Iain D Couzin

List of Publications by Year
in descending order

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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	Perspectives in machine learning for wildlife conservation. Nature Communications, 2022, 13, 792.	12.8	176
2	Subcritical escape waves in schooling fish. Science Advances, 2022, 8, .	10.3	18
3	TRex, a fast multi-animal tracking system with markerless identification, and 2D estimation of posture and visual fields. ELife, 2021, 10, .	6.0	132
4	Social networks predict the life and death of honey bees. Nature Communications, 2021, 12, 1110.	12.8	60
5	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
6	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
7	Stewardship of global collective behavior. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	129
8	Collective detection based on visual information in animal groups. Journal of the Royal Society Interface, 2021, 18, 20210142.	3.4	27
9	The geometry of decision-making in individuals and collectives. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	49
10	Synergistic Benefits of Group Search in Rats. Current Biology, 2020, 30, 4733-4738.e4.	3.9	21
11	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
12	Vortex phase matching as a strategy for schooling in robots and in fish. Nature Communications, 2020, 11, 5408.	12.8	85
13	Schistocephalus parasite infection alters sticklebacksâ€™ movement ability and thereby shapes social interactions. Scientific Reports, 2020, 10, 12282.	3.3	25
14	Collective movement analysis reveals coordination tactics of team players in football matches. Chaos, Solitons and Fractals, 2020, 138, 109831.	5.1	30
15	Genetic Control of Collective Behavior in Zebrafish. IScience, 2020, 23, 100942.	4.1	61
16	Animals in Virtual Environments. IEEE Transactions on Visualization and Computer Graphics, 2020, 26, 2073-2083.	4.4	26
17	Individual vocal recognition across taxa: a review of the literature and a look into the future. Philosophical Transactions of the Royal Society B: Biological Sciences, 2020, 375, 20190479.	4.0	43
18	The multilevel society of a small-brained bird. Current Biology, 2019, 29, R1120-R1121.	3.9	68

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19	Individual and collective encoding of risk in animal groups. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 20556-20561.	7.1	77
20	Machine behaviour. Nature, 2019, 568, 477-486.	27.8	536
21	Modular structure within groups causes information loss but can improve decision accuracy. Philosophical Transactions of the Royal Society B: Biological Sciences, 2019, 374, 20180378.	4.0	30
22	Group Movement. , 2019, , 775-783.		0
23	DeepPoseKit, a software toolkit for fast and robust animal pose estimation using deep learning. ELife, 2019, 8, .	6.0	337
24	Methods for the effective study of collective behavior in a radial arm maze. Behavior Research Methods, 2018, 50, 1673-1685.	4.0	9
25	Counteracting estimation bias and social influence to improve the wisdom of crowds. Journal of the Royal Society Interface, 2018, 15, 20180130.	3.4	42
26	Collective animal navigation and migratory culture: from theoretical models to empirical evidence. Philosophical Transactions of the Royal Society B: Biological Sciences, 2018, 373, 20170009.	4.0	141
27	Synchronization, coordination and collective sensing during thermalling flight of freely migrating white storks. Philosophical Transactions of the Royal Society B: Biological Sciences, 2018, 373, 20170011.	4.0	38
28	From single steps to mass migration: the problem of scale in the movement ecology of the Serengeti wildebeest. Philosophical Transactions of the Royal Society B: Biological Sciences, 2018, 373, 20170012.	4.0	45
29	Collective conflict resolution in groups on the move. Physical Review E, 2018, 97, 032304.	2.1	17
30	Conserved behavioral circuits govern high-speed decision-making in wild fish shoals. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 12224-12228.	7.1	52
31	Synchronization: The Key to Effective Communication in Animal Collectives. Trends in Cognitive Sciences, 2018, 22, 844-846.	7.8	77
32	Collective animal migration. Current Biology, 2018, 28, R976-R980.	3.9	34
33	From local collective behavior to global migratory patterns in white storks. Science, 2018, 360, 911-914.	12.6	123
34	Individual variation in local interaction rules can explain emergent patterns of spatial organization in wild baboons. Proceedings of the Royal Society B: Biological Sciences, 2017, 284, 20162243.	2.6	60
35	Virtual reality for freely moving animals. Nature Methods, 2017, 14, 995-1002.	19.0	213
36	Consistent Individual Differences Drive Collective Behavior and Group Functioning of Schooling Fish. Current Biology, 2017, 27, 2862-2868.e7.	3.9	259

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37	Behavioural plasticity across social contexts is regulated by the directionality of inter-individual differences. Behavioural Processes, 2017, 141, 196-204.	1.1	29
38	Habitat and social factors shape individual decisions and emergent group structure during baboon collective movement. ELife, 2017, 6, .	6.0	125
39	Mobility can promote the evolution of cooperation via emergent self-assortment dynamics. PLoS Computational Biology, 2017, 13, e1005732.	3.2	28
40	A collective navigation hypothesis for homeward migration in anadromous salmonids. Fish and Fisheries, 2016, 17, 525-542.	5.3	73
41	Director's Cut: Analysis and Annotation of Soccer Matches. IEEE Computer Graphics and Applications, 2016, 36, 50-60.	1.2	43
42	School level structural and dynamic adjustments to risk promote information transfer and collective evasion in herring. Animal Behaviour, 2016, 117, 69-78.	1.9	38
43	Heterogeneous Preference and Local Nonlinearity in Consensus Decision Making. Physical Review Letters, 2016, 116, 038701.	7.8	27
44	Challenges of Integrating Complexity and Evolution into Economics. , 2016, , .		1
45	The influence of emotional facial expressions on gaze-following in grouped and solitary pedestrians. Scientific Reports, 2015, 4, 5794.	3.3	22
46	Potential Leaders Trade Off Goal-Oriented and Socially Oriented Behavior in Mobile Animal Groups. American Naturalist, 2015, 186, 284-293.	2.1	85
47	Shared decision-making drives collective movement in wild baboons. Science, 2015, 348, 1358-1361.	12.6	423
48	Revealing the hidden networks of interaction in mobile animal groups allows prediction of complex behavioral contagion. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 4690-4695.	7.1	381
49	The wisdom of baboon decisionsâ€"Response. Science, 2015, 349, 935-936.	12.6	1
50	Coordinated Speed Oscillations in Schooling Killifish Enrich Social Communication. Journal of Nonlinear Science, 2015, 25, 1077-1109.	2.1	14
51	Army ants dynamically adjust living bridges in response to a costâ€"benefit trade-off. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 15113-15118.	7.1	119
52	Social information use and the evolution of unresponsiveness in collective systems. Journal of the Royal Society Interface, 2015, 12, 20140893.	3.4	33
53	Exploration versus exploitation in space, mind, and society. Trends in Cognitive Sciences, 2015, 19, 46-54.	7.8	394
54	The evolution of distributed sensing and collective computation in animal populations. ELife, 2015, 4, e10955.	6.0	77

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55	Directional Collective Cell Migration Emerges as a Property of Cell Interactions. PLoS ONE, 2014, 9, e104969.	2.5	68
56	Coarse-grained variables for particle-based models: diffusion maps and animal swarming simulations. Computational Particle Mechanics, 2014, 1, 425-440.	3.0	9
57	Collective Learning and Optimal Consensus Decisions in Social Animal Groups. PLoS Computational Biology, 2014, 10, e1003762.	3.2	66
58	Decision accuracy in complex environments is often maximized by small group sizes. Proceedings of the Royal Society B: Biological Sciences, 2014, 281, 20133305.	2.6	132
59	An evolutionary framework for studying mechanisms of social behavior. Trends in Ecology and Evolution, 2014, 29, 581-589.	8.7	157
60	Automated image-based tracking and its application in ecology. Trends in Ecology and Evolution, 2014, 29, 417-428.	8.7	407
61	Decision Accuracy and the Role of Spatial Interaction in Opinion Dynamics. Journal of Statistical Physics, 2013, 151, 203-217.	1.2	7
62	Migration or Residency? The Evolution of Movement Behavior and Information Usage in Seasonal Environments. American Naturalist, 2013, 181, 114-124.	2.1	69
63	Visual sensory networks and effective information transfer in animal groups. Current Biology, 2013, 23, R709-R711.	3.9	343
64	Both information and social cohesion determine collective decisions in animal groups. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 5263-5268.	7.1	138
65	Stability and Responsiveness in a Self-Organized Living Architecture. PLoS Computational Biology, 2013, 9, e1002984.	3.2	43
66	Collective States, Multistability and Transitional Behavior in Schooling Fish. PLoS Computational Biology, 2013, 9, e1002915.	3.2	319
67	Emergent Sensing of Complex Environments by Mobile Animal Groups. Science, 2013, 339, 574-576.	12.6	427
68	Tactile interactions lead to coherent motion and enhanced chemotaxis of migrating cells. Physical Biology, 2013, 10, 046002.	1.8	43
69	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
70	How the Spatial Position of Individuals Affects Their Influence on Swarms: A Numerical Comparison of Two Popular Swarm Dynamics Models. PLoS ONE, 2013, 8, e58525.	2.5	27
71	The directional flow of visual information transfer between pedestrians. Biology Letters, 2012, 8, 520-522.	2.3	68
72	From behavioural analyses to models of collective motion in fish schools. Interface Focus, 2012, 2, 693-707.	3.0	195

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73	Collective dynamics of self-propelled particles with variable speed. Physical Review E, 2012, 86, 011901.	2.1	77
74	Visual attention and the acquisition of information in human crowds. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 7245-7250.	7.1	174
75	Decision versus compromise for animal groups in motion. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 227-232.	7.1	82
76	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
77	Cannibalism can drive the evolution of behavioural phase polyphenism in locusts. Ecology Letters, 2012, 15, 1158-1166.	6.4	60
78	The Dynamics of Coordinated Group Hunting and Collective Information Transfer among Schooling Prey. Current Biology, 2012, 22, 1213-1217.	3.9	215
79	Predatory Fish Select for Coordinated Collective Motion in Virtual Prey. Science, 2012, 337, 1212-1215.	12.6	293
80	Intermittent Motion in Desert Locusts: Behavioural Complexity in Simple Environments. PLoS Computational Biology, 2012, 8, e1002498.	3.2	82
81	Vortex formation and foraging in polyphenic spadefoot toad tadpoles. Behavioral Ecology and Sociobiology, 2012, 66, 879-889.	1.4	28
82	Real-Time Feedback-Controlled Robotic Fish for Behavioral Experiments With Fish Schools. Proceedings of the IEEE, 2012, 100, 150-163.	21.3	98
83	Inferring the structure and dynamics of interactions in schooling fish. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 18720-18725.	7.1	719
84	Uninformed Individuals Promote Democratic Consensus in Animal Groups. Science, 2011, 334, 1578-1580.	12.6	354
85	Inclusive fitness theory and eusociality. Nature, 2011, 471, E1-E4.	27.8	339
86	Group size, grooming and fission in primates: A modeling approach based on group structure. Journal of Theoretical Biology, 2011, 273, 156-166.	1.7	52
87	Nutritional state and collective motion: from individuals to mass migration. Proceedings of the Royal Society B: Biological Sciences, 2011, 278, 356-363.	2.6	91
88	Leadership, collective motion and the evolution of migratory strategies. Communicative and Integrative Biology, 2011, 4, 294-298.	1.4	25
89	Signalling and the Evolution of Cooperative Foraging in Dynamic Environments. PLoS Computational Biology, 2011, 7, e1002194.	3.2	72
90	Coarse Collective Dynamics of Animal Groups. Lecture Notes in Computational Science and Engineering, 2011, , 299-309.	0.3	8

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91	Migration quantified: constructing models and linking them with data. , 2011, , 110-128.		4
92	Scalable Rules for Coherent Group Motion in a Gregarious Vertebrate. PLoS ONE, 2011, 6, e14487.	2.5	38
93	A novel method for investigating the collective behaviour of fish: introducing â€˜Robofishâ€™. Behavioral Ecology and Sociobiology, 2010, 64, 1211-1218.	1.4	153
94	Social interactions, information use, and the evolution of collective migration. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 16172-16177.	7.1	230
95	Differences in Nutrient Requirements Imply a Non-Linear Emergence of Leaders in Animal Groups. PLoS Computational Biology, 2010, 6, e1000917.	3.2	39
96	Ergodic directional switching in mobile insect groups. Physical Review E, 2010, 82, 011926.	2.1	14
97	Specialization and evolutionary branching within migratory populations. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 20394-20399.	7.1	45
98	The Social Context of Cannibalism in Migratory Bands of the Mormon Cricket. PLoS ONE, 2010, 5, e15118.	2.5	30
99	Context-dependent interaction leads to emergent search behavior in social aggregates. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 22055-22060.	7.1	94
100	Inherent noise can facilitate coherence in collective swarm motion. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 5464-5469.	7.1	240
101	â€œLeading According to Needâ€•in Selfâ€Organizing Groups. American Naturalist, 2009, 173, 304-312.	2.1	216
102	Fissionâ€“fusion populations. Current Biology, 2009, 19, R633-R635.	3.9	117
103	Collective behavior in cancer cell populations. BioEssays, 2009, 31, 190-197.	2.5	180
104	Dynamics of Decision Making in Animal Group Motion. Journal of Nonlinear Science, 2009, 19, 399-435.	2.1	53
105	Leadership, consensus decision making and collective behaviour in humans. Philosophical Transactions of the Royal Society B: Biological Sciences, 2009, 364, 781-789.	4.0	308
106	Collective Motion due to Individual Escape and Pursuit Response. Physical Review Letters, 2009, 102, 010602.	7.8	212
107	Collective cognition in animal groups. Trends in Cognitive Sciences, 2009, 13, 36-43.	7.8	690
108	An Efficient GPU Implementation for Large Scale Individual-Based Simulation of Collective Behavior. , 2009, , .		22

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109	Information transfer in moving animal groups. Theory in Biosciences, 2008, 127, 177-186.	1.4	134
110	Consensus decision making in human crowds. Animal Behaviour, 2008, 75, 461-470.	1.9	156
111	Collective Motion and Cannibalism in Locust Migratory Bands. Current Biology, 2008, 18, 735-739.	3.9	255
112	Consensus Decision Making by Fish. Current Biology, 2008, 18, 1773-1777.	3.9	231
113	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
114	Quorum decision-making facilitates information transfer in fish shoals. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 6948-6953.	7.1	395
115	Emerging collective behaviors of animal groups. , 2008, , .		4
116	Spatial models of bistability in biological collectives. , 2007, , .		11
117	Alternating spatial patterns for coordinated group motion. , 2007, , .		7
118	Collective minds. Nature, 2007, 445, 715-715.	27.8	274
119	From Disorder to Order in Marching Locusts. Science, 2006, 312, 1402-1406.	12.6	910
120	Behavioral Ecology: Social Organization in Fissionâ€“Fusion Societies. Current Biology, 2006, 16, R169-R171.	3.9	128
121	Cannibal crickets on a forced march for protein and salt. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 4152-4156.	7.1	273
122	Effective leadership and decision-making in animal groups on the move. Nature, 2005, 433, 513-516.	27.8	2,214
123	Modelling density-dependent fish shoal distributions in the laboratory and field. Oikos, 2005, 110, 344-352.	2.7	45
124	ANTBIRDS PARASITIZE FORAGING ARMY ANTS. Ecology, 2005, 86, 555-559.	3.2	46
125	Context-dependent group size choice in fish. Animal Behaviour, 2004, 67, 155-164.	1.9	348
126	Mechanisms underlying shoal composition in the Trinidadian guppy, Poecilia reticulata. Oikos, 2003, 100, 429-438.	2.7	191

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127	When fish shoals meet: outcomes for evolution and fisheries. Fish and Fisheries, 2003, 4, 138-146.	5.3	35
128	Self-organized lane formation and optimized traffic flow in army ants. Proceedings of the Royal Society B: Biological Sciences, 2003, 270, 139-146.	2.6	311
129	Self-Organization and Collective Behavior in Vertebrates. Advances in the Study of Behavior, 2003, 32, 1-75.	1.6	683
130	Collective Memory and Spatial Sorting in Animal Groups. Journal of Theoretical Biology, 2002, 218, 1-11.	1.7	1,698
131	The effects of parasitism and body length on positioning within wild fish shoals. Journal of Animal Ecology, 2002, 71, 10-14.	2.8	48
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	Improving secondary pick up of insect fungal pathogen conidia by manipulating host behaviour. Annals of Applied Biology, 2000, 137, 329-335.	2.5	37
134	Whatâ€™s in a song? Female bushcrickets discriminate against the song of older males. Proceedings of the Royal Society B: Biological Sciences, 1995, 262, 21-27.	2.6	57