Jacques Gautrais

List of Publications by Year
in descending order

59 papers	3,689 citations	159585 30 h-index	144013 57 g-index
67 all docs	67 docs citations	67 times ranked	3009 citing authors

#	Article	IF	Citations
1	The biological principles of swarm intelligence. Swarm Intelligence, 2007, 1, 3-31.	2.2	424
2	Deciphering Interactions in Moving Animal Groups. PLoS Computational Biology, 2012, 8, e1002678.	3.2	240
3	Topological patterns in street networks of self-organized urban settlements. European Physical Journal B, 2006, 49, 513-522.	1.5	227
4	From behavioural analyses to models of collective motion in fish schools. Interface Focus, 2012, 2, 693-707.	3.0	195
5	Rate coding versus temporal order coding: a theoretical approach. BioSystems, 1998, 48, 57-65.	2.0	184
6	Rank Order Coding. , 1998, , 113-118.		169
7	Emergent Polyethism as a Consequence of Increased Colony Size in Insect Societies. Journal of Theoretical Biology, 2002, 215, 363-373.	1.7	151
8	The formation of spatial patterns in social insects: from simple behaviours to complex structures. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2003, 361, 1263-1282.	3.4	139
9	SpikeNET: A simulator for modeling large networks of integrate and fire neurons. Neurocomputing, 1999, 26-27, 989-996.	5.9	120
10	Efficiency and robustness in ant networks of galleries. European Physical Journal B, 2004, 42, 123-129.	1.5	115
11	Face processing using one spike per neurone. BioSystems, 1998, 48, 229-239.	2.0	113
12	Analyzing fish movement as a persistent turning walker. Journal of Mathematical Biology, 2009, 58, 429-445.	1.9	103
13	Stigmergic construction and topochemical information shape ant nest architecture. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 1303-1308.	7.1	92
14	The Embodiment of Cockroach Aggregation Behavior in a Group of Micro-robots. Artificial Life, 2008, 14, 387-408.	1.3	85
15	Collective decision-making in white-faced capuchin monkeys. Proceedings of the Royal Society B: Biological Sciences, 2009, 276, 3495-3503.	2.6	85
16	Self-Organized Aggregation Triggers Collective Decision Making in a Group of Cockroach-Like Robots. Adaptive Behavior, 2009, 17, 109-133.	1.9	81
17	Monte Carlo advances and concentrated solar applications. Solar Energy, 2014, 103, 653-681.	6.1	81
18	Allelomimetic synchronization in Merino sheep. Animal Behaviour, 2007, 74, 1443-1454.	1.9	80

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19	Integral formulation of null-collision Monte Carlo algorithms. Journal of Quantitative Spectroscopy and Radiative Transfer, 2013, 125, 57-68.	2.3	70
20	Path efficiency of ant foraging trails in an artificial network. Journal of Theoretical Biology, 2006, 239, 507-515.	1.7	68
21	Key Behavioural Factors in a Self-Organised Fish School Model. Annales Zoologici Fennici, 2008, 45, 415-428.	0.6	62
22	Nest excavation in ants: group size effects on the size and structure of tunneling networks. Die Naturwissenschaften, 2004, 91, 602-606.	1.6	60
23	Moving together: Incidental leaders and naÃ¯ve followers. Behavioural Processes, 2010, 83, 235-241.	1.1	58
24	Social cohesion in groups of sheep: Effect of activity level, sex composition and group size. Applied Animal Behaviour Science, 2008, 112, 81-93.	1.9	50
25	Topological efficiency in three-dimensional gallery networks of termite nests. Physica A: Statistical Mechanics and Its Applications, 2008, 387, 6235-6244.	2.6	47
26	The growth and form of tunnelling networks in ants. Journal of Theoretical Biology, 2006, 243, 287-298.	1.7	44
27	Sexual dimorphism, activity budget and synchrony in groups of sheep. Oecologia, 2006, 148, 170-180.	2.0	44
28	Aggregation Behaviour as a Source of Collective Decision in a Group of Cockroach-Like-Robots. Lecture Notes in Computer Science, 2005, , 169-178.	1.3	43
29	The interplay between a self-organized process and an environmental template: corpse clustering under the influence of air currents in ants. Journal of the Royal Society Interface, 2007, 4, 107-116.	3.4	38
30	Beyond boundariesâ€"Eph:ephrin signaling in neurogenesis. Cell Adhesion and Migration, 2014, 8, 349-359.	2.7	38
31	Scalable Rules for Coherent Group Motion in a Gregarious Vertebrate. PLoS ONE, 2011, 6, e14487.	2.5	38
32	Modeling Collective Animal Behavior with a Cognitive Perspective: A Methodological Framework. PLoS ONE, 2012, 7, e38588.	2.5	32
33	Self-Organization Patterns in Wasp and Open Source Communities. IEEE Intelligent Systems, 2006, 21, 36-40.	4.0	31
34	Ant Foragers Compensate for the Nutritional Deficiencies in the Colony. Current Biology, 2020, 30, 135-142.e4.	3.9	24
35	From individual to collective displacements in heterogeneous environments. Journal of Theoretical Biology, 2008, 250, 424-434.	1.7	22
36	Imitation Combined with a Characteristic Stimulus Duration Results in Robust Collective Decision-Making. PLoS ONE, 2015, 10, e0140188.	2.5	20

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37	An experimental study of social attraction and spacing between the sexes in sheep. Journal of Experimental Biology, 2005, 208, 4419-4426.	1.7	17
38	Addressing nonlinearities in Monte Carlo. Scientific Reports, 2018, 8, 13302.	3.3	16
39	How Do Ants Make Sense of Gravity? A Boltzmann Walker Analysis of Lasius niger Trajectories on Various Inclines. PLoS ONE, 2013, 8, e76531.	2.5	16
40	Collective decision-making by a group of cockroach-like robots. , 0, , .		15
41	The Role of Colony Size on Tunnel Branching Morphogenesis in Ant Nests. PLoS ONE, 2014, 9, e109436.	2.5	15
42	Neurogenic decisions require a cell cycle independent function of the CDC25B phosphatase. ELife, 2018, 7, .	6.0	15
43	The hidden variables of leadership. Behavioural Processes, 2010, 84, 664-667.	1.1	12
44	How individual interactions control aggregation patterns in gregarious arthropods. Interaction Studies, 2004, 5, 245-269.	0.6	10
45	A model of resource partitioning between foraging bees based on learning. PLoS Computational Biology, 2021, 17, e1009260.	3.2	10
46	The Topological Fortress of Termites. Lecture Notes in Computer Science, 2008, , 165-173.	1.3	10
47	Transition from isotropic to digitated growth modulates network formation in<i>Physarum polycephalum</i>. Journal Physics D: Applied Physics, 2017, 50, 014002.	2.8	9
48	Monte Carlo efficiency improvement by multiple sampling of conditioned integration variables. Journal of Computational Physics, 2016, 326, 30-34.	3.8	8
49	Processâ€Based Climate Model Development Harnessing Machine Learning: III. The Representation of Cumulus Geometry and Their 3D Radiative Effects. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002423.	3.8	8
50	Modeling Ant Behavior Under a Variable Environment. Lecture Notes in Computer Science, 2004, , 190-201.	1.3	8
51	Experimental investigation of ant traffic under crowded conditions. ELife, 2019, 8, .	6.0	8
52	Monte-Carlo and sensitivity transport models for domain deformation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2020, 251, 107022.	2.3	7
53	Addressing the gas kinetics Boltzmann equation with branching-path statistics. Physical Review E, 2022, 105, 025305.	2.1	6
54	Residence times and boundary-following behavior in animals. Physical Review E, 2014, 89, 052715.	2.1	5

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55	Traveling pulse emerges from coupled intermittent walks: A case study in sheep. PLoS ONE, 2018, 13, e0206817.	2.5	5
56	Timing the spinal cord development with neural progenitor cells losing their proliferative capacity: a theoretical analysis. Neural Development, 2019, 14, 7.	2.4	4
57	Long-Term Dietary Restriction Leads to Development of Alternative Fighting Strategies. Frontiers in Behavioral Neuroscience, 2020, 14, 599676.	2.0	4
58	Single-cell imaging of the cell cycle reveals CDC25B-induced heterogeneity of G1 phase length in neural progenitor cells. Development (Cambridge), 2022, 149, .	2.5	4
59	Analogies Between Social Interaction Models and Supply Chains. Mathematics in Industry, 2010, , 535-540.	0.3	0