Nihat Ay

List of Publications by Year
in descending order

73 papers	1,866 citations	279487 23 h-index	276539 41 g-index
76 all docs	76 docs citations	76 times ranked	1266 citing authors

#	Article	IF	Citations
1	On the locality of the natural gradient for learning in deep Bayesian networks. Information Geometry, 2023, 6, 1-49.	0.8	4
2	Invariance properties of the natural gradient in overparametrised systems. Information Geometry, 2023, 6, 51-67.	0.8	1
3	Parametrisation Independence of the Natural Gradient in Overparametrised Systems. Lecture Notes in Computer Science, 2021, , 726-735.	1.0	1
4	Towards a canonical divergence within information geometry. Information Geometry, 2021, 4, 65-130.	0.8	3
5	Confounding Ghost Channels and Causality: A New Approach to Causal Information Flows. Vietnam Journal of Mathematics, 2021, 49, 547.	0.4	0
6	Approaching a large deviation theory for complex systems. Nonlinear Dynamics, 2021, 106, 2537.	2.7	3
7	How Morphological Computation Shapes Integrated Information in Embodied Agents. Frontiers in Psychology, 2021, 12, 716433.	1.1	1
8	Ingredients for robustness. Theory in Biosciences, 2020, 139, 309-318.	0.6	2
9	The information theory of individuality. Theory in Biosciences, 2020, 139, 209-223.	0.6	65
10	Complexity as Causal Information Integration. Entropy, 2020, 22, 1107.	1.1	3
11	Canonical Divergence for Flat α-Connections: Classical and Quantum. Entropy, 2019, 21, 831.	1.1	0
12	Canonical Divergence for Measuring Classical and Quantum Complexity. Entropy, 2019, 21, 435.	1.1	7
13	Information Geometry. Ergebnisse Der Mathematik Und Ihrer Grenzgebiete, 2017, , .	0.3	152
14	Fields of Application of Information Geometry. Ergebnisse Der Mathematik Und Ihrer Grenzgebiete, 2017, , 295-360.	0.3	0
15	Comparing Information-Theoretic Measures of Complexity in Boltzmann Machines. Entropy, 2017, 19, 310.	1.1	18
16	Morphological Computation: Synergy of Body and Brain. Entropy, 2017, 19, 456.	1.1	23
17	Evaluating Morphological Computation in Muscle and DC-Motor Driven Models of Hopping Movements. Frontiers in Robotics and AI, 2016, 3, .	2.0	30
18	Information flow in learning a coin-tossing game. Nonlinear Theory and Its Applications IEICE, 2016, 7, 118-125.	0.4	1

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19	Maximizing the Divergence from a Hierarchical Model of Quantum States. Open Systems and Information Dynamics, 2015, 22, 1550006.	0.5	14
20	The Umwelt of an embodied agentâ€"a measure-theoretic definition. Theory in Biosciences, 2015, 134, 105-116.	0.6	16
21	A Novel Approach to Canonical Divergences within Information Geometry. Entropy, 2015, 17, 8111-8129.	1.1	43
22	Zipfâ€™s Law: Balancing Signal Usage Cost and Communication Efficiency. PLoS ONE, 2015, 10, e0139475.	1.1	13
23	Geometric Design Principles for Brains of Embodied Agents. KI - Kunstliche Intelligenz, 2015, 29, 389-399.	2.2	1
24	Information geometry and sufficient statistics. Probability Theory and Related Fields, 2015, 162, 327-364.	0.9	62
25	Information-Theoretic Inference of Common Ancestors. Entropy, 2015, 17, 2304-2327.	1.1	30
26	Information Geometry on Complexity and Stochastic Interaction. Entropy, 2015, 17, 2432-2458.	1.1	58
27	Standard Divergence in Manifold of Dual Affine Connections. Lecture Notes in Computer Science, 2015, , 320-325.	1.0	1
28	A Theory of Cheap Control in Embodied Systems. PLoS Computational Biology, 2015, 11, e1004427.	1.5	20
29	Operator-theoretic Identification of Closed Sub-systems of Dynamical Systems. Discontinuity, Nonlinearity, and Complexity, 2015, 4, 91-109.	0.1	2
30	COMPARISON BETWEEN DIFFERENT METHODS OF LEVEL IDENTIFICATION. International Journal of Modeling, Simulation, and Scientific Computing, 2014, 17, 1450007.	0.9	25
31	On the Fisher Metric of Conditional Probability Polytopes. Entropy, 2014, 16, 3207-3233.	1.1	11
32	Quantifying Unique Information. Entropy, 2014, 16, 2161-2183.	1.1	174
33	On the Cross-Disciplinary Nature of Guided Self-Organisation. Emergence, Complexity and Computation, 2014, , 3-15.	0.2	9
34	On the Causal Structure of the Sensorimotor Loop. Emergence, Complexity and Computation, 2014, , 261-294.	0.2	9
35	Closure measures for coarse-graining of the tent map. Chaos, 2014, 24, 013136.	1.0	11
36	Robustness, canalyzing functions and systems design. Theory in Biosciences, 2014, 133, 63-78.	0.6	8

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37	"More Is Different" in Functional Magnetic Resonance Imaging: A Review of Recent Data Analysis Techniques. Brain Connectivity, 2013, 3, 223-239.	0.8	20
38	Quantifying Morphological Computation. Entropy, 2013, 15, 1887-1915.	1.1	56
39	Information Driven Self-Organization of Complex Robotic Behaviors. PLoS ONE, 2013, 8, e63400.	1.1	66
40	Selection Criteria for Neuromanifolds of Stochastic Dynamics. , 2013, , 147-154.		7
41	Process Dimension of Classical and Non-Commutative Processes. Open Systems and Information Dynamics, 2012, 19, 1250007.	0.5	0
42	Guided self-organization: perception–action loops of embodied systems. Theory in Biosciences, 2012, 131, 125-127.	0.6	26
43	Information-driven self-organization: the dynamical system approach to autonomous robot behavior. Theory in Biosciences, 2012, 131, 161-179.	0.6	36
44	A geometric approach to complexity. Chaos, 2011, 21, 037103.	1.0	45
45	Effective Complexity of Stationary Process Realizations. Entropy, 2011, 13, 1200-1211.	1.1	5
46	Support sets in exponential families and oriented matroid theory. International Journal of Approximate Reasoning, 2011, 52, 613-626.	1.9	15
47	Refinements of Universal Approximation Results for Deep Belief Networks and Restricted Boltzmann Machines. Neural Computation, 2011, 23, 1306-1319.	1.3	58
48	Effective Complexity and Its Relation to Logical Depth. IEEE Transactions on Information Theory, 2010, 56, 4593-4607.	1.5	25
49	Probabilistic design principles for robust multi-modal communication networks. , 2010, , 255-268.		0
50	Higher Coordination With Less Control—A Result of Information Maximization in the Sensorimotor Loop. Adaptive Behavior, 2010, 18, 338-355.	1.1	81
51	Phase transitions in least-effort communications. Journal of Statistical Mechanics: Theory and Experiment, 2010, 2010, P11025.	0.9	22
52	ON THE GENERATIVE NATURE OF PREDICTION. International Journal of Modeling, Simulation, and Scientific Computing, 2009, 12, 169-194.	0.9	12
53	A refinement of the common cause principle. Discrete Applied Mathematics, 2009, 157, 2439-2457.	0.5	10
54	Autonomy: An information theoretic perspective. BioSystems, 2008, 91, 331-345.	0.9	68

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55	INFORMATION FLOWS IN CAUSAL NETWORKS. International Journal of Modeling, Simulation, and Scientific Computing, 2008, 11, 17-41.	0.9	197
56	Robustness and complexity co-constructed in multimodal signalling networks. Philosophical Transactions of the Royal Society B: Biological Sciences, 2007, 362, 441-447.	1.8	68
57	High-resolution multiple-unit EEG in cat auditory cortex reveals large spatio-temporal stochastic interactions. BioSystems, 2007, 89, 190-197.	0.9	3
58	An information theoretic approach to system differentiation on the basis of statistical dependencies between subsystems. Physica A: Statistical Mechanics and Its Applications, 2007, 378, 1-10.	1.2	8
59	Geometric robustness theory and biological networks. Theory in Biosciences, 2006, 125, 93-121.	0.6	22
60	A temporal learning rule in recurrent systems supports high spatio-temporal stochastic interactions. Neurocomputing, 2006, 69, 1199-1202.	3.5	2
61	Stochastic interaction in associative nets. Neurocomputing, 2005, 65-66, 387-392.	3.5	8
62	On a Notion of Linear Replicator Equations. Journal of Dynamics and Differential Equations, 2005, 17, 427-451.	1.0	12
63	Reductions of Hidden Information Sources. Journal of Statistical Physics, 2005, 120, 659-684.	0.5	9
64	Finite State Automata Resulting from Temporal Information Maximization and a Temporal Learning Rule. Neural Computation, 2005, 17, 2258-2290.	1.3	25
65	Multi-Information in the Thermodynamic Limit. Journal of Statistical Physics, 2004, 115, 949-976.	0.5	13
66	Spatial and temporal stochastic interaction in neuronal assemblies. Theory in Biosciences, 2003, 122, 5-18.	0.6	10
67	Temporal infomax leads to almost deterministic dynamical systems. Neurocomputing, 2003, 52-54, 461-466.	3.5	4
68	Temporal Infomax on Markov chains with input leads to finite state automata. Neurocomputing, 2003, 52-54, 431-436.	3.5	4
69	Dynamical properties of strongly interacting Markov chains. Neural Networks, 2003, 16, 1483-1497.	3.3	32
70	Duality versus dual flatness in quantum information geometry. Journal of Mathematical Physics, 2003, 44, 1512-1518.	0.5	10
71	Locality of Global Stochastic Interaction in Directed Acyclic Networks. Neural Computation, 2002, 14, 2959-2980.	1.3	23
72	An Information-Geometric Approach to a Theory of Pragmatic Structuring. Annals of Probability, 2002, 30, 416.	0.8	28

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73	Dually Flat Manifolds and Global Information Geometry. Open Systems and Information Dynamics, 2002, 09, 195-200.	0.5	14