computational models of decision making: integration, stability, and noise. Current Opinion in Neurobiology, 2012, 22, 1047-1053.	2.0	16
11	Active inference and agency: optimal control without cost functions. Biological Cybernetics, 2012, 106, 523-541.	0.6	176
12	Learning to represent reward structure: A key to adapting to complex environments. Neuroscience Research, 2012, 74, 177-183.	1.0	23
13	Active sequential hypothesis testing with application to a visual search problem. , 2012, , .		7
14	Emotion and decision-making: affect-driven belief systems in anxiety and depression. Trends in Cognitive Sciences, 2012, 16, 476-483.	4.0	196
15	Separate, Causal Roles of the Caudate in Saccadic Choice and Execution in a Perceptual Decision Task. Neuron, 2012, 75, 865-874.	3.8	106
16	What is value—accumulated reward or evidence?. Frontiers in Neurorobotics, 2012, 6, 11.	1.6	38
17	A detection theoretic explanation of blindsight suggests a link between conscious perception and metacognition. Philosophical Transactions of the Royal Society B: Biological Sciences, 2012, 367, 1401-1411.	1.8	76
18	The Basal Ganglia's Contributions to Perceptual Decision Making. Neuron, 2013, 79, 640-649. 	3.8	149

#	Article	IF	CITATIONS
19	Learning not to feel: reshaping the resolution of tactile perception. Frontiers in Systems Neuroscience, 2013, 7, 29.	1.2	1
20	Reward Optimization in the Primate Brain: A Probabilistic Model of Decision Making under Uncertainty. PLoS ONE, 2013, 8, e53344.	1.1	26
21	The Mixed Instrumental Controller: Using Value of Information to Combine Habitual Choice and Mental Simulation. Frontiers in Psychology, 2013, 4, 92.	1.1	125
22	A plastic corticostriatal circuit model of adaptation in perceptual decision making. Frontiers in Computational Neuroscience, 2013, 7, 178.	1.2	8
23	Timing and expectation of reward: a neuro-computational model of the afferents to the ventral tegmental area. Frontiers in Neurorobotics, 2014, 8, 4.	1.6	24
24	Learning to maximize reward rate: a model based on semi-Markov decision processes. Frontiers in Neuroscience, 2014, 8, 101.	1.4	15
25	A confidence metric for using neurobiological feedback in actor-critic reinforcement learning based brain-machine interfaces. Frontiers in Neuroscience, 2014, 8, 111.	1.4	16
26	Speed accuracy trade-off under response deadlines. Frontiers in Neuroscience, 2014, 8, 248.	1.4	20
27	Navigating complex decision spaces: Problems and paradigms in sequential choice Psychological Bulletin, 2014, 140, 466-486.	5.5	27
28	Advanced Reinforcement Learning. , 2014, , 299-320.		11
28 29	Advanced Reinforcement Learning. , 2014, , 299-320. Two tales of how expectation of reward modulates behavior. Current Opinion in Neurobiology, 2014, 29, 142-147.	2.0	11
28 29 30	Advanced Reinforcement Learning. , 2014, , 299-320.         Two tales of how expectation of reward modulates behavior. Current Opinion in Neurobiology, 2014, 29, 142-147.         Orbitofrontal Cortex Is Required for Optimal Waiting Based on Decision Confidence. Neuron, 2014, 84, 190-201.	2.0	11 8 172
28 29 30 31	Advanced Reinforcement Learning., 2014, 299-320.         Two tales of how expectation of reward modulates behavior. Current Opinion in Neurobiology, 2014, 29, 142-147.         Orbitofrontal Cortex Is Required for Optimal Waiting Based on Decision Confidence. Neuron, 2014, 84, 190-201.         Attention as an effect not a cause. Trends in Cognitive Sciences, 2014, 18, 457-464.	2.0 3.8 4.0	11 8 172 153
28 29 30 31 32	Advanced Reinforcement Learning. , 2014, , 299-320.         Two tales of how expectation of reward modulates behavior. Current Opinion in Neurobiology, 2014, 29, 142-147.         Orbitofrontal Cortex Is Required for Optimal Waiting Based on Decision Confidence. Neuron, 2014, 84, 190-201.         Attention as an effect not a cause. Trends in Cognitive Sciences, 2014, 18, 457-464.         Perceptual decision making: drift-diffusion model is equivalent to a Bayesian model. Frontiers in Human Neuroscience, 2014, 8, 102.	2.0 3.8 4.0	11 8 172 153 117
28 29 30 31 32 33	Advanced Reinforcement Learning., 2014,, 299-320.Two tales of how expectation of reward modulates behavior. Current Opinion in Neurobiology, 2014, 29, 142-147.Orbitofrontal Cortex Is Required for Optimal Waiting Based on Decision Confidence. Neuron, 2014, 84, 190-201.Attention as an effect not a cause. Trends in Cognitive Sciences, 2014, 18, 457-464.Perceptual decision making: drift-diffusion model is equivalent to a Bayesian model. Frontiers in Human Neuroscience, 2014, 8, 102.Novelty and Inductive Generalization in Human Reinforcement Learning. Topics in Cognitive Science, 2015, 7, 391-415.	2.0 3.8 4.0 1.0	<ul> <li>11</li> <li>8</li> <li>172</li> <li>153</li> <li>117</li> <li>64</li> </ul>
28 29 30 31 32 33 33	Advanced Reinforcement Learning., 2014, 299-320.         Two tales of how expectation of reward modulates behavior. Current Opinion in Neurobiology, 2014, 29, 142-147.         Orbitofrontal Cortex Is Required for Optimal Waiting Based on Decision Confidence. Neuron, 2014, 84, 190-201.         Attention as an effect not a cause. Trends in Cognitive Sciences, 2014, 18, 457-464.         Perceptual decision making: drift-diffusion model is equivalent to a Bayesian model. Frontiers in Human Neuroscience, 2014, 8, 102.         Novelty and Inductive Generalization in Human Reinforcement Learning. Topics in Cognitive Science, 2015, 7, 391-415.         The Effect of Depression in Decision Making Process : Based on Quantitative Methodology. Journal of Korean Neuropsychiatric Association, 2015, 54, 282.	2.0 3.8 4.0 1.0 1.1	<ul> <li>11</li> <li>8</li> <li>172</li> <li>153</li> <li>117</li> <li>64</li> <li>0</li> </ul>
28 29 30 31 32 33 33 34	Advanced Reinforcement Learning. , 2014, , 299-320.         Two tales of how expectation of reward modulates behavior. Current Opinion in Neurobiology, 2014, 29, 142-147.         Orbitofrontal Cortex Is Required for Optimal Waiting Based on Decision Confidence. Neuron, 2014, 84, 190-201.         Attention as an effect not a cause. Trends in Cognitive Sciences, 2014, 18, 457-464.         Perceptual decision making: drift-diffusion model is equivalent to a Bayesian model. Frontiers in Human Neuroscience, 2014, 8, 102.         Novelty and Inductive Generalization in Human Reinforcement Learning. Topics in Cognitive Science, 2015, 7, 391-415.         The Effect of Depression in Decision Making Process : Based on Quantitative Methodology. Journal of Korean Neuropsychiatric Association, 2015, 54, 282.         The basal ganglia select the expected sensory input used for predictive coding. Frontiers in Computational Neuroscience, 2015, 9, 119.	2.0 3.8 4.0 1.0 1.1 0.2 1.2	<ul> <li>11</li> <li>8</li> <li>172</li> <li>153</li> <li>117</li> <li>64</li> <li>0</li> <li>26</li> </ul>

ARTICLE IF CITATIONS # Probabilistic Decision Making with Spikes: From ISI Distributions to Behaviour via Information Gain. 37 1.1 7 PLoS ONE, 2015, 10, e0124787. Distinct dynamics of ramping activity in the frontal cortex and caudate nucleus in monkeys. Journal 24 of Neurophysiology, 2015, 114, 1850-1861. 39 The Formation of Hierarchical Decisions in the Visual Cortex. Neuron, 2015, 87, 1344-1356. 3.8 37 Computational Phenotyping in Psychiatry: A Worked Example. ENeuro, 2016, 3, ENEURO.0049-16.2016. Comparing fixed and collapsing boundary versions of the diffusion model. Journal of Mathematical 41 1.0 60 Psychology, 2016, 73, 59-79. Role of expected reward in frontal eye field during natural scene search. Journal of Neurophysiology, 2016, 116, 645-657. Process control using finite Markov chains with iterative clustering. Computers and Chemical 43 2.0 12 Engineering, 2016, 93, 293-308. Spatiotemporal dynamics of random stimuli account for trial-to-trial variability in perceptual 44 1.6 14 decision making. Ścientific Reports, 2016, 6, 18832. Of monkeys and men: Impatience in perceptual decision-making. Psychonomic Bulletin and Review, 2016, 45 1.4 22 23, 738-749. Decision Making and Sequential Sampling from Memory. Neuron, 2016, 90, 927-939. 3.8 Midbrain Dopamine Neurons Signal Belief in Choice Accuracy during a Perceptual Decision. Current 47 132 1.8 Biology, 2017, 27, 821-832. Dopamine reward prediction errors reflect hidden-state inference across time. Nature Neuroscience, 2017, 20, 581-589. A Cognitive Model of How People Make Decisions Through Interaction with Visual Displays., 2017,,. 49 25 Learning to allocate limited time to decisions with different expected outcomes. Cognitive Psychology, 2017, 95, 17-49. Inference in the Brain: Statistics Flowing in Redundant Population Codes. Neuron, 2017, 94, 943-953. 51 69 3.8 Dopamine, Inference, and Uncertainty. Neural Computation, 2017, 29, 3311-3326. 36 Dopamine reward prediction error signal codes the temporal evaluation of a perceptual decision 53 report. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 3.3 29 E10494-E10503. Reinforcement Learning and Episodic Memory in Humans and Animals: An Integrative Framework. 54 Annual Review of Psychology, 2017, 68, 101-128.

#	Article	IF	Citations
55	Reward-based training of recurrent neural networks for cognitive and value-based tasks. ELife, 2017, 6,	2.8	126
56	Reinforcement Learning and Causal Models. , 2017, , .		10
57	The Medial Prefrontal Cortex Shapes Dopamine Reward Prediction Errors under State Uncertainty. Neuron, 2018, 98, 616-629.e6.	3.8	100
58	Model-based predictions for dopamine. Current Opinion in Neurobiology, 2018, 49, 1-7.	2.0	119
59	Integrating Models of Interval Timing and Reinforcement Learning. Trends in Cognitive Sciences, 2018, 22, 911-922.	4.0	45
60	A State Representation for Reinforcement Learning and Decision-Making in the Orbitofrontal Cortex. , 2018, , 259-278.		32
61	Belief state representation in the dopamine system. Nature Communications, 2018, 9, 1891.	5.8	75
62	The Successor Representation: Its Computational Logic and Neural Substrates. Journal of Neuroscience, 2018, 38, 7193-7200.	1.7	106
63	Planning and navigation as active inference. Biological Cybernetics, 2018, 112, 323-343.	0.6	129
64	Uncovering the â€~state': Tracing the hidden state representations that structure learning and decision-making. Behavioural Processes, 2019, 167, 103891.	0.5	9
65	Believing in dopamine. Nature Reviews Neuroscience, 2019, 20, 703-714.	4.9	156
66	Retrospective model-based inference guides model-free credit assignment. Nature Communications, 2019, 10, 750.	5.8	24
67	Modeling other minds: Bayesian inference explains human choices in group decision-making. Science Advances, 2019, 5, eaax8783.	4.7	31
68	An information-theoretic perspective on the costs of cognition. Neuropsychologia, 2019, 123, 5-18.	0.7	76
69	A theoretical analysis of the reward rate optimality of collapsing decision criteria. Attention, Perception, and Psychophysics, 2020, 82, 1520-1534.	0.7	4
70	Rational thoughts in neural codes. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 29311-29320.	3.3	14
71	Decision-time statistics of nonlinear diffusion models: Characterizing long sequences of subsequent trials. Journal of Mathematical Psychology, 2020, 99, 102445.	1.0	2
72	Detecting Changes and Avoiding Catastrophic Forgetting in Dynamic Partially Observable Environments. Frontiers in Neurorobotics, 2020, 14, 578675.	1.6	2

#	Article	IF	CITATIONS
73	Comparison of Markov versus quantum dynamical models of human decision making. Wiley Interdisciplinary Reviews: Cognitive Science, 2020, 11, e1526.	1.4	15
74	Mice adaptively generate choice variability in a deterministic task. Communications Biology, 2020, 3, 34.	2.0	7
75	Modeling uncertainty-seeking behavior mediated by cholinergic influence on dopamine. Neural Networks, 2020, 125, 10-18.	3.3	9
76	Anterior insula reflects surprise in value-based decision-making and perception. NeuroImage, 2020, 210, 116549.	2.1	38
77	All Thinking is â€~Wishful' Thinking. Trends in Cognitive Sciences, 2020, 24, 413-424.	4.0	33
78	Deeply Felt Affect: The Emergence of Valence in Deep Active Inference. Neural Computation, 2021, 33, 398-446.	1.3	94
79	Dopamine signals as temporal difference errors: recent advances. Current Opinion in Neurobiology, 2021, 67, 95-105.	2.0	26
80	The Thalamus as a Blackboard for Perception and Planning. Frontiers in Behavioral Neuroscience, 2021, 15, 633872.	1.0	8
82	The orbitofrontal cartographer Behavioral Neuroscience, 2021, 135, 267-276.	0.6	20
83	A cortical circuit mechanism for structural knowledge-based flexible sensorimotor decision-making. Neuron, 2021, 109, 2009-2024.e6.	3.8	24
84	Novelty and imitation within the brain: a Darwinian neurodynamic approach to combinatorial problems. Scientific Reports, 2021, 11, 12513.	1.6	3
85	TrajGAIL: Generating urban vehicle trajectories using generative adversarial imitation learning. Transportation Research Part C: Emerging Technologies, 2021, 128, 103091.	3.9	53
86	Integration of sensory evidence and reward expectation in mouse perceptual decision-making task with various sensory uncertainties. IScience, 2021, 24, 102826.	1.9	6
87	Bayesian inference with incomplete knowledge explains perceptual confidence and its deviations from accuracy. Nature Communications, 2021, 12, 5704.	5.8	28
89	Learning continuous-time working memory tasks with on-policy neural reinforcement learning. Neurocomputing, 2021, 461, 635-656.	3.5	2
90	Testing Optimal Timing in Value-Linked Decision Making. Computational Brain & Behavior, 2019, 2, 85-94.	0.9	11
98	Feature Selection for Learning to Predict Outcomes of Compute Cluster Jobs with Application to Decision Support. , 2020, 2020, 1231-1236.		4
99	Prospective Optimization with Limited Resources. PLoS Computational Biology, 2015, 11, e1004501.	1.5	15

#	Article	IF	CITATIONS
100	Predicting explorative motor learning using decision-making and motor noise. PLoS Computational Biology, 2017, 13, e1005503.	1.5	38
101	Dopamine neurons projecting to the posterior striatum form an anatomically distinct subclass. ELife, 2015, 4, e10032.	2.8	245
102	The influence of evidence volatility on choice, reaction time and confidence in a perceptual decision. ELife, 2016, 5, .	2.8	106
103	Ongoing, rational calibration of reward-driven perceptual biases. ELife, 2018, 7, .	2.8	41
104	Reinforcement biases subsequent perceptual decisions when confidence is low, a widespread behavioral phenomenon. ELife, 2020, 9, .	2.8	71
105	Attention-related modulation of caudate neurons depends on superior colliculus activity. ELife, 2020, 9, .	2.8	11
106	The caudate nucleus contributes causally to decisions that balance reward and uncertain visual information. ELife, 2020, 9, .	2.8	41
107	Frontal eye field and caudate neurons make different contributions to reward-biased perceptual decisions. ELife, 2020, 9, .	2.8	12
108	Meta-learning, social cognition and consciousness in brains and machines. Neural Networks, 2022, 145, 80-89.	3.3	15
109	Mixing memory and desire: How memory reactivation supports deliberative decisionâ€making. Wiley Interdisciplinary Reviews: Cognitive Science, 2022, 13, e1581.	1.4	6
111	Perception, Action, and Utility: The Tangled Skein. , 2012, , 301-320.		9
113	The Prognosis of Delayed Reactions in Rats Using Markov Chains Method. Journal of Behavioral and Brain Science, 2016, 06, 19-27.	0.2	0
116	Log, Stock and Two Simple Lotteries: Technical Supplement. SSRN Electronic Journal, 0, , .	0.4	0
117	Log, Stock and Two Simple Lotteries. SSRN Electronic Journal, 0, , .	0.4	1
127	Inverse Rational Control with Partially Observable Continuous Nonlinear Dynamics. Advances in Neural Information Processing Systems, 2020, 33, 7898-7909.	2.8	1
128	Dopamine firing plays a dual role in coding reward prediction errors and signaling motivation in a working memory task. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	3.3	7
131	The role of state uncertainty in the dynamics of dopamine. Current Biology, 2022, 32, 1077-1087.e9.	1.8	29
133	Different Forms of Variability Could Explain a Difference Between Human and Rat Decision Making. Frontiers in Neuroscience, 2022, 16, 794681.	1.4	2

#	Article	IF	CITATIONS
136	Slow or sudden: Re-interpreting the learning curve for modern systems neuroscience. IBRO Neuroscience Reports, 2022, 13, 9-14.	0.7	8
137	A Working Theory of a Learned Model in a Partially Observable Environment for Cognitive Decision-Making. , 2022, , .		0
139	Human behavioral response to fluctuating automation reliability. Applied Ergonomics, 2022, 105, 103835.	1.7	4
140	Signal neutrality, scalar property, and collapsing boundaries as consequences of a learned multi-timescale strategy. PLoS Computational Biology, 2022, 18, e1009393.	1.5	1
141	Neuroprotection in late life attention-deficit/hyperactivity disorder: A review of pharmacotherapy and phenotype across the lifespan. Frontiers in Human Neuroscience, 0, 16, .	1.0	0
142	Apparently Irrational Choice as Optimal Sequential Decision Making. Proceedings of the AAAI Conference on Artificial Intelligence, 2021, 35, 792-800.	3.6	4
143	Fast rule switching and slow rule updating in a perceptual categorization task. ELife, 0, 11, .	2.8	4
146	A reservoir of foraging decision variables in the mouse brain. Nature Neuroscience, 2023, 26, 840-849.	7.1	11
147	Emergent computations in trained artificial neural networks and real brains. Journal of Instrumentation, 2023, 18, C02060.	0.5	1
148	Optimal policy for uncertainty estimation concurrent with decision making. Cell Reports, 2023, 42, 112232.	2.9	Ο