

Iain D Couzin

List of Publications by Year in descending order

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Version: 2024-02-01

134
papers

21,640
citations

16451

64
h-index

14208

128
g-index

157
all docs

157
docs citations

157
times ranked

11969
citing authors

#	ARTICLE	IF	CITATIONS
1	Effective leadership and decision-making in animal groups on the move. <i>Nature</i> , 2005, 433, 513-516.	27.8	2,214
2	Collective Memory and Spatial Sorting in Animal Groups. <i>Journal of Theoretical Biology</i> , 2002, 218, 1-11.	1.7	1,698
3	From Disorder to Order in Marching Locusts. <i>Science</i> , 2006, 312, 1402-1406.	12.6	910
4	Inferring the structure and dynamics of interactions in schooling fish. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011, 108, 18720-18725.	7.1	719
5	Collective cognition in animal groups. <i>Trends in Cognitive Sciences</i> , 2009, 13, 36-43.	7.8	690
6	Self-Organization and Collective Behavior in Vertebrates. <i>Advances in the Study of Behavior</i> , 2003, 32, 1-75.	1.6	683
7	Machine behaviour. <i>Nature</i> , 2019, 568, 477-486.	27.8	536
8	Emergent Sensing of Complex Environments by Mobile Animal Groups. <i>Science</i> , 2013, 339, 574-576.	12.6	427
9	Shared decision-making drives collective movement in wild baboons. <i>Science</i> , 2015, 348, 1358-1361.	12.6	423
10	Automated image-based tracking and its application in ecology. <i>Trends in Ecology and Evolution</i> , 2014, 29, 417-428.	8.7	407
11	Quorum decision-making facilitates information transfer in fish shoals. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 6948-6953.	7.1	395
12	Exploration versus exploitation in space, mind, and society. <i>Trends in Cognitive Sciences</i> , 2015, 19, 46-54.	7.8	394
13	Revealing the hidden networks of interaction in mobile animal groups allows prediction of complex behavioral contagion. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 4690-4695.	7.1	381
14	Uninformed Individuals Promote Democratic Consensus in Animal Groups. <i>Science</i> , 2011, 334, 1578-1580.	12.6	354
15	Context-dependent group size choice in fish. <i>Animal Behaviour</i> , 2004, 67, 155-164.	1.9	348
16	Visual sensory networks and effective information transfer in animal groups. <i>Current Biology</i> , 2013, 23, R709-R711.	3.9	343
17	Inclusive fitness theory and eusociality. <i>Nature</i> , 2011, 471, E1-E4.	27.8	339
18	DeepPoseKit, a software toolkit for fast and robust animal pose estimation using deep learning. <i>ELife</i> , 2019, 8, .	6.0	337

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19	Collective States, Multistability and Transitional Behavior in Schooling Fish. <i>PLoS Computational Biology</i> , 2013, 9, e1002915.	3.2	319
20	Self-organized lane formation and optimized traffic flow in army ants. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2003, 270, 139-146.	2.6	311
21	Leadership, consensus decision making and collective behaviour in humans. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2009, 364, 781-789.	4.0	308
22	Predatory Fish Select for Coordinated Collective Motion in Virtual Prey. <i>Science</i> , 2012, 337, 1212-1215.	12.6	293
23	Collective minds. <i>Nature</i> , 2007, 445, 715-715.	27.8	274
24	Cannibal crickets on a forced march for protein and salt. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006, 103, 4152-4156.	7.1	273
25	Consistent Individual Differences Drive Collective Behavior and Group Functioning of Schooling Fish. <i>Current Biology</i> , 2017, 27, 2862-2868.e7.	3.9	259
26	Collective Motion and Cannibalism in Locust Migratory Bands. <i>Current Biology</i> , 2008, 18, 735-739.	3.9	255
27	Inherent noise can facilitate coherence in collective swarm motion. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 5464-5469.	7.1	240
28	Consensus Decision Making by Fish. <i>Current Biology</i> , 2008, 18, 1773-1777.	3.9	231
29	Social interactions, information use, and the evolution of collective migration. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010, 107, 16172-16177.	7.1	230
30	“Leading According to Need” in Self-Organizing Groups. <i>American Naturalist</i> , 2009, 173, 304-312.	2.1	216
31	The Dynamics of Coordinated Group Hunting and Collective Information Transfer among Schooling Prey. <i>Current Biology</i> , 2012, 22, 1213-1217.	3.9	215
32	Virtual reality for freely moving animals. <i>Nature Methods</i> , 2017, 14, 995-1002.	19.0	213
33	Collective Motion due to Individual Escape and Pursuit Response. <i>Physical Review Letters</i> , 2009, 102, 010602.	7.8	212
34	From behavioural analyses to models of collective motion in fish schools. <i>Interface Focus</i> , 2012, 2, 693-707.	3.0	195
35	Mechanisms underlying shoal composition in the Trinidadian guppy, <i>Poecilia reticulata</i> . <i>Oikos</i> , 2003, 100, 429-438.	2.7	191
36	Collective behavior in cancer cell populations. <i>BioEssays</i> , 2009, 31, 190-197.	2.5	180

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37	Perspectives in machine learning for wildlife conservation. <i>Nature Communications</i> , 2022, 13, 792.	12.8	176
38	Visual attention and the acquisition of information in human crowds. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 7245-7250.	7.1	174
39	An evolutionary framework for studying mechanisms of social behavior. <i>Trends in Ecology and Evolution</i> , 2014, 29, 581-589.	8.7	157
40	Consensus decision making in human crowds. <i>Animal Behaviour</i> , 2008, 75, 461-470.	1.9	156
41	A novel method for investigating the collective behaviour of fish: introducing "Robofish"™. <i>Behavioral Ecology and Sociobiology</i> , 2010, 64, 1211-1218.	1.4	153
42	Collective animal navigation and migratory culture: from theoretical models to empirical evidence. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2018, 373, 20170009.	4.0	141
43	Both information and social cohesion determine collective decisions in animal groups. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 5263-5268.	7.1	138
44	Information transfer in moving animal groups. <i>Theory in Biosciences</i> , 2008, 127, 177-186.	1.4	134
45	Decision accuracy in complex environments is often maximized by small group sizes. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2014, 281, 20133305.	2.6	132
46	TRex, a fast multi-animal tracking system with markerless identification, and 2D estimation of posture and visual fields. <i>ELife</i> , 2021, 10, .	6.0	132
47	Stewardship of global collective behavior. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	129
48	Behavioral Ecology: Social Organization in Fission" Fusion Societies. <i>Current Biology</i> , 2006, 16, R169-R171.	3.9	128
49	Habitat and social factors shape individual decisions and emergent group structure during baboon collective movement. <i>ELife</i> , 2017, 6, .	6.0	125
50	From local collective behavior to global migratory patterns in white storks. <i>Science</i> , 2018, 360, 911-914.	12.6	123
51	Army ants dynamically adjust living bridges in response to a cost"benefit trade-off. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 15113-15118.	7.1	119
52	Fission"fusion populations. <i>Current Biology</i> , 2009, 19, R633-R635.	3.9	117
53	Real-Time Feedback-Controlled Robotic Fish for Behavioral Experiments With Fish Schools. <i>Proceedings of the IEEE</i> , 2012, 100, 150-163.	21.3	98
54	Context-dependent interaction leads to emergent search behavior in social aggregates. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 22055-22060.	7.1	94

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55	Nutritional state and collective motion: from individuals to mass migration. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2011, 278, 356-363.	2.6	91
56	Potential Leaders Trade Off Goal-Oriented and Socially Oriented Behavior in Mobile Animal Groups. <i>American Naturalist</i> , 2015, 186, 284-293.	2.1	85
57	Vortex phase matching as a strategy for schooling in robots and in fish. <i>Nature Communications</i> , 2020, 11, 5408.	12.8	85
58	Decision versus compromise for animal groups in motion. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 227-232.	7.1	82
59	Intermittent Motion in Desert Locusts: Behavioural Complexity in Simple Environments. <i>PLoS Computational Biology</i> , 2012, 8, e1002498.	3.2	82
60	Collective dynamics of self-propelled particles with variable speed. <i>Physical Review E</i> , 2012, 86, 011901.	2.1	77
61	Synchronization: The Key to Effective Communication in Animal Collectives. <i>Trends in Cognitive Sciences</i> , 2018, 22, 844-846.	7.8	77
62	Individual and collective encoding of risk in animal groups. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 20556-20561.	7.1	77
63	The evolution of distributed sensing and collective computation in animal populations. <i>ELife</i> , 2015, 4, e10955.	6.0	77
64	A collective navigation hypothesis for homeward migration in anadromous salmonids. <i>Fish and Fisheries</i> , 2016, 17, 525-542.	5.3	73
65	Signalling and the Evolution of Cooperative Foraging in Dynamic Environments. <i>PLoS Computational Biology</i> , 2011, 7, e1002194.	3.2	72
66	Migration or Residency? The Evolution of Movement Behavior and Information Usage in Seasonal Environments. <i>American Naturalist</i> , 2013, 181, 114-124.	2.1	69
67	The directional flow of visual information transfer between pedestrians. <i>Biology Letters</i> , 2012, 8, 520-522.	2.3	68
68	Directional Collective Cell Migration Emerges as a Property of Cell Interactions. <i>PLoS ONE</i> , 2014, 9, e104969.	2.5	68
69	The multilevel society of a small-brained bird. <i>Current Biology</i> , 2019, 29, R1120-R1121.	3.9	68
70	Collective Learning and Optimal Consensus Decisions in Social Animal Groups. <i>PLoS Computational Biology</i> , 2014, 10, e1003762.	3.2	66
71	Genetic Control of Collective Behavior in Zebrafish. <i>IScience</i> , 2020, 23, 100942.	4.1	61
72	Cannibalism can drive the evolution of behavioural phase polyphenism in locusts. <i>Ecology Letters</i> , 2012, 15, 1158-1166.	6.4	60

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73	Individual variation in local interaction rules can explain emergent patterns of spatial organization in wild baboons. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2017, 284, 20162243.	2.6	60
74	Social networks predict the life and death of honey bees. <i>Nature Communications</i> , 2021, 12, 1110.	12.8	60
75	What's in a song? Female bushcrickets discriminate against the song of older males. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 1995, 262, 21-27.	2.6	57
76	Dynamics of Decision Making in Animal Group Motion. <i>Journal of Nonlinear Science</i> , 2009, 19, 399-435.	2.1	53
77	Group size, grooming and fission in primates: A modeling approach based on group structure. <i>Journal of Theoretical Biology</i> , 2011, 273, 156-166.	1.7	52
78	Conserved behavioral circuits govern high-speed decision-making in wild fish shoals. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, 12224-12228.	7.1	52
79	The geometry of decision-making in individuals and collectives. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	49
80	The effects of parasitism and body length on positioning within wild fish shoals. <i>Journal of Animal Ecology</i> , 2002, 71, 10-14.	2.8	48
81	ANTBIRDS PARASITIZE FORAGING ARMY ANTS. <i>Ecology</i> , 2005, 86, 555-559.	3.2	46
82	Modelling density-dependent fish shoal distributions in the laboratory and field. <i>Oikos</i> , 2005, 110, 344-352.	2.7	45
83	Specialization and evolutionary branching within migratory populations. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010, 107, 20394-20399.	7.1	45
84	From single steps to mass migration: the problem of scale in the movement ecology of the Serengeti wildebeest. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2018, 373, 20170012.	4.0	45
85	Stability and Responsiveness in a Self-Organized Living Architecture. <i>PLoS Computational Biology</i> , 2013, 9, e1002984.	3.2	43
86	Tactile interactions lead to coherent motion and enhanced chemotaxis of migrating cells. <i>Physical Biology</i> , 2013, 10, 046002.	1.8	43
87	Director's Cut: Analysis and Annotation of Soccer Matches. <i>IEEE Computer Graphics and Applications</i> , 2016, 36, 50-60.	1.2	43
88	Individual vocal recognition across taxa: a review of the literature and a look into the future. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2020, 375, 20190479.	4.0	43
89	Counteracting estimation bias and social influence to improve the wisdom of crowds. <i>Journal of the Royal Society Interface</i> , 2018, 15, 20180130.	3.4	42
90	Differences in Nutrient Requirements Imply a Non-Linear Emergence of Leaders in Animal Groups. <i>PLoS Computational Biology</i> , 2010, 6, e1000917.	3.2	39

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91	School level structural and dynamic adjustments to risk promote information transfer and collective evasion in herring. <i>Animal Behaviour</i> , 2016, 117, 69-78.	1.9	38
92	Synchronization, coordination and collective sensing during thermalling flight of freely migrating white storks. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2018, 373, 20170011.	4.0	38
93	Scalable Rules for Coherent Group Motion in a Gregarious Vertebrate. <i>PLoS ONE</i> , 2011, 6, e14487.	2.5	38
94	Improving secondary pick up of insect fungal pathogen conidia by manipulating host behaviour. <i>Annals of Applied Biology</i> , 2000, 137, 329-335.	2.5	37
95	When fish shoals meet: outcomes for evolution and fisheries. <i>Fish and Fisheries</i> , 2003, 4, 138-146.	5.3	35
96	Collective animal migration. <i>Current Biology</i> , 2018, 28, R976-R980.	3.9	34
97	Social information use and the evolution of unresponsiveness in collective systems. <i>Journal of the Royal Society Interface</i> , 2015, 12, 20140893.	3.4	33
98	Modular structure within groups causes information loss but can improve decision accuracy. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2019, 374, 20180378.	4.0	30
99	Collective movement analysis reveals coordination tactics of team players in football matches. <i>Chaos, Solitons and Fractals</i> , 2020, 138, 109831.	5.1	30
100	The Social Context of Cannibalism in Migratory Bands of the Mormon Cricket. <i>PLoS ONE</i> , 2010, 5, e15118.	2.5	30
101	Behavioural plasticity across social contexts is regulated by the directionality of inter-individual differences. <i>Behavioural Processes</i> , 2017, 141, 196-204.	1.1	29
102	Vortex formation and foraging in polyphenic spadefoot toad tadpoles. <i>Behavioral Ecology and Sociobiology</i> , 2012, 66, 879-889.	1.4	28
103	Mobility can promote the evolution of cooperation via emergent self-assortment dynamics. <i>PLoS Computational Biology</i> , 2017, 13, e1005732.	3.2	28
104	Heterogeneous Preference and Local Nonlinearity in Consensus Decision Making. <i>Physical Review Letters</i> , 2016, 116, 038701.	7.8	27
105	Collective detection based on visual information in animal groups. <i>Journal of the Royal Society Interface</i> , 2021, 18, 20210142.	3.4	27
106	How the Spatial Position of Individuals Affects Their Influence on Swarms: A Numerical Comparison of Two Popular Swarm Dynamics Models. <i>PLoS ONE</i> , 2013, 8, e58525.	2.5	27
107	Animals in Virtual Environments. <i>IEEE Transactions on Visualization and Computer Graphics</i> , 2020, 26, 2073-2083.	4.4	26
108	Leadership, collective motion and the evolution of migratory strategies. <i>Communicative and Integrative Biology</i> , 2011, 4, 294-298.	1.4	25

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109	Schistocephalus parasite infection alters sticklebacks™ movement ability and thereby shapes social interactions. Scientific Reports, 2020, 10, 12282.	3.3	25
110	An Efficient GPU Implementation for Large Scale Individual-Based Simulation of Collective Behavior. , 2009, , .		22
111	Bio-inspired Source Seeking with no Explicit Gradient Estimation. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 240-245.	0.4	22
112	The influence of emotional facial expressions on gaze-following in grouped and solitary pedestrians. Scientific Reports, 2015, 4, 5794.	3.3	22
113	Synergistic Benefits of Group Search in Rats. Current Biology, 2020, 30, 4733-4738.e4.	3.9	21
114	Using a robotic platform to study the influence of relative tailbeat phase on the energetic costs of side-by-side swimming in fish. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, 20200810.	2.1	20
115	Subcritical escape waves in schooling fish. Science Advances, 2022, 8, .	10.3	18
116	Effects of Lecanicillium longisporum infection on the behaviour of the green peach aphid Myzus persicae. Journal of Insect Physiology, 2008, 54, 128-136.	2.0	17
117	Collective conflict resolution in groups on the move. Physical Review E, 2018, 97, 032304.	2.1	17
118	Ergodic directional switching in mobile insect groups. Physical Review E, 2010, 82, 011926.	2.1	14
119	Estimation models describe well collective decisions among three options. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, E3466-7.	7.1	14
120	Coordinated Speed Oscillations in Schooling Killifish Enrich Social Communication. Journal of Nonlinear Science, 2015, 25, 1077-1109.	2.1	14
121	Spatial models of bistability in biological collectives. , 2007, , .		11
122	Coarse-grained variables for particle-based models: diffusion maps and animal swarming simulations. Computational Particle Mechanics, 2014, 1, 425-440.	3.0	9
123	Methods for the effective study of collective behavior in a radial arm maze. Behavior Research Methods, 2018, 50, 1673-1685.	4.0	9
124	Individual error correction drives responsive self-assembly of army ant scaffolds. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	9
125	Coarse Collective Dynamics of Animal Groups. Lecture Notes in Computational Science and Engineering, 2011, , 299-309.	0.3	8
126	Alternating spatial patterns for coordinated group motion. , 2007, , .		7

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127	Decision Accuracy and the Role of Spatial Interaction in Opinion Dynamics. Journal of Statistical Physics, 2013, 151, 203-217.	1.2	7
128	Emerging collective behaviors of animal groups. , 2008, , .		4
129	Migration quantified: constructing models and linking them with data. , 2011, , 110-128.		4
130	First evidence of wasp brood development inside active nests of a termite with the description of a previously unknown potter wasp species. Ecology and Evolution, 2020, 10, 12663-12674.	1.9	3
131	The wisdom of baboon decisionsâ€”Response. Science, 2015, 349, 935-936.	12.6	1
132	A grid-net technique for the analysis of fish positions within free-ranging shoals. Journal of Fish Biology, 2001, 59, 1667-1672.	1.6	1
133	Challenges of Integrating Complexity and Evolution into Economics. , 2016, , .		1
134	Group Movement. , 2019, , 775-783.		0