# Charles Ofria

List of Publications by Year
in descending order



| 114 | 5,424 | 270111<br>25 | 120465<br>65 |
|---|---|---|---|
| papers | citations | h-index | g-index |

| 139 | 139 | 139 | 3583 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
| --- | --- | --- | --- |
| 1 | An Exploration ofÂExploration: Measuring theÂAbility ofÂLexicase Selection toÂFind Obscure Pathways toÂOptimality. Genetic and Evolutionary Computation, 2022, , 83-107. | 1.0 | 10 |
| 2 | Exploring Evolved Multicellular Life Histories in a Open-Ended Digital Evolution System. Frontiers in Ecology and Evolution, 2022, 10, . | 1.1 | 1 |
| 3 | The Comparative Hybrid Approach to Investigate Cognition across Substrates. , 2021, , . | | 1 |
| 4 | Conduit. , 2021, , . | | 2 |
| 5 | Tag-based regulation of modules in genetic programming improves context-dependent problem solving. Genetic Programming and Evolvable Machines, 2021, 22, 325-355. | 1.5 | 5 |
| 6 | Adaptive Phenotypic Plasticity Stabilizes Evolution in Fluctuating Environments. Frontiers in Ecology and Evolution, 2021, 9, . | 1.1 | 14 |
| 7 | Digital Evolution for Ecology Research: A Review. Frontiers in Ecology and Evolution, 2021, 9, . | 1.1 | 6 |
| 8 | The Evolutionary Origin of Associative Learning. American Naturalist, 2020, 195, E1-E19. | 1.0 | 14 |
| 9 | Behavioral Strategy Chases Promote the Evolution of Prey Intelligence*. Genetic and Evolutionary Computation, 2020, , 225-246. | 1.0 | 2 |
| 10 | 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 |
| 11 | Interpreting the Tape of Life: Ancestry-Based Analyses Provide Insights and Intuition about Evolutionary Dynamics. Artificial Life, 2020, 26, 58-79. | 1.0 | 10 |
| 12 | Major Transitions in Digital Evolution*. Genetic and Evolutionary Computation, 2020, , 333-347. | 1.0 | 0 |
| 13 | Characterizing the Effects of Random Subsampling on Lexicase Selection. Genetic and Evolutionary Computation, 2020, , 1-23. | 1.0 | 11 |
| 14 | Rank epistasis: A new model for analyzing epistatic interactions in the absence of quantifiable fitness interactions. , 2020, , . | | 0 |
| 15 | Suicidal selection: Programmed cell death can evolve in unicellular organisms due solely to kin selection. Ecology and Evolution, 2019, 9, 9129-9136. | 0.8 | 12 |
| 16 | Toward Open-Ended Fraternal Transitions in Individuality. Artificial Life, 2019, 25, 117-133. | 1.0 | 7 |
| 17 | Tag-accessed memory for genetic programming. , 2019, , . | | 11 |
| 18 | Random subsampling improves performance in lexicase selection. , 2019, , . | | 26 |

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|---|---|---|---|
| 19 | MABE 2.0. , 2019, , . | | 3 |
| 20 | Fluctuating environments select for short-term phenotypic variation leading to long-term exploration. PLoS Computational Biology, 2019, 15, e1006445. | 1.5 | 20 |
| 21 | Spatial Structure Can Decrease Symbiotic Cooperation. Artificial Life, 2019, 24, 229-249. | 1.0 | 3 |
| 22 | The MODES Toolbox: Measurements of Open-Ended Dynamics in Evolving Systems. Artificial Life, 2019, 25, 50-73. | 1.0 | 8 |
| 23 | On Sexual Selection in the Presence of Multiple Costly Displays. , 2019, , . | | 0 |
| 24 | What Else Is in an Evolved Name? Exploring Evolvable Specificity with SignalGP. Genetic and Evolutionary Computation, 2019, , 103-121. | 1.0 | 4 |
| 25 | Exploring Genetic Programming Systems with MAP-Elites. Genetic and Evolutionary Computation, 2019, , 1-16. | 1.0 | 8 |
| 26 | Data Standards for Artificial Life Software. , 2019, , . | | 0 |
| 27 | Horizontal Gene Transfer Leads to Increased Task Acquisition and Genomic Modularity in Digital Organisms. , 2019, , . | | 0 |
| 28 | Evolving event-driven programs with SignalGP. , 2018, , . | | 16 |
| 29 | Learning an evolvable genotype-phenotype mapping. , 2018, , . | | 7 |
| 30 | Visualizing the tape of life. , 2018, , . | | 1 |
| 31 | Quantifying the Tape of Life: Ancestry-based Metrics Provide Insights and Intuition about Evolutionary Dynamics. , 2018, , . | | 1 |
| 32 | Evolving Reactive Agents with SignalGP. , 2018, , . | | 2 |
| 33 | Applying Ecological Principles to Genetic Programming. Genetic and Evolutionary Computation, 2018, , 73-88. | 1.0 | 5 |
| 34 | The genotype-phenotype map of an evolving digital organism. PLoS Computational Biology, 2017, 13, e1005414. | 1.5 | 24 |
| 35 | Spatial resource heterogeneity creates local hotspots of evolutionary potential. , 2017, , . | | 2 |
| 36 | Gene duplications drive the evolution of complex traits and regulation. , 2017, , . | | 8 |

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| 37 | Improved adaptation in exogenously and endogenously changing environments. , 2017, , . | | 5 |
| 38 | What Factors Drive the Evolution of Mutualism?. , 2016, , . | | 1 |
| 39 | Open-Ended Evolution: Perspectives from the OEE Workshop in York. Artificial Life, 2016, 22, 408-423. | 1.0 | 73 |
| 40 | WebAL Comes of Age: A Review of the First 21 Years of Artificial Life on the Web. Artificial Life, 2016, 22, 364-407. | 1.0 | 7 |
| 41 | The Evolution of Evolvability: Changing Environments Promote Rapid Adaptation in Digital Organisms. , 2016, , . | | 7 |
| 42 | The Evolutionary Origins of Phenotypic Plasticity. , 2016, , . | | 8 |
| 43 | The Effects of Evolution and Spatial Structure on Diversity in Biological Reserves. , 2016, , . | | 1 |
| 44 | Genetically integrated traits and rugged adaptive landscapes in digital organisms. BMC Evolutionary Biology, 2015, 15, 83. | 3.2 | 3 |
| 45 | Coevolution Drives the Emergence of Complex Traits and Promotes Evolvability. PLoS Biology, 2014, 12, e1002023. | 2.6 | 92 |
| 46 | The Evolutionary Origin of Somatic Cells under the Dirty Work Hypothesis. PLoS Biology, 2014, 12, e1001858. | 2.6 | 56 |
| 47 | There and back again. , 2014, , . | | 1 |
| 48 | The evolution of kin inclusivity levels. , 2014, , . | | 4 |
| 49 | The Effect of Conflicting Pressures on the Evolution of Division of Labor. PLoS ONE, 2014, 9, e102713. | 1.1 | 8 |
| 50 | Distributed Cooperative Caching in Social Wireless Networks. IEEE Transactions on Mobile Computing, 2013, 12, 1037-1053. | 3.9 | 89 |
| 51 | RUNAWAY SEXUAL SELECTION LEADS TO GOOD GENES. Evolution; International Journal of Organic Evolution, 2013, 67, 110-119. | 1.1 | 30 |
| 52 | Natural selection fails to optimize mutation rates for long-term adaptation on rugged fitness landscapes. , 2013, , . | | 21 |
| 53 | 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. | 3.3 | 76 |
| 54 | Evolving Digital Ecological Networks. PLoS Computational Biology, 2013, 9, e1002928. | 1.5 | 30 |

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| 55 | A Case Study of the De Novo Evolution of a Complex Odometric Behavior in Digital Organisms. PLoS ONE, 2013, 8, e60466. | 1.1 | 8 |
| 56 | Understanding Evolutionary Potential in Virtual CPU Instruction Set Architectures. PLoS ONE, 2013, 8, e83242. | 1.1 | 9 |
| 57 | 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. | 3.3 | 91 |
| 58 | Ontogeny Tends to Recapitulate Phylogeny in Digital Organisms. American Naturalist, 2012, 180, E54-E63. | 1.0 | 22 |
| 59 | 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. | 1.1 | 17 |
| 60 | On the Performance of Indirect Encoding Across the Continuum of Regularity. IEEE Transactions on Evolutionary Computation, 2011, 15, 346-367. | 7.5 | 106 |
| 61 | Modeling the evolutionary dynamics of plasmids in spatial populations. , 2011, , . | | 3 |
| 62 | Rapid host-parasite coevolution drives the production and maintenance of diversity in digital organisms. , 2011, , . | | 13 |
| 63 | 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. | 1.2 | 27 |
| 64 | HybrID: A Hybridization of Indirect and Direct Encodings for Evolutionary Computation. Lecture Notes in Computer Science, 2011, , 134-141. | 1.0 | 8 |
| 65 | The Evolution of Division of Labor. Lecture Notes in Computer Science, 2011, , 10-18. | 1.0 | 3 |
| 66 | Evolutionary dynamics, epistatic interactions, and biological information. Journal of Theoretical Biology, 2010, 266, 584-594. | 0.8 | 9 |
| 67 | Experiments with Digital Organisms on the Origin and Maintenance of Sex in Changing Environments. Journal of Heredity, 2010, 101, S46-S54. | 1.0 | 20 |
| 68 | Investigating whether hyperNEAT produces modular neural networks. , 2010, , . | | 31 |
| 69 | Evolution of division of labor in genetically homogenous groups. , 2010, , . | | 4 |
| 70 | Digital evolution with avida. , 2010, , . | | 1 |
| 71 | Problem decomposition using indirect reciprocity in evolved populations. , 2009, , . | | 0 |
| 72 | The sensitivity of HyperNEAT to different geometric representations of a problem. , 2009, , . | | 36 |

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| 73 | Cockroaches, drunkards, and climbers: Modeling the evolution of simple movement strategies using digital organisms. , 2009, , . | | 5 |
| 74 | Evolving coordinated quadruped gaits with the HyperNEAT generative encoding. , 2009, , . | | 87 |
| 75 | Ecological approaches to diversity maintenance in evolutionary algorithms. , 2009, , . | | 12 |
| 76 | Applying digital evolution to the design of self-adaptive software. , 2009, , . | | 1 |
| 77 | Selective Press Extinctions, but Not Random Pulse Extinctions, Cause Delayed Ecological Recovery in Communities of Digital Organisms. American Naturalist, 2009, 173, E139-E154. | 1.0 | 31 |
| 78 | Avida. , 2009, , 3-35. | | 30 |
| 79 | 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. | 0.8 | 24 |
| 80 | Harnessing Digital Evolution. Computer, 2008, 41, 54-63. | 1.2 | 37 |
| 81 | On the Gradual Evolution of Complexity and the Sudden Emergence of Complex Features. Artificial Life, 2008, 14, 255-263. | 1.0 | 15 |
| 82 | Selection for group-level efficiency leads to self-regulation of population size. , 2008, , . | | 2 |
| 83 | Natural Selection Fails to Optimize Mutation Rates for Long-Term Adaptation on Rugged Fitness Landscapes. PLoS Computational Biology, 2008, 4, e1000187. | 1.5 | 80 |
| 84 | Cooperative network construction using digital germlines. , 2008, , . | | 14 |
| 85 | Autonomic Software Development Methodology Based on Darwinian Evolution. , 2008, , . | | 7 |
| 86 | On the evolution of motility and intelligent tactic response. , 2008, , . | | 5 |
| 87 | How a Generative Encoding Fares as Problem-Regularity Decreases. Lecture Notes in Computer Science, 2008, , 358-367. | 1.0 | 17 |
| 88 | Evolution of Cooperative Information Gathering in Self-Replicating Digital Organisms. , 2007, , . | | 8 |
| 89 | Ecological Specialization and Adaptive Decay in Digital Organisms. American Naturalist, 2007, 169, E1-E20. | 1.0 | 43 |
| 90 | EFFECTS OF POPULATION SIZE AND MUTATION RATE ON THE EVOLUTION OF MUTATIONAL ROBUSTNESS. Evolution; International Journal of Organic Evolution, 2007, 61, 666-674. | 1.1 | 58 |

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| 91 | The effect of natural selection on the performance of maximum parsimony. BMC Evolutionary Biology, 2007, 7, 94. | 3.2 | 8 |
| 92 | Evolution of an Adaptive Sleep Response in Digital Organisms. , 2007, , 233-242. | | 12 |
| 93 | Directed Evolution of Communication and Cooperation in Digital Organisms. , 2007, , 384-394. | | 10 |
| 94 | Investigating the Emergence of Phenotypic Plasticity inÂEvolving Digital Organisms. , 2007, , 74-83. | | 10 |
| 95 | Balancing Robustness and Evolvability. PLoS Biology, 2006, 4, e428. | 2.6 | 171 |
| 96 | Sexual reproduction reshapes the genetic architecture of digital organisms. Proceedings of the Royal Society B: Biological Sciences, 2006, 273, 457-464. | 1.2 | 97 |
| 97 | Avida: Evolution Experiments with Self-Replicating Computer Programs. , 2005, , 3-35. | | 3 |
| 98 | Using Avida to Test the Effects of Natural Selection on Phylogenetic Reconstruction Methods. Artificial Life, 2004, 10, 157-166. | 1.0 | 14 |
| 99 | Adaptive Radiation from Resource Competition in Digital Organisms. Science, 2004, 305, 84-86. | 6.0 | 110 |
| 100 | Avida: A Software Platform for Research in Computational Evolutionary Biology. Artificial Life, 2004, 10, 191-229. | 1.0 | 280 |
| 101 | The evolutionary origin of complex features. Nature, 2003, 423, 139-144. | 13.7 | 643 |
| 102 | Selective pressures on genomes in molecular evolution. Journal of Theoretical Biology, 2003, 222, 477-483. | 0.8 | 51 |
| 103 | PERSPECTIVE: EVOLUTION AND DETECTION OF GENETIC ROBUSTNESS. Evolution; International Journal of Organic Evolution, 2003, 57, 1959-1972. | 1.1 | 504 |
| 104 | The Effect of Natural Selection on Phylogeny Reconstruction Algorithms. Lecture Notes in Computer Science, 2003, , 13-24. | 1.0 | 3 |
| 105 | PERSPECTIVE:EVOLUTION AND DETECTION OF GENETIC ROBUSTNESS. Evolution; International Journal of Organic Evolution, 2003, 57, 1959. | 1.1 | 467 |
| 106 | Design of evolvable computer languages. IEEE Transactions on Evolutionary Computation, 2002, 6, 420-424. | 7.5 | 27 |
| 107 | Evolution of Genetic Organization in Digital Organisms. Natural Computing Series, 2002, , 296-313. | 2.2 | 5 |
| 108 | Evolution of digital organisms at high mutation rates leads to survival of the flattest. Nature, 2001, 412, 331-333. | 13.7 | 548 |

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| 109 | Evolution of biological complexity. Proceedings of the National Academy of Sciences of the United States of America, 2000, 97, 4463-4468. | 3.3 | 435 |
| 110 | Genome complexity, robustness and genetic interactions in digital organisms. Nature, 1999, 400, 661-664. | 13.7 | 255 |
| 111 | Evolution of Differentiated Expression Patterns in Digital Organisms. Lecture Notes in Computer Science, 1999, , 129-138. | 1.0 | 4 |
| 112 | Digital Evolution Exhibits Surprising Robustness to Poor Design Decisions. , 0, , . | | 1 |
| 113 | Evolutionary Potential is Maximized at Intermediate Diversity Levels. , 0, , . | | 8 |
| 114 | The Evolution of Temporal Polyethism. , 0, , . | | 4 |