Richard A Watson

List of Publications by Year
in descending order

61 papers	2,743 citations	377584 21 h-index	223390 49 g-index
69 all docs	69 docs citations	69 times ranked	2468 citing authors

#	Article	IF	Citations
1	Design for an Individual: Connectionist Approaches to the Evolutionary Transitions in Individuality. Frontiers in Ecology and Evolution, 2022, 10, .	1.1	13
2	Deep Optimisation: Transitioning the Scale of Evolutionary Search by Inducing and Searching in Deep Representations. SN Computer Science, 2022, 3, .	2.3	0
3	Evolvability. , 2021, , 133-148.		2
4	Deep Optimisation: Multi-scale Evolution by Inducing and Searching in Deep Representations. Lecture Notes in Computer Science, 2021, , 506-521.	1.0	1
5	Development and selective grain make plasticity 'take the lead' in adaptive evolution. Bmc Ecology and Evolution, 2021, 21, 205.	0.7	7
6	Identifying Causes of Social Evolution: Contextual Analysis, the Price Approach, and Multilevel Selection. Frontiers in Ecology and Evolution, 2021, 9, .	1.1	1
7	The Surprising Creativity of Digital Evolution: A Collection of Anecdotes from the Evolutionary Computation and Artificial Life Research Communities. Artificial Life, 2020, 26, 274-306.	1.0	88
8	How to fit in: The learning principles of cell differentiation. PLoS Computational Biology, 2020, 16, e1006811.	1.5	5
9	Evolvability. , 2020, , 1-16.		1
10	How adaptive plasticity evolves when selected against. PLoS Computational Biology, 2019, 15, e1006260.	1.5	17
11	Developmental Bias and Evolution: A Regulatory Network Perspective. Genetics, 2018, 209, 949-966.	1.2	146
12	Minimally Sufficient Conditions for the Evolution of Social Learning and the Emergence of Non-Genetic Evolutionary Systems. Artificial Life, 2017, 23, 493-517.	1.0	2
13	How evolution learns to generalise: Using the principles of learning theory to understand the evolution of developmental organisation. PLoS Computational Biology, 2017, 13, e1005358.	1.5	70
14	How Can Evolution Learn? â€“ A Reply to Responses. Trends in Ecology and Evolution, 2016, 31, 896-898.	4.2	2
15	How Can Evolution Learn?. Trends in Ecology and Evolution, 2016, 31, 147-157.	4.2	181
16	Game theoretic treatments for the differentiation of functional roles in the transition to multicellularity. Journal of Theoretical Biology, 2016, 395, 161-173.	0.8	7
17	Evolutionary Connectionism: Algorithmic Principles Underlying the Evolution of Biological Organisation in Evo-Devo, Evo-Eco and Evolutionary Transitions. Evolutionary Biology, 2016, 43, 553-581.	0.5	58
18	What can ecosystems learn? Expanding evolutionary ecology with learning theory. Biology Direct, 2015, 10, 69.	1.9	49

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19	Solving building block problems using generative grammar. , 2014, , .		3
20	THE EVOLUTION OF PHENOTYPIC CORRELATIONS AND â€œDEVELOPMENTAL MEMORYâ€. Evolution; International Journal of Organic Evolution, 2014, 68, 1124-1138.	1.1	103
21	Transforming Evolutionary Search into Higher-Level Evolutionary Search by Capturing Problem Structure. IEEE Transactions on Evolutionary Computation, 2014, 18, 628-642.	7.5	14
22	Inferring and Exploiting Problem Structure with Schema Grammar. Lecture Notes in Computer Science, 2014, , 404-413.	1.0	1
23	Manipulated into giving: when parasitism drives apparent or incidental altruism. Proceedings of the Royal Society B: Biological Sciences, 2013, 280, 20130108.	1.2	10
24	Competitive environments sustain costly altruism with negligible assortment of interactions. Scientific Reports, 2013, 3, 2836.	1.6	1
25	Finding the boundary between evolutionary basins of attraction, and implications for Wrightâ€™s fitness landscape analogy. Journal of Statistical Mechanics: Theory and Experiment, 2013, 2013, P01001.	0.9	9
26	Can Simpson's paradox explain co-operation in<i>Pseudomonas aeruginosa</i>biofilms?. FEMS Immunology and Medical Microbiology, 2012, 65, 226-235.	2.7	19
27	GENOME STRUCTURE AND THE BENEFIT OF SEX. Evolution; International Journal of Organic Evolution, 2011, 65, 523-536.	1.1	38
28	THE CONCURRENT EVOLUTION OF COOPERATION AND THE POPULATION STRUCTURES THAT SUPPORT IT. Evolution; International Journal of Organic Evolution, 2011, 65, 1527-1543.	1.1	63
29	Optimization in â€œself-modelingâ€•complex adaptive systems. Complexity, 2011, 16, 17-26.	0.9	37
30	â€œIf You Can't Be With the One You Love, Love the One You're Withâ€: How Individual Habituation of Agent Interactions Improves Global Utility. Artificial Life, 2011, 17, 167-181.	1.0	19
31	Global Adaptation in Networks of Selfish Components: Emergent Associative Memory at the System Scale. Artificial Life, 2011, 17, 147-166.	1.0	34
32	Can Selfish Symbioses Effect Higher-Level Selection?. Lecture Notes in Computer Science, 2011, , 27-36.	1.0	4
33	Moderate Contact between Sub-populations Promotes Evolved Assortativity Enabling Group Selection. Lecture Notes in Computer Science, 2011, , 45-52.	1.0	1
34	Symbiosis Enables the Evolution of Rare Complexes in Structured Environments. Lecture Notes in Computer Science, 2011, , 110-117.	1.0	2
35	Evolution of Individual Group Size Preference Can Increase Group-Level Selection and Cooperation. Lecture Notes in Computer Science, 2011, , 53-60.	1.0	2
36	Coevolutionary Dynamics of Interacting Species. Lecture Notes in Computer Science, 2010, , 1-10.	1.0	6

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37	Variable discrimination of crossover versus mutation using parameterized modular structure. , 2007, , .		5
38	A building-block royal road where crossover is provably essential. , 2007, , .		52
39	Preliminary investigations into the evolution of cooperative strategies in a minimally spatial model. , 2007, , .		1
40	Symbiosis, Synergy and Modularity: Introducing theÂReciprocal Synergy Symbiosis Algorithm. , 2007, , 1192-1201.		4
41	Individual Selection for Cooperative Group Formation. , 2007, , 585-594.		2
42	Investigating the Evolution of Cooperative Behaviour in a Minimally Spatial Model. , 2007, , 605-614.		0
43	Effects of intra-gene fitness interactions on the benefit of sexual recombination. Biochemical Society Transactions, 2006, 34, 560-561.	1.6	8
44	PERSPECTIVE: SIGN EPISTASIS AND GENETIC COSTRAINT ON EVOLUTIONARY TRAJECTORIES. Evolution; International Journal of Organic Evolution, 2005, 59, 1165-1174.	1.1	384
45	Dynamical Hierarchies (Guest Editors' Introduction). Artificial Life, 2005, 11, 403-405.	1.0	10
46	Modular Interdependency in Complex Dynamical Systems. Artificial Life, 2005, 11, 445-457.	1.0	59
47	On the complexity of hierarchical problem solving. , 2005, , .		29
48	On the Unit of Selection in Sexual Populations. Lecture Notes in Computer Science, 2005, , 895-905.	1.0	4
49	Genetic Assimilation and Canalisation in the Baldwin Effect. Lecture Notes in Computer Science, 2005, , 353-362.	1.0	3
50	Perspective: Sign epistasis and genetic constraint on evolutionary trajectories. Evolution; International Journal of Organic Evolution, 2005, 59, 1165-74.	1.1	401
51	A Simple Two-Module Problem to Exemplify Building-Block Assembly Under Crossover. Lecture Notes in Computer Science, 2004, , 161-171.	1.0	4
52	A computational model of symbiotic composition in evolutionary transitions. BioSystems, 2003, 69, 187-209.	0.9	46
53	On the Utility of Redundant Encodings in Mutation-Based Evolutionary Search. Lecture Notes in Computer Science, 2002, , 88-98.	1.0	25
54	Embodied Evolution: Distributing an evolutionary algorithm in a population of robots. Robotics and Autonomous Systems, 2002, 39, 1-18.	3.0	220

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55	Reducing Local Optima in Single-Objective Problems by Multi-objectivization. Lecture Notes in Computer Science, 2001, , 269-283.	1.0	199
56	Symbiotic Composition and Evolvability. Lecture Notes in Computer Science, 2001, , 480-490.	1.0	5
57	Analysis of recombinative algorithms on a non-separable building-block problem. , 2001, , 69-89.		25
58	Evolutionary Techniques in Physical Robotics. Lecture Notes in Computer Science, 2000, , 175-186.	1.0	42
59	How Symbiosis Can Guide Evolution. Lecture Notes in Computer Science, 1999, , 29-38.	1.0	19
60	Modeling building-block interdependency. Lecture Notes in Computer Science, 1998, , 97-106.	1.0	92
61	Is Evolution by Natural Selection the Algorithm of Biological Evolution?. , 0, , .		4