Curriculum Vitae ***Samuel J. Gershman***

PERSONAL DETAILS

Samuel J. Gershman
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EMPLOYMENT HISTORY

Professor	2021-
Associate Professor	2019-2021
Assistant Professor	2015-2019
Department of Psychology and Center for Brain Science, Harvard University	
Postdoctoral fellow	2013-2015
Department of Brain and Cognitive Sciences, MIT	
(advisors: Joshua Tenenbaum & Nancy Kanwisher)	

EDUCATION

BA	Neuroscience and Behavior Columbia University	2003-2007
PhD	Psychology and Neuroscience Princeton University (advisors: Kenneth Norman & Yael Niv)	2008-2013

FUNDING

2020-2023	AFOSR – Belief state representation in the dopamine system (role: co-PI)
2020-2022	NSF - NCS-FO: Dynamic computational phenotyping of human cognition and brain function (role: PI)
2019-2024	NIH U19 - Towards a unified framework for dopamine signaling in the striatum (role: co-PI)
2018-2019	Star Family Foundation Award for Promising Scientific Research (role: co-PI)
2017-2020	ONR Science of Autonomy – Structured reinforcement learning in the brain (role: PI)
2017-2022	ONR MURI - A Computational Cognitive Neuroscience Approach to Understanding Event Representation and Episodic Memory (role: co-I)

2015-2018 NIH R01 - Representational foundations of adaptive behavior in natural and artificial agents (role: co-I with Nathaniel Daw (PI) and George Konidaris)

2017-2018 Harvard Foundations of Human Behavior Initiative - Computational and Neural Mechanisms of Information Seeking Behavior (role: PI)

2016-2017 Harvard Foundations of Human Behavior Initiative - Goals, habits and theory of mind: experimental and computational studies (role: co-PI with Fiery Cushman)

2016-2017 Harvard Brain Initiative Collaborative Seed Grant - Neurocomputational mechanisms of structure discovery (role: co-PI with Jan Drugowitsch)

2016-2018 Google Research Grant - Research focusing on the use of video games environments to probe human planning, exploration, and inference (role: PI)

2015-2016 Harvard Mind/Brain/Behavior Initiative - Representation of hidden state in the dopamine system (role: co-PI with Naoshige Uchida)

FELLOWSHIPS and AWARDS

2020 Janet Taylor Spence Award for Transformative Early Career Contributions from the American Psychological Society

2020 Cognitive Neuroscience Society Young Investigator Award

2018 Bjorkman-Strominger-Wiley prize for collaboration from the Harvard Molecular and Cellular Biology Department (joint with Nao Uchida)

2018 Alfred P. Sloan Research Fellowship

2015 Clever Systems Early Career Investigator Award from the APA

2014 Glushko Dissertation Award from the Cognitive Science Society

2013 MIT Intelligence Initiative Postdoctoral Fellowship

2012 International Conference for Machine Learning travel award

2010 NSF graduate research fellowship

2009 NIPS travel award

2009 NIMH Quantitative and Computational Neuroscience training fellowship

2009 Swartz COSYNE travel fellowship

2008 Walker McKinney ’50 Life Sciences Fellowship

2006 Summer University Research Fellowship, Columbia University

INVITED TALKS

- Cognitive lunch seminar, Indiana University (April, 2010)
- Pavlovian Society annual meeting, Baltimore (October, 2010)
- Cognitive science seminar, University of Texas (February 2011)
- Organization for Human Brain Mapping meeting (June 2012)
- Oxford University, Department of Experimental Psychology (July 2012)
- Gatsby Computational Neuroscience Unit (July 2012)
- Pavlovian Society annual meeting, Jersey City (September, 2012)
- Society for computational modeling of associative learning, Jersey City (September, 2012)

- Brown University, Department of Cognitive, Linguistic and Psychological Sciences colloquium (December, 2012)
- Harvard University, Center for Brain Sciences (February 2014)
- University of California, Berkeley, Department of Psychology (February 2014)
- Columbia University, Department of Psychology (February 2014)
- University of Zurich, Neuroeconomics seminar (September 2014)
- Tufts University, Cognitive science seminar (October 2014)
- Boston University, Brain, Behavior and Cognition seminar (March 2015)
- Caltech, Neuroeconomics seminar (April 2015)
- Harvard Center for Brain/Mind seminar series (June 2015)
- Yale University, Current Works in Behavior, Genetics, and Neuroscience (February 2016)
- University of Massachusetts, Amherst, Cognitive science seminar (September 2016)
- Google DeepMind (October 2016)
- Boston Veteran's Affairs hospital, Neuroimaging/neuropsychology lecture series (October 2016)
- University of Pennsylvania, Computational Neuroscience seminar (November 2016)
- Champalimaud Center for the Unknown, Quantitative Neuroscience Seminar (January 2017)
- UC Davis, Neuroscience seminar (March 2017)
- New York University, Neuroeconomics colloquium (April 2017)
- Reinforcement learning and decision making conference, keynote speaker (June 2017)
- Sloan-Norris Workshop on Attentional and Perceptual Foundations of Behavior, New York, NY (October, 2017)
- Brown University, Beyond Deep Learning workshop (January 2018)
- Stanford University, Mind, Brain and Computation seminar (January 2018)
- Gatsby Computational Neuroscience Unit, UCL, External Seminar (March 2018)
- Functional Imaging Laboratory, UCL, special seminar (March 2018)
- University of Durham, Probabilistic Brain Workshop, keynote speaker (March 2018)
- University of Oxford, Neurotheory seminar (March 2018)
- Tufts University, Predictive processing symposium (April 2018)
- Princeton University, Princeton Neuroscience Retreat external speaker (May 2018)
- Columbia University, Gatsby meeting (June 2018)
- Cognitive Computational Neuroscience conference, invited tutorial (September 2018)
- McLean Hospital, Center for Depression, Anxiety and Stress Research seminar (November 2018)
- University of Zurich, Neuroeconomics seminar (December 2018)
- Yale University, Biological sciences training program (January 2019)

- New York University, Swartz seminar (January 2019)
- University of Pennsylvania, MindCORE seminar (February 2019)
- Florida International University, Department of Computer Science (March 2019)
- Northwestern University, Department of Psychiatry (May 2019)
- Cognitive Computational Neuroscience Society, invited tutorial (September 2019)
- Ecole Normale Superieure, colloquium (September 2019)
- Santa Fe Institute / NSF Convergent Paths towards Universality in Complex Systems Workshop (December 2019)
- Institute for Advanced Study, Princeton, seminar (January 2020)
- Duke University, cognitive neuroscience seminar (February 2020)
- Computational and Systems Neuroscience Conference, keynote speaker (February 2020)
- ELLIS workshop on rationality and decision making (August 2020)
- SUNY Optometry Colloquium (September 2020)
- Columbia University clinical, cognitive, computational neuroscience seminar (September 2020)
- UC Berkeley, Neuroscience seminar (September 2020)
- University of Arizona, Roger N. Shepard Distinguished Visitor lecture (September 2020)
- Rensselaer Polytechnic Institute, Cognitive Science Department seminar (September 2020)
- Stanford University, Department of Psychology colloquium (October 2020)
- Brandeis University, Computational Neuroscience seminar (October 2020)
- Seoul National University, Department of Brain and Cognitive Sciences seminar (November 2020)
- HHMI Janelia Research Campus, Computation and Theory Seminar (November 2020)
- University of Hamburg, Cognitive Neuroscience Colloquium (November 2020)
- University College London, Computational Psychiatry seminar (December 2020)
- Max Planck Institute for Cognitive and Brain Sciences, Mind Meeting (December 2020)
- New York University, Department of Psychology colloquium (January 2021)
- University of Cambridge, Medical Research Council Chaucer seminar (February 2021)
- SUNY Binghamton, Department of Psychology colloquium (March 2021)

PUBLICATIONS

1. Wu, C.M., Schulz, E., & Gershman, S.J. (in press). Inference and search on graph-structured spaces. *Computational Brain and Behavior*.
2. Gershman, S.J. (in press). *What Makes Us Smart: The Computational Logic of Human Cognition.* Princeton University Press. Princeton: NJ.
3. McNamee, D., Stachenfeld, K.L., Botvinick, M.M., Gershman, S.J. (in press). Flexible modulation of sequence generation in the entorhinal–hippocampal system. *Nature Neuroscience*.

4. Lai, L., & Gershman, S.J. (in press). Policy compression: an information bottleneck in action selection. *Psychology of Learning and Motivation*.
5. Tomov, M., Schulz, E., & Gershman, S.J. (in press). Multi-task reinforcement learning in humans. *Nature Human Behaviour*.
6. Gershman, S.J. (in press). The rational analysis of memory. In M. Kahana & A. Wagner, Eds, *Oxford Handbook of Human Memory*. Oxford University Press.
7. Xiang, Y., Graeber, T., Enke, B., & Gershman, S.J. (in press). Confidence and central tendency in perceptual judgment. *Attention, Perception, & Psychophysics*.
8. Gershman, S.J., Guitart-Masip, M., & Cavanagh, J.F. (2021). Neural signatures of arbitration between Pavlovian and instrumental action selection. *PLOS Computational Biology, 17,* e1008553.
9. Dasgupta, I., & Gershman, S.J. (2021). Memory as a computational resource. *Trends in Cognitive Sciences, 25*, 240-251.
10. Bhui, R., Lai, L., & Gershman, S.J. (2021). Resource-rational decision making. *Current Opinion in Behavioral Sciences, 41,* 15-21.
11. Mikhael, J.G., Lai, L., & Gershman, S.J. (2021). Rational inattention and tonic dopamine. *PLOS Computational Biology, 17*, e1008659.
12. Yang, S., Bill, J., Drugowitsch, J., & Gershman, S.J. (2021). Human visual motion perception shows hallmarks of Bayesian structural inference. *Scientific Reports, 11, 3714*.
13. Gershman, S.J., Balbi, P.E.M., Gallistel, C.R., & Gunawardena, J. (2021). Reconsidering the evidence for learning in single cells. *eLife, 10*, e61907.
14. Pouncy, T., Tsividis, P., & Gershman, S.J. (2021). What is the model in model-based planning? *Cognitive Science, 45,* e12928.
15. Gershman, S.J. (2020). Origin of perseveration in the trade-off between reward and complexity. *Cognition, 204, 104394*.
16. Dasgupta, I., Guo, D., Gershman, S.J., Goodman, N.D. (2020). Analyzing machine-learned representations: A natural language case study. *Cognitive Science, e12925*.
17. Bill, J. Pailian, H., Gershman, S.J., & Drugowitsch, J. (2020). Hierarchical structure is employed by humans during visual motion perception. *Proceedings of the National Academy of Sciences, 117,* 24581-24589.
18. Kim, H.R., Malik, A.N., Mikhael, J.G., Bech, P., Tsutsui-Kimura, I., Sun, F., Zhang, Y., Li, Y., Watabe-Uchida, M., Gershman, S.J., & Uchida, N. (2020). A unified framework for dopamine signals across timescales. *Cell, 183,* 1600-1616.
19. Cohen, A.O., Nussenbaum, K., Dorfman, H.M., Gershman, S.J., & Hartley, C.A. (2020). The rational use of causal inference to guide reinforcement learning changes with age. *NPJ Science of Learning, 5,* 16.
20. Bhui, R., & Gershman, S.J. (2020). Paradoxical effects of persuasive messages. *Decision, 7,* 239-258.
21. Gershman, S.J. & Cikara, M. (2020). Social structure learning. *Current Directions in Psychological Science*, *29*, 460-466.
22. Goldwater, M.B., Gershman, S.J., Moul, C., Ludowici, C., Burton, A., Killer, B., Kuhnert, R-L., Ridgway, K. (2020). Children's understanding of habitual behaviour. *Developmental Science, 23,* e12951.

23. Schulz, E., Quiroga, F., & Gershman, S.J. (2020). Communicating compositional patterns. *Open Mind, 4,* 25-39.
24. Baumann, C., Singmann, H., Gershman, S.J., & von Helversen, B. (2020). A linear threshold model for optimal stopping behavior. *Proceedings of the National Academy of Sciences, 117*, 12750-12755.
25. Tomov, M., Truong, V., Hundia, R., & Gershman, S.J. (2020). Dissociable neural correlates of uncertainty underlie different exploration strategies. *Nature Communications, 11,* 2371.
26. Gershman, S.J., & Olveczky, B.P. (2020). The neurobiology of deep reinforcement learning. *Current Biology, 30*, R617-R634.
27. Sanders, H., Wilson, M.A., Gershman, S.J. (2020). Hippocampal remapping as hidden state inference. *eLife, 9*, e51140.
28. Lau, T., Gershman, S.J., & Cikara, M. (2020). Social structure learning in human anterior insula. *eLife,* e53162.
29. Gershman, S.J. & Bhui, R. (2020). Rationally inattentive intertemporal choice. *Nature Communications, 11*, 3365.
30. Tomov, M., Yagati, S., Kumar, A., Yang, W., & Gershman, S.J. (2020). Discovery of hierarchical representations for efficient planning. *PLOS Computational Biology*, *16*, e1007594.
31. Dasgupta, I., Schulz, E., Tenenbaum, J.B. & Gershman, S.J. (2020). A theory of learning to infer. *Psychological Review*, *127*, 412-441.
32. Franklin, N.T., Norman, K.A., Ranganath, C., Zacks, J.M., & Gershman, S.J. (2020). Structured event memory: a neuro-symbolic model of event cognition. *Psychological Review , 127,* 327-361.
33. Schulz, E., Franklin, N.T. & Gershman, S.J. (2020). Finding structure in multi-armed bandits. *Cognitive Psychology, 119,* 101261.
34. Dorfman, H.M., & Gershman, S.J. (2019). Controllability governs the balance between Pavlovian and instrumental action selection. *Nature Communications*, *10*, 5826.
35. Stalnaker, T., Howard, J., Takahashi, Y., Gershman, S.J., Kahnt, T., & Schoenbaum, G. (2019). Dopamine neuron ensembles signal the content of sensory prediction errors. *eLife*, e49315.
36. Gershman, S.J. (2019). What does the free energy principle tell us about the brain? *Neurons, Behavior, Data Analysis, and Theory*.
37. Gershman, S.J. & Uchida, N. (2019). Believing in dopamine. *Nature Reviews Neuroscience, 20,* 703-714.
38. Gershman, S.J. (2019). The generative adversarial brain. *Frontiers in Artificial Intelligence, 2,* 18.
39. Schulz, E., Bhui, R., Love, B.C., Brier, B., Todd, M.T., & Gershman, S.J. (2019). Structured, uncertainty-driven exploration in real-world consumer choice. *Proceedings of the National Academy of Sciences, 116,* 13903-13908.
40. Gershman, S.J. (2019). Uncertainty and exploration. *Decision, 6,* 277-286.
41. Mikhael, J.G. & Gershman, S.J. (2019). Adapting the flow of time with dopamine. *Journal of Neurophysiology*, *121*, 1748-1760.

42. Kurdi, B., Gershman, S.J., & Banaji, M.R. (2019). Model-free and model-based learning processes in the updating of explicit and implicit evaluations. *Proceedings of the National Academy of Sciences, 116*, 6035-6044.
43. Cushman, F., & Gershman, S.J. (2019). Editor's introduction: computational approaches to social cognition. *Topics in Cognitive Science, 11*, 281-298.
44. Dorfman, H.M., Bhui, R., Hughes, B.L., & Gershman, S.J. (2019). Causal inference about good and bad outcomes. *Psychological Science, 30,* 516-525.
45. Gershman, S.J. (2019). How to never be wrong. *Psychonomic Bulletin & Review, 26,* 13-28.
46. Tiganj, Z., Gershman, S.J., Sederberg, P.B., & Howard, M.W. (2019). Estimating scale-invariant future in continuous time. *Neural Computation, 31,* 681-709.
47. Patzelt, E., Kool, W., Millner, A.J., & Gershman, S.J. (2019). Incentives boost model-based control across a range of severity on several psychiatric constructs. *Biological Psychiatry, 85,* 425-433.
48. Millner, A.J., den Ouden, H.E.M., Gershman, S.J., Glenn, C.R., Kearns, J., Bornstein, A.M., Marx, B.P., Keane, T.M., & Nock, M.K. (2019). Suicidal thoughts and behaviors are associated with an increased decision-making bias for active responses to escape aversive states. *Journal of Abnormal Psychology, 128,* 106-118.
49. Patzelt, E.H., Kool, W., Millner, A.J., & Gershman, S.J. (2019). The transdiagnostic structure of mental effort avoidance. *Scientific Reports, 9,* 1689.
50. Schulz, E., & Gershman, S.J. (2019). The algorithmic architecture of exploration in the human brain. *Current Opinion in Neurobiology*, *55*, 7-14.
51. Lau, T., Pouncy, H.T., Gershman, S.J., & Cikara, M. (2018). Discovering social groups via latent structure learning. *Journal of Experimental Psychology: General, 147,* 1881-1891.
52. Patzelt, E., Hartley, C.A., & Gershman, S.J. (2018). Computational phenotyping: using models to understand personality, development, and mental illness. *Personality Neuroscience, 1,* e18.
53. Bhui, R., & Gershman, S.J. (2018). Decision by sampling implements efficient coding of psychoeconomic functions. *Psychological Review, 125,* 985-1001.
54. Gardner, M.P.H., Schoenbaum, G., & Gershman, S.J. (2018). Rethinking dopamine as generalized prediction error. *Proceedings of the Royal Society B, 285*, 20181645.
55. Gershman, S.J., & Tzovaras, B.G. (2018). Dopaminergic genes are associated with both directed and random exploration. *Neuropsychologia, 120,* 97-104.
56. Petter, E.A., Gershman, S.J., & Meck, W.H. (2018). Integrating models of interval timing and reinforcement learning. *Trends in Cognitive Sciences*, *22*, 911-922.
57. Millner, A.J., Gershman, S.J., Nock, M.K., & Ouden, H.D. (2018). Pavlovian control of escape and avoidance. *Journal of Cognitive Neuroscience, 30,* 1379-1390.
58. Lage, I., Ross, A.S., Kim, B., Gershman, S.J., & Doshi-Velez, F. (2018). Human-in-the-loop interpretability prior. *Advances in Neural Information Processing Systems 32*.

59. Kool, W., Gershman, S.J., & Cushman, F.A. (2018). Planning complexity registers as a cost in metacontrol. *Journal of Cognitive Neuroscience, 30,* 1391-1404.
60. Tomov, M.S., Dorfman, H.M., & Gershman, S.J. (2018). Neural computations underlying causal structure learning. *Journal of Neuroscience , 38,* 7143-7157.
61. Gershman, S.J. (2018). The successor representation: its computational logic and neural substrates. *Journal of Neuroscience , 38,* 7193-7200.
62. Babayan, B.M., Uchida, N., & Gershman, S.J. (2018). Belief state representation in the dopamine system. *Nature Communications, 9,* 1891.
63. Dasgupta, I., Smith, K.A., Schulz, E., Tenenbaum, J.B., & Gershman, S.J. (2018). Learning to act by integrating mental simulations and physical experiments. *Proceedings of the 40th Annual Conference of the Cognitive Science Society.*
64. Dasgupta, I., Guo, D., Stuhlmuller, A., Gershman, S.J., & Goodman, N.D. (2018). Evaluating compositionality in sentence embeddings. *Proceedings of the 40th Annual Conference of the Cognitive Science Society.*
65. Baumann, C., Singmann, H., Gershman, S.J., & von Helversen, B. (2018). Explaining human decision making in optimal stopping tasks. *Proceedings of the 40th Annual Conference of the Cognitive Science Society.*
66. Gershman, S.J. (2018). Deconstructing the human algorithms for exploration. *Cognition, 173,* 34-42.
67. Starkweather, C.K., Gershman, S.J., & Uchida, N. (2018). Medial prefrontal cortex shapes dopamine reward prediction errors under state uncertainty. *Neuron*, *98,* 616-629.
68. Pereira, F., Lou, B., Pritchett, B., Ritter, S., Gershman, S.J., Kanwisher, N., Botvinick, M., & Fedorenko, E. (2018). Toward a universal decoder of linguistic meaning from brain activation. *Nature Communications, 9,* 963.
69. Kool, W., & Cushman, F.A., & Gershman, S.J. (2018). Competition and cooperation between multiple reinforcement learning systems. In R.W. Morris & A. Bornstein (Eds.) *Goal-Directed Decision Making: Computations and Neural Circuits*. Elsevier.
70. Blanchard, T.C., & Gershman, S.J. (2018). Pure correlates of exploration and exploitation in the human brain. *Cognitive, Affective, and Behavioral Neuroscience, 18,* 117-126.
71. Stachenfeld, K.L., Botvinick, M.M., & Gershman, S.J. (2017). The hippocampus as a predictive map. *Nature Neuroscience, 20,* 1643-1653.
72. Lake, B.M., Ullman, T.D., Tenenbaum, J.B., & Gershman, S.J. (2017). Building machines that learn and think like people. *Behavioral and Brain Sciences, 40,* e253.
73. Schulz, E., Tenenbaum, J.B., Duvenaud, D., Speekenbrink, M., & Gershman, S.J. (2017). Compositional inductive biases in function learning. *Cognitive Psychology, 99,* 44-79.
74. Gershman, S.J. (2017). Dopamine, inference and uncertainty. *Neural Computation.*
75. Gershman, S.J., Zhou, J., & Kommers, C. (2017). Imaginative reinforcement learning: computational principles and neural mechanisms. *Journal of Cognitive Neuroscience*, *29*, 2103-2113.

76. Gershman, S.J. & Beck, J.M. (2017). Complex probabilistic inference: from cognition to neural computation. In A. Moustafa (Ed.) *Computational Models of Brain and Behavior*. Wiley-Blackwell.
77. Momennejad, I., Russek, E., Cheong, J.H., Botvinick, M.M., Daw, N.D., & Gershman, S.J. (2017). The successor representation in human reinforcement learning. *Nature Human Behaviour, 1,* 680-692.
78. Linderman, S.W., & Gershman, S.J. (2017). Using computational theory to constrain statistical models of neural data. *Current Opinion in Neurobiology*, 46, *14-24*.
79. Saeedi, A., Kulkarni, T., Mansinghka, V.K., & Gershman, S.J. (2017). Variational particle approximations. *Journal of Machine Learning Research, 18*, 1-29.
80. Kool, W., Gershman, S.J., & Cushman, F.A. (2017). Cost-benefit arbitration between multiple reinforcement learning systems. *Psychological Science, 28,* 1321-1333.
81. Dasgupta, I., Schulz, E., & Gershman, S.J. (2017). Where do hypotheses come from? *Cognitive Psychology, 96,* 1-25.
82. Dasgupta, I., Schulz, E., Goodman, N.D., & Gershman, S.J. (2017). Amortized hypothesis generation. *Proceedings of the 39th Annual Conference of the Cognitive Science Society*.
83. Russek, E., Momennejad, I., Botvinick, M.M., Gershman, S.J., & Daw, N.D. (2017). Predictive representations can link model-based reinforcement learning to model-free mechanisms. *PLOS Computational Biology, 13,* e1005768.
84. Starkweather, C.K., Babayan, B.M., Uchida, N., & Gershman, S.J. (2017). Dopamine reward prediction errors reflect hidden state inference across time. *Nature Neuroscience, 20,* 581-589.
85. Gershman, S.J. (2017). Predicting the past, remembering the future. *Current Opinion in Behavioral Sciences, 17,* 7-13.
86. Thaker, P., Tenenbaum, J.B., & Gershman, S.J. (2017). Online learning of symbolic concepts. *Journal of Mathematical Psychology, 77, 10-20.*
87. Gershman, S.J., Pouncy, H.T., & Gweon, H. (2017). Learning the structure of social influence. *Cognitive Science, 41, 545-575.*
88. Gershman, S.J. (2017). Context-dependent learning and causal structure. *Psychonomic Bulletin & Review, 24*, 557-565.
89. Gershman, S.J., Malmaud, J., & Tenenbaum, J.B. (2017). Structured representations of utility in combinatorial domains. *Decision, 4, 67-86.*
90. Gershman, S.J. (2017). Reinforcement learning and causal models. In M. Waldmann, Ed, *Oxford Handbook of Causal Reasoning*. Oxford University Press.
91. Gershman, S.J. & Daw, N.D. (2017). Reinforcement learning and episodic memory in humans and animals: an integrative framework. *Annual Review of Psychology, 68,* 101-128.
92. Gershman, S.J., Monfils, M.-H., Norman, K.A., & Niv, Y. (2017). The computational nature of memory modification. *eLife*, *6*, e23763.
93. Gershman, S.J. (2017). On the blessing of abstraction. *The Quarterly Journal of Experimental Psychology*, *70,* 361-365.
94. Gershman, S.J., Tenenbaum, J.B., & Jäkel, F.J. (2016). Discovering hierarchical motion structure. *Vision Research, 126,* 232-241.

95. Pereira, F., Gershman, S.J., Ritter, S., & Botvinick, M.M. (2016). A comparative evaluation of off-the-shelf distributed semantic representations for modelling behavioural data. *Cognitive Neuropsychology, 33*, 175-190.
96. Schulz, E., Tenenbaum, J.B., Duvenaud, D., Speekenbrink, M., & Gershman, S.J. (2016). Probing the compositionality of intuitive functions. *Advances in Neural Information Processing Systems, 29*.
97. Gershman, S.J., Gerstenberg, T., Baker, C.L., & Cushman, F.A. (2016). Plans, habits, and theory of mind. *PLOS One, 11*, e0162246.
98. Kool, W., Cushman, F.A., & Gershman, S.J. (2016). When does model-based control pay off? *PLOS Computational Biology, 12,* e1005090.
99. Ullman, T.D., Siegel, M., Tenenbaum, J.B., & Gershman, S.J. (2016). Coalescing the vapors of human experience into a viable and meaningful comprehension. *Proceedings of the 38th Annual Conference of the Cognitive Science Society*.
100. Batmanghelich, K., Saeedi, A., Narasimhan, K., & Gershman, S.J. (2016). Nonparametric spherical topic modeling with word embeddings. *Proceedings of the 54th Annual Meeting of the Association for Computational Linguistics*.
101. Gershman, S.J. (2016). Empirical priors for reinforcement learning models. *Journal of Mathematical Psychology, 71,* 1-6.
102. Tervo, D.G.R., Tenenbaum, J.B., & Gershman, S.J. (2016). Towards the neural implementation of structure learning. *Current Opinion in Neurobiology, 37*, 99-105.
103. Gershman, S.J. (2015). A unifying probabilistic view of associative learning. *PLOS Computational Biology, 11,* e1004567.
104. Gershman, S.J. (2015). Do learning rates adapt to the distribution of rewards? *Psychonomic Bulletin & Review, 22,* 1320-1327.
105. Gershman, S.J., Norman, K.A., & Niv, Y. (2015). Discovering latent causes in reinforcement learning. *Current Opinion in Behavioral Sciences, 5,* 43-50.
106. Gershman, S.J. & Tenenbaum, J.B. (2015). Phrase similarity in humans and machines. *Proceedings of the 37th Annual Conference of the Cognitive Science Society*.
107. Schulz, E., Tenenbaum, J.B., Reshef, D.N., Speekenbrink, M., & Gershman, S.J. (2015). Assessing the perceived predictability of functions. *Proceedings of the 37th Annual Conference of the Cognitive Science Society*.
108. Gershman, S.J., Horvitz, E.J., & Tenenbaum, J.B. (2015). Computational rationality: a converging paradigm for intelligence in brains, minds and machines. *Science, 349,* 273-278.
109. Gershman, S.J. & Hartley, C.A. (2015). Individual differences in learning predict the return of fear. *Learning & Behavior, 43,* 243-250.
110. Niv, Y., Daniel, R., Geana, A., Gershman, S.J., Leong, Y.C., Radulescu, A., & Wilson, R.C. (2015). Reinforcement learning in multidimensional environments relies on attention mechanisms. *Journal of Neuroscience, 35, 8145-8157.*
111. Huys, Q.J.M., Lally, N., Faulkner, P., Eshel, N., Seifritz, E., Gershman, S.J., Dayan, P., & Roiser, J.P. (2015). The interplay of approximate planning strategies. *Proceedings of the National Academy of Sciences, 112*, 3098-3103.

112. Gershman, S.J. & Niv, Y. (2015). Novelty and inductive generalization in human reinforcement learning. *Topics in Cognitive Science,* 1-25.
113. Gershman, S.J., Frazier, P.I., & Blei, D.M. (2015). Distance dependent infinite latent feature models. *IEEE Transactions on Pattern Analysis and Machine Intelligence, 37,* 334-345.
114. Austerweil, J.L., Gershman, S.J., Tenenbaum, J.B., & Griffiths, T.L. (2015). Structure and flexibility in Bayesian models of cognition. In J.R. Busemeyer, J.T. Townsend, Z. Wang, & A. Eidels, Eds, *Oxford Handbook of Computational and Mathematical Psychology*. Oxford University Press.
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AD HOC REVIEWER (alphabetical order)

Biological Cybernetics, Biological Psychiatry, Brain & Cognition, Cognition, Cognitive Science, CABN, Current Biology, Decision, eLife, Frontiers in Decision Neuroscience, Journal of Cognitive Neuroscience, Journal of Experimental Psychology: Learning, Memory & Cognition, Journal of Experimental Psychology: General, Journal of Machine Learning Research, Journal of Mathematical Psychology, Journal of Neuroscience, Journal of Neuroscience Methods, Learning & Memory, Neural Computation, Nature Communications, Nature Neuroscience, Neurobiology of Aging, NeuroImage, Neuron, Neuropsychologia, PLOS Computational Biology, PNAS, Psychological Review, Psychonomic Bulletin & Review, Science

EDITORIAL POSITIONS

Deputy editor: PLOS Computational Biology

Associate editor: Cognitive Science

Ad hoc editor: eLife

Reviewing editor: Psychological Review

Special issue guest editor: Current Opinion in Behavioral Sciences (special issue on artificial intelligence, 2019), Topics in Cognitive Science (special issue on computational approaches to social cognition, 2019)

TEACHING

Cognition: Mind and Brain (Spring 2007), Columbia University—teaching assistant

Animal learning and decision making: psychological, computational and neural perspectives (Fall 2010), Princeton University—teaching assistant

Computational Cognitive Neuroscience (Fall 2016, yearly thereafter), Harvard University

Computational Social Cognition summer course (Summer, 2017)

Debugging the Brain (Spring 2018, every other year thereafter), Harvard University

Theories of Learning (Fall 2018, every other year thereafter), Harvard University

Brains, Minds and Machines summer course, Marine Biological Laboratory (2015-2020)