Charles Ofria

List of Publications by Year
in descending order

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114	5,424	236925	106344
papers	citations	25 h-index	65 g-index

139	139	139	3110
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	The evolutionary origin of complex features. Nature, 2003, 423, 139-144.	27.8	643
2	Evolution of digital organisms at high mutation rates leads to survival of the flattest. Nature, 2001, 412, 331-333.	27.8	548
3	PERSPECTIVE: EVOLUTION AND DETECTION OF GENETIC ROBUSTNESS. Evolution; International Journal of Organic Evolution, 2003, 57, 1959-1972.	2.3	504
4	PERSPECTIVE:EVOLUTION AND DETECTION OF GENETIC ROBUSTNESS. Evolution; International Journal of Organic Evolution, 2003, 57, 1959.	2.3	467
5	Evolution of biological complexity. Proceedings of the National Academy of Sciences of the United States of America, 2000, 97, 4463-4468.	7.1	435
6	Avida: A Software Platform for Research in Computational Evolutionary Biology. Artificial Life, 2004, 10, 191-229.	1.3	280
7	Genome complexity, robustness and genetic interactions in digital organisms. Nature, 1999, 400, 661-664.	27.8	255
8	Balancing Robustness and Evolvability. PLoS Biology, 2006, 4, e428.	5.6	171
9	Adaptive Radiation from Resource Competition in Digital Organisms. Science, 2004, 305, 84-86.	12.6	110
10	On the Performance of Indirect Encoding Across the Continuum of Regularity. IEEE Transactions on Evolutionary Computation, 2011, 15, 346-367.	10.0	106
11	Sexual reproduction reshapes the genetic architecture of digital organisms. Proceedings of the Royal Society B: Biological Sciences, 2006, 273, 457-464.	2.6	97
12	Coevolution Drives the Emergence of Complex Traits and Promotes Evolvability. PLoS Biology, 2014, 12, e1002023.	5.6	92
13	Task-switching costs promote the evolution of division of labor and shifts in individuality. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 13686-13691.	7.1	91
14	Distributed Cooperative Caching in Social Wireless Networks. IEEE Transactions on Mobile Computing, 2013, 12, 1037-1053.	5.8	89
15	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.	1.3	88
16	Evolving coordinated quadruped gaits with the HyperNEAT generative encoding. , 2009, , .		87
17	Natural Selection Fails to Optimize Mutation Rates for Long-Term Adaptation on Rugged Fitness Landscapes. PLoS Computational Biology, 2008, 4, e1000187.	3.2	80
18	Experiments on the role of deleterious mutations as stepping stones in adaptive evolution. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, E3171-8.	7.1	76

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19	Open-Ended Evolution: Perspectives from the OEE Workshop in York. Artificial Life, 2016, 22, 408-423.	1.3	73
20	EFFECTS OF POPULATION SIZE AND MUTATION RATE ON THE EVOLUTION OF MUTATIONAL ROBUSTNESS. Evolution; International Journal of Organic Evolution, 2007, 61, 666-674.	2.3	58
21	The Evolutionary Origin of Somatic Cells under the Dirty Work Hypothesis. PLoS Biology, 2014, 12, e1001858.	5.6	56
22	Selective pressures on genomes in molecular evolution. Journal of Theoretical Biology, 2003, 222, 477-483.	1.7	51
23	Ecological Specialization and Adaptive Decay in Digital Organisms. American Naturalist, 2007, 169, E1-E20.	2.1	43
24	Harnessing Digital Evolution. Computer, 2008, 41, 54-63.	1.1	37
25	The sensitivity of HyperNEAT to different geometric representations of a problem. , 2009, , .		36
26	Selective Press Extinctions, but Not Random Pulse Extinctions, Cause Delayed Ecological Recovery in Communities of Digital Organisms. American Naturalist, 2009, 173, E139-E154.	2.1	31
27	Investigating whether hyperNEAT produces modular neural networks. , 2010, , .		31
28	RUNAWAY SEXUAL SELECTION LEADS TO GOOD GENES. Evolution; International Journal of Organic Evolution, 2013, 67, 110-119.	2.3	30
29	Evolving Digital Ecological Networks. PLoS Computational Biology, 2013, 9, e1002928.	3.2	30
30	Avida. , 2009, , 3-35.		30
31	Design of evolvable computer languages. IEEE Transactions on Evolutionary Computation, 2002, 6, 420-424.	10.0	27
32	Selective pressures for accurate altruism targeting: evidence from digital evolution for difficult-to-test aspects of inclusive fitness theory. Proceedings of the Royal Society B: Biological Sciences, 2011, 278, 666-674.	2.6	27
33	Random subsampling improves performance in lexicase selection. , 2019, , .		26
34	Historical and contingent factors affect reâ€evolution of a complex feature lost during mass extinction in communities of digital organisms. Journal of Evolutionary Biology, 2008, 21, 1335-1357.	1.7	24
35	The genotype-phenotype map of an evolving digital organism. PLoS Computational Biology, 2017, 13, e1005414.	3.2	24
36	Ontogeny Tends to Recapitulate Phylogeny in Digital Organisms. American Naturalist, 2012, 180, E54-E63.	2.1	22

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37	Natural selection fails to optimize mutation rates for long-term adaptation on rugged fitness landscapes. , 2013, , .		21
38	Experiments with Digital Organisms on the Origin and Maintenance of Sex in Changing Environments. Journal of Heredity, 2010, 101, S46-S54.	2.4	20
39	Fluctuating environments select for short-term phenotypic variation leading to long-term exploration. PLoS Computational Biology, 2019, 15, e1006445.	3.2	20
40	A Comparison of the Effects of Random and Selective Mass Extinctions on Erosion of Evolutionary History in Communities of Digital Organisms. PLoS ONE, 2012, 7, e37233.	2.5	17
41	How a Generative Encoding Fares as Problem-Regularity Decreases. Lecture Notes in Computer Science, 2008, , 358-367.	1.3	17
42	Evolving event-driven programs with SignalGP. , 2018, , .		16
43	On the Gradual Evolution of Complexity and the Sudden Emergence of Complex Features. Artificial Life, 2008, 14, 255-263.	1.3	15
44	Using Avida to Test the Effects of Natural Selection on Phylogenetic Reconstruction Methods. Artificial Life, 2004, 10, 157-166.	1.3	14
45	Cooperative network construction using digital germlines. , 2008, , .		14
46	The Evolutionary Origin of Associative Learning. American Naturalist, 2020, 195, E1-E19.	2.1	14
47	Adaptive Phenotypic Plasticity Stabilizes Evolution in Fluctuating Environments. Frontiers in Ecology and Evolution, 2021, 9, .	2.2	14
48	Rapid host-parasite coevolution drives the production and maintenance of diversity in digital organisms. , 2011, , .		13
49	Ecological approaches to diversity maintenance in evolutionary algorithms. , 2009, , .		12
50	Suicidal selection: Programmed cell death can evolve in unicellular organisms due solely to kin selection. Ecology and Evolution, 2019, 9, 9129-9136.	1.9	12
51	Evolution of an Adaptive Sleep Response in Digital Organisms. , 2007, , 233-242.		12
52	Tag-accessed memory for genetic programming. , 2019, , .		11
53	Characterizing the Effects of Random Subsampling on Lexicase Selection. Genetic and Evolutionary Computation, 2020, , 1-23.	1.0	11
54	Interpreting the Tape of Life: Ancestry-Based Analyses Provide Insights and Intuition about Evolutionary Dynamics. Artificial Life, 2020, 26, 58-79.	1.3	10

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55	Directed Evolution of Communication and Cooperation in Digital Organisms. , 2007, , 384-394.		10
56	Investigating the Emergence of Phenotypic Plasticity inÂEvolving Digital Organisms. , 2007, , 74-83.		10
57	An Exploration ofÂExploration: Measuring theÂAbility ofÂLexicase Selection toÂFind Obscure Pathways toÂOptimality. Genetic and Evolutionary Computation, 2022, , 83-107.	1.0	10
58	Evolutionary dynamics, epistatic interactions, and biological information. Journal of Theoretical Biology, 2010, 266, 584-594.	1.7	9
59	Understanding Evolutionary Potential in Virtual CPU Instruction Set Architectures. PLoS ONE, 2013, 8, e83242.	2.5	9
60	Evolution of Cooperative Information Gathering in Self-Replicating Digital Organisms. , 2007, , .		8
61	The effect of natural selection on the performance of maximum parsimony. BMC Evolutionary Biology, 2007, 7, 94.	3.2	8
62	A Case Study of the De Novo Evolution of a Complex Odometric Behavior in Digital Organisms. PLoS ONE, 2013, 8, e60466.	2.5	8
63	The MODES Toolbox: Measurements of Open-Ended Dynamics in Evolving Systems. Artificial Life, 2019, 25, 50-73.	1.3	8
64	HybrID: A Hybridization of Indirect and Direct Encodings for Evolutionary Computation. Lecture Notes in Computer Science, 2011, , 134-141.	1.3	8
65	The Effect of Conflicting Pressures on the Evolution of Division of Labor. PLoS ONE, 2014, 9, e102713.	2.5	8
66	Evolutionary Potential is Maximized at Intermediate Diversity Levels. , 0, , .		8
67	The Evolutionary Origins of Phenotypic Plasticity. , 2016, , .		8
68	Gene duplications drive the evolution of complex traits and regulation. , 2017, , .		8
69	Exploring Genetic Programming Systems with MAP-Elites. Genetic and Evolutionary Computation, 2019, , 1-16.	1.0	8
70	Autonomic Software Development Methodology Based on Darwinian Evolution. , 2008, , .		7
71	WebAL Comes of Age: A Review of the First 21 Years of Artificial Life on the Web. Artificial Life, 2016, 22, 364-407.	1.3	7
72	Learning an evolvable genotype-phenotype mapping. , 2018, , .		7

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73	Toward Open-Ended Fraternal Transitions in Individuality. Artificial Life, 2019, 25, 117-133.	1.3	7
74	The Evolution of Evolvability: Changing Environments Promote Rapid Adaptation in Digital Organisms. , 2016, , .		7
75	Digital Evolution for Ecology Research: A Review. Frontiers in Ecology and Evolution, 2021, 9, .	2.2	6
76	On the evolution of motility and intelligent tactic response. , 2008, , .		5
77	Cockroaches, drunkards, and climbers: Modeling the evolution of simple movement strategies using digital organisms. , 2009, , .		5
78	Tag-based regulation of modules in genetic programming improves context-dependent problem solving. Genetic Programming and Evolvable Machines, 2021, 22, 325-355.	2.2	5
79	Evolution of Genetic Organization in Digital Organisms. Natural Computing Series, 2002, , 296-313.	2.2	5
80	Improved adaptation in exogenously and endogenously changing environments. , 2017, , .		5
81	Applying Ecological Principles to Genetic Programming. Genetic and Evolutionary Computation, 2018, , 73-88.	1.0	5
82	Evolution of division of labor in genetically homogenous groups. , 2010, , .		4
83	The evolution of kin inclusivity levels. , 2014, , .		4
84	Evolution of Differentiated Expression Patterns in Digital Organisms. Lecture Notes in Computer Science, 1999, , 129-138.	1.3	4
85	What Else Is in an Evolved Name? Exploring Evolvable Specificity with SignalGP. Genetic and Evolutionary Computation, 2019, , 103-121.	1.0	4
86	The Evolution of Temporal Polyethism. , 0, , .		4
87	The Effect of Natural Selection on Phylogeny Reconstruction Algorithms. Lecture Notes in Computer Science, 2003, , 13-24.	1.3	3
88	Modeling the evolutionary dynamics of plasmids in spatial populations. , 2011, , .		3
89	Genetically integrated traits and rugged adaptive landscapes in digital organisms. BMC Evolutionary Biology, 2015, 15, 83.	3.2	3
90	MABE 2.0. , 2019, , .		3

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91	Spatial Structure Can Decrease Symbiotic Cooperation. Artificial Life, 2019, 24, 229-249.	1.3	3
92	Avida: Evolution Experiments with Self-Replicating Computer Programs. , 2005, , 3-35.		3
93	The Evolution of Division of Labor. Lecture Notes in Computer Science, 2011, , 10-18.	1.3	3
94	Selection for group-level efficiency leads to self-regulation of population size. , 2008, , .		2
95	Behavioral Strategy Chases Promote the Evolution of Prey Intelligence*. Genetic and Evolutionary Computation, 2020, , 225-246.	1.0	2
96	Conduit. , 2021, , .		2
97	Evolving Reactive Agents with SignalGP. , 2018, , .		2
98	Spatial resource heterogeneity creates local hotspots of evolutionary potential. , 2017, , .		2
99	Applying digital evolution to the design of self-adaptive software. , 2009, , .		1
100	Digital evolution with avida. , 2010, , .		1
101	There and back again. , 2014, , .		1
102	What Factors Drive the Evolution of Mutualism?. , 2016, , .		1
103	Visualizing the tape of life. , 2018, , .		1
104	The Comparative Hybrid Approach to Investigate Cognition across Substrates. , 2021, , .		1
105	Quantifying the Tape of Life: Ancestry-based Metrics Provide Insights and Intuition about Evolutionary Dynamics. , 2018, , .		1
106	Digital Evolution Exhibits Surprising Robustness to Poor Design Decisions. , 0, , .		1
107	The Effects of Evolution and Spatial Structure on Diversity in Biological Reserves. , 2016, , .		1
108	Exploring Evolved Multicellular Life Histories in a Open-Ended Digital Evolution System. Frontiers in Ecology and Evolution, 2022, 10, .	2.2	1

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109	Problem decomposition using indirect reciprocity in evolved populations. , 2009, , .		0
110	On Sexual Selection in the Presence of Multiple Costly Displays. , 2019, , .		0
111	Data Standards for Artificial Life Software. , 2019, , .		0
112	Horizontal Gene Transfer Leads to Increased Task Acquisition and Genomic Modularity in Digital Organisms. , 2019, , .		0
113	Major Transitions in Digital Evolution*. Genetic and Evolutionary Computation, 2020, , 333-347.	1.0	0
114	Rank epistasis: A new model for analyzing epistatic interactions in the absence of quantifiable fitness interactions. , 2020, , .		0