Marcus Hutter

List of Publications by Citations

121 papers	**1,475** citations	**17** h-index	**35** g-index
131 ext. papers	**1,731** ext. citations	**1.5** avg, IF	**5.18** L-index

#	Paper	IF	Citations
121	Universal Intelligence: A Definition of Machine Intelligence. *Minds and Machines*, **2007**, 17, 391-444	4.9	231
120	A New Local Distance-Based Outlier Detection Approach for Scattered Real-World Data. *Lecture Notes in Computer Science*, **2009**, 813-822	0.9	144
119	Universal Artificial Intelligence. *Texts in Theoretical Computer Science*, **2005**,		143
118	Discriminative Hierarchical Rank Pooling for Activity Recognition **2016**,		53
117	A Philosophical Treatise of Universal Induction. *Entropy*, **2011**, 13, 1076-1136	2.8	52
116	PAC Bounds for Discounted MDPs. *Lecture Notes in Computer Science*, **2012**, 320-334	0.9	52
115	On universal prediction and Bayesian confirmation. *Theoretical Computer Science*, **2007**, 384, 33-48	1.1	51
114	THE FASTEST AND SHORTEST ALGORITHM FOR ALL WELL-DEFINED PROBLEMS. *International Journal of Foundations of Computer Science*, **2002**, 13, 431-443	0.6	51
113	On Thompson Sampling and Asymptotic Optimality **2017**,		50
112	Fitness uniform optimization. *IEEE Transactions on Evolutionary Computation*, **2006**, 10, 568-589	15.6	41
111	Distribution of mutual information from complete and incomplete data. *Computational Statistics and Data Analysis*, **2005**, 48, 633-657	1.6	35
110	Bayesian DNA copy number analysis. *BMC Bioinformatics*, **2009**, 10, 10	3.6	33
109	Universal Algorithmic Intelligence: A Mathematical Top-Down Approach **2007**, 227-290		25
108	New Error Bounds for Solomonoff Prediction. *Journal of Computer and System Sciences*, **2001**, 62, 653-667	1	23
107	Feature Reinforcement Learning: Part I. Unstructured MDPs. *Journal of Artificial General Intelligence*, **2009**, 1,	8	20
106	Exact Bayesian regression of piecewise constant functions. *Bayesian Analysis*, **2007**, 2,	2.3	18
105	On semimeasures predicting Martin-Löf random sequences. *Theoretical Computer Science*, **2007**, 382, 247-261	1.1	17

104	Towards a Universal Theory of Artificial Intelligence Based on Algorithmic Probability and Sequential Decisions. *Lecture Notes in Computer Science*, **2001**, 226-238	0.9	17
103	Limits of learning about a categorical latent variable under prior near-ignorance. *International Journal of Approximate Reasoning*, **2009**, 50, 597-611	3.6	14
102	One Decade of Universal Artificial Intelligence. *Atlantis Thinking Machines*, **2012**, 67-88		13
101	Self-Optimizing and Pareto-Optimal Policies in General Environments Based on Bayes-Mixtures. *Lecture Notes in Computer Science*, **2002**, 364-379	0.9	13
100	Convergence and Error Bounds for Universal Prediction of Nonbinary Sequences. *Lecture Notes in Computer Science*, **2001**, 239-250	0.9	12
99	A Complete Theory of Everything (Will Be Subjective). *Algorithms*, **2010**, 3, 329-350	1.8	11
98	Near-optimal PAC bounds for discounted MDPs. *Theoretical Computer Science*, **2014**, 558, 125-143	1.1	10
97	Open Problems in Universal Induction & Intelligence. *Algorithms*, **2009**, 2, 879-906	1.8	10
96	MDL convergence speed for Bernoulli sequences. *Statistics and Computing*, **2006**, 16, 161-175	1.8	10
95	Prediction with Expert Advice by Following the Perturbed Leader for General Weights. *Lecture Notes in Computer Science*, **2004**, 279-293	0.9	10
94	General time consistent discounting. *Theoretical Computer Science*, **2014**, 519, 140-154	1.1	9
93	Universal Knowledge-Seeking Agents for Stochastic Environments. *Lecture Notes in Computer Science*, **2013**, 158-172	0.9	9
92	Asymptotically Optimal Agents. *Lecture Notes in Computer Science*, **2011**, 368-382	0.9	8
91	Matching 2-D ellipses to 3-D circles with application to vehicle pose identification **2009**,		8
90	An integrated Bayesian analysis of LOH and copy number data. *BMC Bioinformatics*, **2010**, 11, 321	3.6	8
89	Hybrid rounding techniques for knapsack problems. *Discrete Applied Mathematics*, **2006**, 154, 640-649	1	8
88	Algorithmic information theory. *Scholarpedia Journal*, **2007**, 2, 2519	1.5	8
87	Tests of Machine Intelligence. *Lecture Notes in Computer Science*, **2007**, 232-242	0.9	8

86	No Free Lunch versus Occam's Razor in Supervised Learning. *Lecture Notes in Computer Science*, **2013**, 223-235	0.9	8
85	Equivalence of probabilistic tournament and polynomial ranking selection **2008**,		7
84	Sequential predictions based on algorithmic complexity. *Journal of Computer and System Sciences*, **2006**, 72, 95-117	1	7
83	Convergence of Discrete MDL for Sequential Prediction. *Lecture Notes in Computer Science*, **2004**, 300-314	0.9	7
82	On the Foundations of Universal Sequence Prediction. *Lecture Notes in Computer Science*, **2006**, 408-420	0.9	7
81	Self-Modification of Policy and Utility Function in Rational Agents. *Lecture Notes in Computer Science*, **2016**, 1-11	0.9	6
80	On the Convergence Speed of MDL Predictions for Bernoulli Sequences. *Lecture Notes in Computer Science*, **2004**, 294-308	0.9	6
79	Consistency of Feature Markov Processes. *Lecture Notes in Computer Science*, **2010**, 360-374	0.9	6
78	Defensive Universal Learning with Experts. *Lecture Notes in Computer Science*, **2005**, 356-370	0.9	6
77	Probabilities on Sentences in an Expressive Logic. *Journal of Applied Logic*, **2013**, 11, 386-420		5
76	Free Lunch for optimisation under the universal distribution **2014**,		5
75	Context Tree Switching **2012**,		5
74	Algorithmic complexity bounds on future prediction errors. *Information and Computation*, **2007**, 205, 242-261	0.8	5
73	Predicting non-stationary processes. *Applied Mathematics Letters*, **2008**, 21, 477-482	3.5	5
72	Sequence Prediction Based on Monotone Complexity. *Lecture Notes in Computer Science*, **2003**, 506-521	0.9	5
71	Algorithmic probability. *Scholarpedia Journal*, **2007**, 2, 2572	1.5	5
70	Analytical Results on the BFS vs. DFS Algorithm Selection Problem. Part I: Tree Search. *Lecture Notes in Computer Science*, **2015**, 157-165	0.9	5
69	Avoiding Wireheading with Value Reinforcement Learning. *Lecture Notes in Computer Science*, **2016**, 12-22	0.9	5

68	Feature Reinforcement Learning in Practice. *Lecture Notes in Computer Science*, **2012**, 66-77	0.9	5
67	Optimistic Agents Are Asymptotically Optimal. *Lecture Notes in Computer Science*, **2012**, 15-26	0.9	5
66	Death and Suicide in Universal Artificial Intelligence. *Lecture Notes in Computer Science*, **2016**, 23-32	0.9	4
65	Can we measure the difficulty of an optimization problem? **2014**,		4
64	Analytical Results on the BFS vs. DFS Algorithm Selection Problem: Part II: Graph Search. *Lecture Notes in Computer Science*, **2015**, 166-178	0.9	4
63	The Subjective Computable Universe **2012**, 399-416		4
62	A Novel Illumination-Invariant Loss for Monocular 3D Pose Estimation **2011**,		4
61	Family structure from periodic solutions of an improved gap equation. *Nuclear Physics B*, **1997**, 484, 80-96	5.8	4
60	Instantons and meson correlation functions in QCD. *Zeitschrift Fl Physik C-Particles and Fields*, **1997**, 74, 131-143		4
59	On Sequence Prediction for Arbitrary Measures **2007**,		4
58	On the Existence and Convergence of Computable Universal Priors. *Lecture Notes in Computer Science*, **2003**, 298-312	0.9	4
57	Feature Dynamic Bayesian Networks **2009**,		4
56	Algorithmic complexity. *Scholarpedia Journal*, **2008**, 3, 2573	1.5	4
55	On Q-learning Convergence for Non-Markov Decision Processes **2018**,		4
54	Asymptotically Unambitious Artificial General Intelligence. *Proceedings of the AAAI Conference on Artificial Intelligence*, **2020**, 34, 2467-2476	5	4
53	Universal Artificial Intelligence. *Studies in Systems, Decision and Control*, **2018**, 15-46	0.8	4
52	(Non-)Equivalence of Universal Priors. *Lecture Notes in Computer Science*, **2013**, 417-425	0.9	4
51	Axioms for Rational Reinforcement Learning. *Lecture Notes in Computer Science*, **2011**, 338-352	0.9	4

50	Adaptive Context Tree Weighting **2012**,		3
49	On the possibility of learning in reactive environments with arbitrary dependence. *Theoretical Computer Science*, **2008**, 405, 274-284	1.1	3
48	Bayesian Treatment of Incomplete Discrete Data Applied to Mutual Information and Feature Selection. *Lecture Notes in Computer Science*, **2003**, 396-406	0.9	3
47	Robust inference of trees. *Annals of Mathematics and Artificial Intelligence*, **2005**, 45, 215-239	0.8	3
46	Fitness uniform deletion **2005**,		3
45	Extreme State Aggregation beyond MDPs. *Lecture Notes in Computer Science*, **2014**, 185-199	0.9	3
44	Time Consistent Discounting. *Lecture Notes in Computer Science*, **2011**, 383-397	0.9	3
43	Universal Reinforcement Learning Algorithms: Survey and Experiments **2017**,		3
42	General Discounting Versus Average Reward. *Lecture Notes in Computer Science*, **2006**, 244-258	0.9	3
41	Asymptotic Learnability of Reinforcement Problems with Arbitrary Dependence. *Lecture Notes in Computer Science*, **2006**, 334-347	0.9	3
40	Featureless 2D–3D pose estimation by minimising an illumination-invariant loss **2010**,		2
39	3D Model Assisted Image Segmentation **2011**,		2
38	Practical robust estimators for the imprecise Dirichlet model. *International Journal of Approximate Reasoning*, **2009**, 50, 231-242	3.6	2
37	On generalized computable universal priors and their convergence. *Theoretical Computer Science*, **2006**, 364, 27-41	1.1	2
36	Reward-Punishment Symmetric Universal Intelligence. *Lecture Notes in Computer Science*, **2022**, 1-10	0.9	2
35	An Open Problem Regarding the Convergence of Universal A Priori Probability. *Lecture Notes in Computer Science*, **2003**, 738-740	0.9	2
34	Universal Convergence of Semimeasures on Individual Random Sequences. *Lecture Notes in Computer Science*, **2004**, 234-248	0.9	2
33	A Strongly Asymptotically Optimal Agent in General Environments **2019**,		2

32	Sequential Extensions of Causal and Evidential Decision Theory. *Lecture Notes in Computer Science*, **2015**, 205-221	0.9	2
31	Universal Prediction of Selected Bits. *Lecture Notes in Computer Science*, **2011**, 262-276	0.9	2
30	Optimistic AIXI. *Lecture Notes in Computer Science*, **2012**, 312-321	0.9	2
29	Bayesian Reinforcement Learning with Exploration. *Lecture Notes in Computer Science*, **2014**, 170-184	0.9	2
28	Reward tampering problems and solutions in reinforcement learning: a causal influence diagram perspective. *Synthese*,1	0.8	2
27	Extreme state aggregation beyond Markov decision processes. *Theoretical Computer Science*, **2016**, 650, 73-91	1.1	2
26	On the computability of Solomonoff induction and AIXI. *Theoretical Computer Science*, **2018**, 716, 28-49	1.1	2
25	On Martin-Löf (non-)convergence of Solomonoff's universal mixture. *Theoretical Computer Science*, **2015**, 588, 2-15	1.1	1
24	A Game-Theoretic Analysis of the Off-Switch Game. *Lecture Notes in Computer Science*, **2017**, 167-177	0.9	1
23	Model selection with the Loss Rank Principle. *Computational Statistics and Data Analysis*, **2010**, 54, 1288-1306	1.3	1
22	The mass of the η in self-dual QCD. *Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics*, **1996**, 367, 275-278	4.2	1
21	Solomonoff Induction Violates Nicod's Criterion. *Lecture Notes in Computer Science*, **2015**, 349-363	0.9	1
20	On Martin-Löf Convergence of Solomonoff's Mixture. *Lecture Notes in Computer Science*, **2013**, 212-223	0.9	1
19	Concentration and Confidence for Discrete Bayesian Sequence Predictors. *Lecture Notes in Computer Science*, **2013**, 324-338	0.9	1
18	Learning Agents with Evolving Hypothesis Classes. *Lecture Notes in Computer Science*, **2013**, 150-159	0.9	1
17	Intelligence as Inference or Forcing Occam on the World. *Lecture Notes in Computer Science*, **2014**, 186-195	0.9	1
16	Indefinitely Oscillating Martingales. *Lecture Notes in Computer Science*, **2014**, 321-335	0.9	1
15	On Ensemble Techniques for AIXI Approximation. *Lecture Notes in Computer Science*, **2012**, 341-351	0.9	0

| 14 | Algorithmic Complexity **2015**, 534-538 | |

| 13 | Monotone Conditional Complexity Bounds on Future Prediction Errors. *Lecture Notes in Computer Science*, **2005**, 414-428 | 0.9 |

| 12 | The Loss Rank Principle for Model Selection. *Lecture Notes in Computer Science*, **2007**, 589-603 | 0.9 |

| 11 | On the Computability of Solomonoff Induction and Knowledge-Seeking. *Lecture Notes in Computer Science*, **2015**, 364-378 | 0.9 |

| 10 | Using Localization and Factorization to Reduce the Complexity of Reinforcement Learning. *Lecture Notes in Computer Science*, **2015**, 177-186 | 0.9 |

| 9 | Reliable Point Correspondences in Scenes Dominated by Highly Reflective and Largely Homogeneous Surfaces. *Lecture Notes in Computer Science*, **2015**, 659-674 | 0.9 |

| 8 | Bayesian Joint Estimation of CN and LOH Aberrations. *Lecture Notes in Computer Science*, **2009**, 1109-1117 | 0.9 |

| 7 | Principles of Solomonoff Induction and AIXI. *Lecture Notes in Computer Science*, **2013**, 386-398 | 0.9 |

| 6 | A Noise Tolerant Watershed Transformation with Viscous Force for Seeded Image Segmentation. *Lecture Notes in Computer Science*, **2013**, 775-789 | 0.9 |

| 5 | Offline to Online Conversion. *Lecture Notes in Computer Science*, **2014**, 230-244 | 0.9 |

| 4 | Curiosity Killed or Incapacitated the Cat and the Asymptotically Optimal Agent. *IEEE Journal on Selected Areas in Information Theory*, **2021**, 2, 665-677 | 2.5 |

| 3 | . *IEEE Journal on Selected Areas in Information Theory*, **2021**, 2, 678-690 | 2.5 |

| 2 | Performance Guarantees for Homomorphisms beyond Markov Decision Processes. *Proceedings of the AAAI Conference on Artificial Intelligence*, **2019**, 33, 7659-7666 | 5 |

| 1 | Feature Reinforcement Learning: Part II. Structured MDPs. *Journal of Artificial General Intelligence*, **2021**, 12, 71-86 | 8 |