

# Mt Lengyel

## List of Publications by Citations

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123  
papers

17,414  
citations

48  
h-index

131  
g-index

139  
ext. papers

20,859  
ext. citations

9.9  
avg, IF

7.13  
L-index

#	Paper	IF	Citations
123	Signal-dependent noise determines motor planning. <i>Nature</i> , <b>1998</b> , 394, 780-4	50.4	1761
122	Noise in the nervous system. <i>Nature Reviews Neuroscience</i> , <b>2008</b> , 9, 292-303	13.5	1635
121	Computational principles of movement neuroscience. <i>Nature Neuroscience</i> , <b>2000</b> , 3 Suppl, 1212-7	25.5	1364
120	Bayesian integration in sensorimotor learning. <i>Nature</i> , <b>2004</b> , 427, 244-7	50.4	1270
119	Central cancellation of self-produced tickle sensation. <i>Nature Neuroscience</i> , <b>1998</b> , 1, 635-40	25.5	952
118	Principles of sensorimotor learning. <i>Nature Reviews Neuroscience</i> , <b>2011</b> , 12, 739-51	13.5	863
117	A unifying computational framework for motor control and social interaction. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , <b>2003</b> , 358, 593-602	5.8	768
116	Spatio-temporal prediction modulates the perception of self-produced stimuli. <i>Journal of Cognitive Neuroscience</i> , <b>1999</b> , 11, 551-9	3.1	628
115	Maintaining internal representations: the role of the human superior parietal lobe. <i>Nature Neuroscience</i> , <b>1998</b> , 1, 529-33	25.5	581
114	Mosaic model for sensorimotor learning and control. <i>Neural Computation</i> , <b>2001</b> , 13, 2201-20	2.9	569
113	Perspectives and problems in motor learning. <i>Trends in Cognitive Sciences</i> , <b>2001</b> , 5, 487-494	14	569
112	Bayesian decision theory in sensorimotor control. <i>Trends in Cognitive Sciences</i> , <b>2006</b> , 10, 319-26	14	561
111	Spontaneous cortical activity reveals hallmarks of an optimal internal model of the environment. <i>Science</i> , <b>2011</b> , 331, 83-7	33.3	435
110	Statistically optimal perception and learning: from behavior to neural representations. <i>Trends in Cognitive Sciences</i> , <b>2010</b> , 14, 119-30	14	413
109	Changes of mind in decision-making. <i>Nature</i> , <b>2009</b> , 461, 263-6	50.4	401
108	Computational principles of sensorimotor control that minimize uncertainty and variability. <i>Journal of Physiology</i> , <b>2007</b> , 578, 387-96	3.9	233
107	Motor control is decision-making. <i>Current Opinion in Neurobiology</i> , <b>2012</b> , 22, 996-1003	7.6	220

106	Failure to consolidate the consolidation theory of learning for sensorimotor adaptation tasks. <i>Journal of Neuroscience</i> , <b>2004</b> , 24, 8662-71	6.6	212
105	Modular decomposition in visuomotor learning. <i>Nature</i> , <b>1997</b> , 386, 392-5	50.4	176
104	A modular planar robotic manipulandum with end-point torque control. <i>Journal of Neuroscience Methods</i> , <b>2009</b> , 181, 199-211	3	155
103	Bayesian learning of visual chunks by human observers. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2008</b> , 105, 2745-50	11.5	151
102	Dynamically detuned oscillations account for the coupled rate and temporal code of place cell firing. <i>Hippocampus</i> , <b>2003</b> , 13, 700-14	3.5	129
101	Probabilistic models in human sensorimotor control. <i>Human Movement Science</i> , <b>2007</b> , 26, 511-24	2.4	128
100	A common mechanism underlies changes of mind about decisions and confidence. <i>ELife</i> , <b>2016</b> , 5, e121928.9		124
99	Evidence for an eye-centered spherical representation of the visuomotor map. <i>Journal of Neurophysiology</i> , <b>1999</b> , 81, 935-9	3.2	121
98	Neural Variability and Sampling-Based Probabilistic Representations in the Visual Cortex. <i>Neuron</i> , <b>2016</b> , 92, 530-543	13.9	106
97	Decision-making in sensorimotor control. <i>Nature Reviews Neuroscience</i> , <b>2018</b> , 19, 519-534	13.5	100
96	With or without you: predictive coding and Bayesian inference in the brain. <i>Current Opinion in Neurobiology</i> , <b>2017</b> , 46, 219-227	7.6	99
95	Matching storage and recall: hippocampal spike timing-dependent plasticity and phase response curves. <i>Nature Neuroscience</i> , <b>2005</b> , 8, 1677-83	25.5	98
94	On the origins of suboptimality in human probabilistic inference. <i>PLoS Computational Biology</i> , <b>2014</b> , 10, e1003661	5	96
93	Effective reinforcement learning following cerebellar damage requires a balance between exploration and motor noise. <i>Brain</i> , <b>2016</b> , 139, 101-14	11.2	93
92	Functional magnetic resonance imaging of impaired sensory prediction in schizophrenia. <i>JAMA Psychiatry</i> , <b>2014</b> , 71, 28-35	14.5	93
91	Statistical treatment of looking-time data. <i>Developmental Psychology</i> , <b>2016</b> , 52, 521-36	3.7	83
90	Motor learning. <i>Current Biology</i> , <b>2010</b> , 20, R467-72	6.3	81
89	Motor Planning, Not Execution, Separates Motor Memories. <i>Neuron</i> , <b>2016</b> , 92, 773-779	13.9	71

88	Predictive motor learning of temporal delays. <i>Journal of Neurophysiology</i> , <b>1999</b> , 82, 2039-48	3.2	69
87	Internal Models in Biological Control. <i>Annual Review of Control, Robotics, and Autonomous Systems</i> , <b>2019</b> , 2, 339-364	11.8	63
86	Fast but fleeting: adaptive motor learning processes associated with aging and cognitive decline. <i>Journal of Neuroscience</i> , <b>2014</b> , 34, 13411-21	6.6	63
85	Ageing increases reliance on sensorimotor prediction through structural and functional differences in frontostriatal circuits. <i>Nature Communications</i> , <b>2016</b> , 7, 13034	17.4	61
84	Parallel specification of competing sensorimotor control policies for alternative action options. <i>Nature Neuroscience</i> , <b>2016</b> , 19, 320-6	25.5	60
83	Computations underlying sensorimotor learning. <i>Current Opinion in Neurobiology</i> , <b>2016</b> , 37, 7-11	7.6	60
82	The Dynamical Regime of Sensory Cortex: Stable Dynamics around a Single Stimulus-Tuned Attractor Account for Patterns of Noise Variability. <i>Neuron</i> , <b>2018</b> , 98, 846-860.e5	13.9	60
81	Confidence Is the Bridge between Multi-stage Decisions. <i>Current Biology</i> , <b>2016</b> , 26, 3157-3168	6.3	55
80	Theoretical perspectives on active sensing. <i>Current Opinion in Behavioral Sciences</i> , <b>2018</b> , 11, 100-108	4	55
79	Synapses with short-term plasticity are optimal estimators of presynaptic membrane potentials. <i>Nature Neuroscience</i> , <b>2010</b> , 13, 1271-5	25.5	52
78	Democracy-independence trade-off in oscillating dendrites and its implications for grid cells. <i>Neuron</i> , <b>2010</b> , 66, 429-37	13.9	50
77	Representations of uncertainty in sensorimotor control. <i>Current Opinion in Neurobiology</i> , <b>2011</b> , 21, 629-356	35.6	49
76	The value of the follow-through derives from motor learning depending on future actions. <i>Current Biology</i> , <b>2015</b> , 25, 397-401	6.3	48
75	Learning and decay of prediction in object manipulation. <i>Journal of Neurophysiology</i> , <b>2000</b> , 84, 334-43	3.2	48
74	Motor effort alters changes of mind in sensorimotor decision making. <i>PLoS ONE</i> , <b>2014</b> , 9, e92681	3.7	48
73	Flexible representations of dynamics are used in object manipulation. <i>Current Biology</i> , <b>2008</b> , 18, 763-768	6.3	47
72	Action plan co-optimization reveals the parallel encoding of competing reach movements. <i>Nature Communications</i> , <b>2015</b> , 6, 7428	17.4	46
71	The role of ongoing dendritic oscillations in single-neuron dynamics. <i>PLoS Computational Biology</i> , <b>2009</b> , 5, e1000493	5	46

70	Active sensing in the categorization of visual patterns. <i>ELife</i> , <b>2016</b> , 5,	8.9	46
69	Goal-Directed Decision Making with Spiking Neurons. <i>Journal of Neuroscience</i> , <b>2016</b> , 36, 1529-46	6.6	44
68	The effect of visuomotor displacements on arm movement paths. <i>Experimental Brain Research</i> , <b>1999</b> , 127, 213-23	2.3	39
67	Global and Multiplexed Dendritic Computations under In Vivo-like Conditions. <i>Neuron</i> , <b>2018</b> , 100, 579-592.e5	3.5	39
66	Cognitive tomography reveals complex, task-independent mental representations. <i>Current Biology</i> , <b>2013</b> , 23, 2169-75	6.3	34
65	Piercing of Consciousness as a Threshold-Crossing Operation. <i>Current Biology</i> , <b>2017</b> , 27, 2285-2295.e6	6.3	33
64	Multiple motor memories are learned to control different points on a tool. <i>Nature Human Behaviour</i> , <b>2018</b> , 2, 300-311	12.8	32
63	Computational theories on the function of theta oscillations. <i>Biological Cybernetics</i> , <b>2005</b> , 92, 393-408	2.8	31
62	TOPS (Task Optimization in the Presence of Signal-Dependent Noise) model. <i>Systems and Computers in Japan</i> , <b>2004</b> , 35, 48-58		29
61	The Hamiltonian Brain: Efficient Probabilistic Inference with Excitatory-Inhibitory Neural Circuit Dynamics. <i>PLoS Computational Biology</i> , <b>2016</b> , 12, e1005186	5	29
60	Rapid Visuomotor Responses Reflect Value-Based Decisions. <i>Journal of Neuroscience</i> , <b>2019</b> , 39, 3906-3920	20.6	25
59	Fractionation of the visuomotor feedback response to directions of movement and perturbation. <i>Journal of Neurophysiology</i> , <b>2014</b> , 112, 2218-33	3.2	24
58	Hippocampal rhythm generation: gamma-related theta-frequency resonance in CA3 interneurons. <i>Biological Cybernetics</i> , <b>2001</b> , 84, 123-32	2.8	24
57	Cortical-like dynamics in recurrent circuits optimized for sampling-based probabilistic inference. <i>Nature Neuroscience</i> , <b>2020</b> , 23, 1138-1149	25.5	24
56	Increasing muscle co-contraction speeds up internal model acquisition during dynamic motor learning. <i>Scientific Reports</i> , <b>2018</b> , 8, 16355	4.9	24
55	Increasing Motor Noise Impairs Reinforcement Learning in Healthy Individuals. <i>ENeuro</i> , <b>2018</b> , 5,	3.9	24
54	Seeing what you want to see: priors for one's own actions represent exaggerated expectations of success. <i>Frontiers in Behavioral Neuroscience</i> , <b>2014</b> , 8, 232	3.5	23
53	Theta oscillation-coupled dendritic spiking integrates inputs on a long time scale. <i>Hippocampus</i> , <b>2005</b> , 15, 950-62	3.5	23

52	When Optimal Feedback Control Is Not Enough: Feedforward Strategies Are Required for Optimal Control with Active Sensing. <i>PLoS Computational Biology</i> , <b>2016</b> , 12, e1005190	5	22
51	Dendritic nonlinearities are tuned for efficient spike-based computations in cortical circuits. <i>ELife</i> , <b>2015</b> , 4,	8.9	22
50	Rapid Visuomotor Corrective Responses during Transport of Hand-Held Objects Incorporate Novel Object Dynamics. <i>Journal of Neuroscience</i> , <b>2015</b> , 35, 10572-80	6.6	21
49	The sequential encoding of competing action goals involves dynamic restructuring of motor plans in working memory. <i>Journal of Neurophysiology</i> , <b>2016</b> , 115, 3113-22	3.2	21
48	Inferring visuomotor priors for sensorimotor learning. <i>PLoS Computational Biology</i> , <b>2011</b> , 7, e1001112	5	21
47	Comment on "Single-trial spike trains in parietal cortex reveal discrete steps during decision-making". <i>Science</i> , <b>2016</b> , 351, 1406	33.3	20
46	Imagery of movements immediately following performance allows learning of motor skills that interfere. <i>Scientific Reports</i> , <b>2018</b> , 8, 14330	4.9	20
45	Rapid Automatic Motor Encoding of Competing Reach Options. <i>Cell Reports</i> , <b>2017</b> , 18, 1619-1626	10.6	19
44	Counterfactual Reasoning Underlies the Learning of Priors in Decision Making. <i>Neuron</i> , <b>2018</b> , 99, 1083-1097	10.7	19
43	Rapid visuomotor feedback gains are tuned to the task dynamics. <i>Journal of Neurophysiology</i> , <b>2017</b> , 118, 2711-2726	3.2	18
42	Age-related reduction in motor adaptation: brain structural correlates and the role of explicit memory. <i>Neurobiology of Aging</i> , <b>2020</b> , 90, 13-23	5.6	18
41	Rapid target foraging with reach or gaze: The hand looks further ahead than the eye. <i>PLoS Computational Biology</i> , <b>2017</b> , 13, e1005504	5	16
40	Q&A: Robotics as a tool to understand the brain. <i>BMC Biology</i> , <b>2010</b> , 8, 92	7.3	16
39	Enhanced crosslimb transfer of force-field learning for dynamics that are identical in extrinsic and joint-based coordinates for both limbs. <i>Journal of Neurophysiology</i> , <b>2016</b> , 115, 445-56	3.2	14
38	Optimal recall from bounded metaplastic synapses: predicting functional adaptations in hippocampal area CA3. <i>PLoS Computational Biology</i> , <b>2014</b> , 10, e1003489	5	13
37	Contextual inference underlies the learning of sensorimotor repertoires. <i>Nature</i> , <b>2021</b> ,	50.4	13
36	Model-Free Robust Optimal Feedback Mechanisms of Biological Motor Control. <i>Neural Computation</i> , <b>2020</b> , 32, 562-595	2.9	12
35	Grip force when reaching with target uncertainty provides evidence for motor optimization over averaging. <i>Scientific Reports</i> , <b>2017</b> , 7, 11703	4.9	12

34	Theta-modulated feedforward network generates rate and phase coded firing in the entorhino-hippocampal system. <i>IEEE Transactions on Neural Networks</i> , <b>2004</b> , 15, 1092-9		12
33	Target Uncertainty Mediates Sensorimotor Error Correction. <i>PLoS ONE</i> , <b>2017</b> , 12, e0170466	3.7	12
32	31.1: Invited Paper: Programmable Electrostatic Surface for Tactile Perceptions. <i>Digest of Technical Papers SID International Symposium</i> , <b>2012</b> , 43, 407-410	0.5	11
31	Phase coding: spikes get a boost from local fields. <i>Current Biology</i> , <b>2008</b> , 18, R349-51	6.3	11
30	Coordinate Representations for Interference Reduction in Motor Learning. <i>PLoS ONE</i> , <b>2015</b> , 10, e0129388	9.7	9
29	Intrahippocampal gamma and theta rhythm generation in a network model of inhibitory interneurons. <i>Neurocomputing</i> , <b>2001</b> , 38-40, 713-719	5.4	9
28	Multiple decisions about one object involve parallel sensory acquisition but time-multiplexed evidence incorporation. <i>ELife</i> , <b>2021</b> , 10,	8.9	9
27	An error-tuned model for sensorimotor learning. <i>PLoS Computational Biology</i> , <b>2017</b> , 13, e1005883	5	8
26	The Sensorimotor System Can Sculpt Behaviorally Relevant Representations for Motor Learning. <i>ENeuro</i> , <b>2016</b> , 3,	3.9	8
25	A Theoretical Framework for the Dynamics of Multiple Intrinsic Oscillators in Single Neurons <b>2012</b> , 53-72		5
24	Contextual inference underlies the learning of sensorimotor repertoires		5
23	Computations in Sensorimotor Learning. <i>Cold Spring Harbor Symposia on Quantitative Biology</i> , <b>2014</b> , 79, 93-8	3.9	4
22	Representational untangling by the firing rate nonlinearity in V1 simple cells. <i>ELife</i> , <b>2019</b> , 8,	8.9	4
21	Stabilized supralinear network dynamics account for stimulus-induced changes of noise variability in the cortex		4
20	Cortical-like dynamics in recurrent circuits optimized for sampling-based probabilistic inference		4
19	Effect of dendritic location and different components of LTP expression on the bursting activity of hippocampal CA1 pyramidal cells. <i>Neurocomputing</i> , <b>2004</b> , 58-60, 691-697	5.4	3
18	Single cell and population activities in cortical-like systems. <i>Reviews in the Neurosciences</i> , <b>1999</b> , 10, 201-127	12.7	3
17	Planning in the brain.. <i>Neuron</i> , <b>2022</b> ,	13.9	3

16	Unimodal statistical learning produces multimodal object-like representations. <i>ELife</i> , <b>2019</b> , 8,	8.9	3
15	Separate motor memories are formed when controlling different implicitly specified locations on a tool. <i>Journal of Neurophysiology</i> , <b>2019</b> , 121, 1342-1351	3.2	3
14	Adaptive coupling influences generalization of sensorimotor learning. <i>PLoS ONE</i> , <b>2018</b> , 13, e0207482	3.7	3
13	Probabilistic Mechanisms in Sensorimotor Control. <i>Novartis Foundation Symposium</i> , 191-202		3
12	Human decision making anticipates future performance in motor learning. <i>PLoS Computational Biology</i> , <b>2020</b> , 16, e1007632	5	2
11	Dendritic spiking accounts for rate and phase coding in a biophysical model of a hippocampal place cell. <i>Neurocomputing</i> , <b>2005</b> , 65-66, 331-341	5.4	2
10	Motor memories of object dynamics are categorically organized. <i>ELife</i> , <b>2021</b> , 10,	8.9	2
9	Representations of uncertainty: where art thou?. <i>Current Opinion in Behavioral Sciences</i> , <b>2021</b> , 38, 150-162		2
8	A universal probabilistic spike count model reveals ongoing modulation of neural variability		2
7	The Redemption of Noise: Inference with Neural Populations. <i>Trends in Neurosciences</i> , <b>2018</b> , 41, 767-770	13.3	2
6	A Trade-Off Between Dendritic Democracy and Independence in Neurons with Intrinsic Subthreshold Membrane Potential Oscillations. <i>Springer Series in Computational Neuroscience</i> , <b>2014</b> , 347-364	1.1	2
5	Location-dependent differences between somatic and dendritic IPSPs. <i>Neurocomputing</i> , <b>1999</b> , 26-27, 193-197	5.4	1
4	Motor memories in manipulation tasks are linked to contact goals between objects. <i>Journal of Neurophysiology</i> , <b>2020</b> , 124, 994-1004	3.2	1
3	The visual geometry of a tool modulates generalization during adaptation. <i>Scientific Reports</i> , <b>2019</b> , 9, 2731	4.9	1
2	Episodic Memory and Cognitive Map in a Rate Model Network of the Rat Hippocampus. <i>Lecture Notes in Computer Science</i> , <b>2001</b> , 1135-1140	0.9	
1	Reach adaption to a visuomotor gain with terminal error feedback involves reinforcement learning. <i>PLoS ONE</i> , <b>2022</b> , 17, e0269297	3.7	