

Momchil Tomov

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Education and Academic Training	Harvard University, Cambridge, MA Associate - Department of Psychology and Center for Brain Science - Advisor: Samuel Gershman	2021 – present
	Harvard University, Cambridge, MA Postdoctoral Fellow - Department of Psychology and Center for Brain Science - Advisors: Samuel Gershman and Naoshige Uchida	2019 – 2021
	Harvard University, Cambridge, MA PhD, Neurobiology - Dissertation Title: “Structure Learning and Uncertainty-Guided Exploration in the Human Brain” - Advisor: Samuel Gershman	2016 – 2019
	Princeton University, Princeton, NJ BSE (Cum Laude), Computer Science - Certificates in Neuroscience, Robotics and Intelligent Systems - Thesis Title: “Towards a General Model of Prospective Memory” - Advisors: Yael Niv, Jonathan Cohen, Kenneth Norman	2010 – 2014
Industry Positions	Motional AD LLC, Boston, MA Senior Research Scientist	2021 – present
	MemSQL, Inc., San Francisco, CA Senior Software Engineer	2016 – 2017
	Software Engineer	2014 – 2016
	Software Engineering Intern	2012, 2013
	Facebook, Inc., Menlo Park, CA Software Engineering Intern	2011

Publications	Tomov, M. , Tsividis, P., Pouncy, T., Gershman, S. (2023). The neural architecture of theory-based reinforcement learning. <i>Neuron</i> , 111, 1331-1344.
	Phan-Minh, T., Howington, F., Chu, T., Tomov, M. , Beaudoin, R., Lee, S., Li, N., Dicle, C., Findler, S., Suarez-Ruiz, F., Yang, B., Omari, S., Wolff, E. (2023). DriveRL: Drive in Real Life with Inverse Reinforcement Learning. IEEE International Conference on Robotics and Automation (ICRA)
	Dorfman, H.*, Tomov, M.* , Cheung, B., Clarke, D., Gershman, S.*, Hughes, B.* (2021). Causal inference gates corticostriatal learning. <i>Journal of Neuroscience</i> , 41, 6892-6904
	Bhattachali, N.X., Tomov, M.S. , & Gershman, S.J. (2021). CCNLab: A benchmarking framework for computational cognitive neuroscience. <i>35th Conference on Neural Information Processing Systems (NeurIPS) Track on Datasets and Benchmarks</i> .
	Tomov, M.* , Schulz, E.*, & Gershman, S.J. (2021). Multi-task reinforcement learning in humans. <i>Nature Human Behaviour</i> , 5, 764-773.
	Tomov, M. , Truong, V., Hundia, R., & Gershman, S.J. (2020). Dissociable neural correlates of uncertainty underlie different exploration strategies. <i>Nature Communications</i> , 11, 2371.
Submitted	Tomov, M. , Yagati, S., Kumar, A., Yang, W., & Gershman, S.J. (2020). Discovery of hierarchical representations for efficient planning. <i>PLOS Computational Biology</i> , 16, e1007594.
	Tomov, M. , Dorfman, H., & Gershman, S. (2018). Neural computations underlying causal structure learning. <i>Journal of Neuroscience</i> , 38, 7143-7157.
	Momennejad, I.*, Tomov, M.* , Norman, K., Cohen, J. (2016). The strategic allocation of working memory and episodic memory in prospective remembering: A neural network model. <i>Society for Neuroscience Poster Session</i>
In prep	Bukwich, M.*, Campbell, M. G.*, Zoltowski, D., Kingsbury, L., Tomov, M. , Stern, J., Kim, H. R., Drugowitsch, J., Linderman, S. W., & Uchida, N. (2023). Competitive integration of time and reward explains value-sensitive foraging decisions and frontal cortex ramping dynamics. bioRxiv, 2023-09.
	Carvalho, W.*, Tomov, M.* , de Cothi, W.*, Barry, C., Gershman, S. Predictive representations: building blocks of intelligence. arXiv, 2024-02.
In prep	Heim, M., Suarez, F., Tomov, M. , Buyakasha, I., Brito, B. Prometheus: maneuver extraction from initial trajectory sketch.
	Hall-McMaster, S., Tomov, M. , Gershman, S., Schuck, N. Neural prioritisation of past solutions supports generalization.

* = equal contribution

Awards	Outstanding Independent Work Award, Princeton Computer Science Department	2014
	Brinster' 43 Neuroscience Thesis Prize, Princeton Neuroscience Institute	2014
	International Collegiate Programming Contest (ICPC), Association of Computing Machinery – Finalist	2012
	21 st International Olympiad in Informatics (IOI) – Silver Medalist	2009
	20 th International Olympiad in Informatics (IOI) – Silver Medalist	2008
Teaching and Mentoring	Research Science Institute (RSI), MIT – Mentor	2023
	Computer Science Undergraduate Thesis, Harvard – Mentor	2019 – 2020
	Undergraduate Research Projects, Harvard – Mentor	2018 – 2020
	Computational Cognitive Science Class (6.804/9.66/9.066), Joshua Tenenbaum, MIT – Teaching Assistant	2018, 2020
	Computational Cognitive Neuroscience (PSY 1401), Samuel Gershman, Harvard – Teaching Assistant	2019
	Topics in Data Visualization (CS 271), Johanna Beyer, Harvard – Teaching Assistant	2019
	Fundamentals of C# Programming, Telerik Academy – Instructor	2010
	National Programming Team, Bulgarian Ministry of Education – Instructor	2010
Invited Talks	Max Planck Institute for Intelligent Systems, RLDM Seminar	2022
	Harvard U19 DOPE Seminar	2021
	Max Planck Institute for Intelligent Systems, RLDM Seminar	2020
	Harvard Program in Neuroscience Interview Weekend	2018

Academic and Community Service	Center for Brains, Minds and Machines, MIT – Member	2019 – 2021
	Basal Ganglia Journal Club, Harvard – Co-founder and Organizer	2017 – 2018
	Systems Consciousness Club, Harvard – Member and Regular Speaker	2017 – 2018
	Princeton Entrepreneurship Club, Princeton – President	2012 – 2013
	HackPrinceton International Hackathon, Co-founder and Organizer	2011 – 2013
	International Students’ Association, Princeton – Vice President	2011 – 2012
Reviewer: <i>Cognitive Science Society, PLOS Computational Biology, Nature Physics, Neurons, Behavior, Data Analysis, and Theory</i>		

References	Prof. Samuel Gershman Harvard University 52 Oxford St, Room 295.05 Cambridge, MA 02138 gershman@fas.harvard.edu (617) 496-6655	Prof. Naoshige Uchida Harvard University 16 Divinity Ave Cambridge, Room 4007 Cambridge, MA 02138 uchida@mcb.harvard.edu (617) 495-2335
	Dr. Eric Wolff Cruise eric.m.wolff@gmail.com (269) 861-5305	Dr. Eric Schulz Max Planck Research Group Leader eric.schulz@tuebingen.mpg.de +49 7071 601 1717