Wolfgang Banzhaf

List of Publications by Year
in descending order

164 papers	5,979 citations	147786 31 h-index	95259 68 g-index
181 all docs	181 docs citations	181 times ranked	3471 citing authors

#	Article	IF	Citations
1	The use of computational intelligence in intrusion detection systems: A review. Applied Soft Computing Journal, 2010, 10, 1-35.	7.2	540
2	A comparison of linear genetic programming and neural networks in medical data mining. IEEE Transactions on Evolutionary Computation, 2001, 5, 17-26.	10.0	378
3	Artificial Chemistriesâ€"A Review. Artificial Life, 2001, 7, 225-275.	1.3	335
4	NSGA-Net. , 2019, , .		260
5	Cryptography with DNA binary strands. BioSystems, 2000, 57, 13-22.	2.0	211
6	Open issues in genetic programming. Genetic Programming and Evolvable Machines, 2010, 11, 339-363.	2.2	178
7	The â€œmolecularâ€•traveling salesman. Biological Cybernetics, 1990, 64, 7-14.	1.3	125
8	From artificial evolution to computational evolution: a research agenda. Nature Reviews Genetics, 2006, 7, 729-735.	16.3	124
9	Genotype-phenotype-mapping and neutral variation â€" A case study in Genetic Programming. Lecture Notes in Computer Science, 1994, , 322-332.	1.3	96
10	Evolving Teams of Predictors with Linear Genetic Programming. Genetic Programming and Evolvable Machines, 2001, 2, 381-407.	2.2	94
11	An On-Line Method to Evolve Behavior and to Control a Miniature Robot in Real Time with Genetic Programming. Adaptive Behavior, 1997, 5, 107-140.	1.9	93
12	ARJA: Automated Repair of Java Programs via Multi-Objective Genetic Programming. IEEE Transactions on Software Engineering, 2020, 46, 1040-1067.	5.6	93
13	Multiobjective Evolutionary Design of Deep Convolutional Neural Networks for Image Classification. IEEE Transactions on Evolutionary Computation, 2021, 25, 277-291.	10.0	87
14	A SIMD Interpreter for Genetic Programming onÂGPUÂGraphicsÂCards. Lecture Notes in Computer Science, 2008, , 73-85.	1.3	80
15	A study of heuristic combinations for hyper-heuristic systems for the uncapacitated examination timetabling problem. European Journal of Operational Research, 2009, 197, 482-491.	5.7	78
16	Network topology and the evolution of dynamics in an artificial genetic regulatory network model created by whole genome duplication and divergence. BioSystems, 2006, 85, 177-200.	2.0	76
17	Open-Ended Evolution: Perspectives from the OEE Workshop in York. Artificial Life, 2016, 22, 408-423.	1.3	73
18	An informed genetic algorithm for the examination timetabling problem. Applied Soft Computing Journal, 2010, 10, 457-467.	7.2	72

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19	Fast Genetic Programming on GPUs. , 2007, , 90-101.		71
20	Neural Architecture Transfer. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2021, 43, 2971-2989.	13.9	62
21	Self-Evolution in a Constructive Binary String System. Artificial Life, 1998, 4, 203-220.	1.3	60
22	Genetic programming. IEEE Intelligent Systems, 2000, 15, 74-84.	0.2	58
23	Defining and simulating open-ended novelty: requirements, guidelines, and challenges. Theory in Biosciences, 2016, 135, 131-161.	1.4	54
24	Evolution of a world model for a miniature robot using genetic programming. Robotics and Autonomous Systems, 1998, 25, 105-116.	5.1	52
25	Dynamic Subset Selection Based on a Fitness Case Topology. Evolutionary Computation, 2004, 12, 223-242.	3.0	49
26	Developments in Cartesian Genetic Programming: self-modifying CGP. Genetic Programming and Evolvable Machines, 2010, 11, 397-439.	2.2	44
27	Microarray-Based in vitro Evaluation of DNA Oligomer Libraries Designed in silico. ChemPhysChem, 2004, 5, 367-372.	2.1	43
28	Emergent computation by catalytic reactions. Nanotechnology, 1996, 7, 307-314.	2.6	40
29	Fast Genetic Programming and Artificial Developmental Systems on GPUs. , 2007, , .		39
30	Self-modifying cartesian genetic programming. , 2007, , .		38
31	Drone Squadron Optimization: a novel self-adaptive algorithm for global numerical optimization. Neural Computing and Applications, 2018, 30, 3117-3144.	5.6	38
32	Evolving Control Metabolisms for a Robot. Artificial Life, 2001, 7, 171-190.	1.3	35
33	Linear-Graph GP - A New GP Structure. Lecture Notes in Computer Science, 2002, , 83-92.	1.3	34
34	Evolving Genes to Balance a Pole. Lecture Notes in Computer Science, 2010, , 196-207.	1.3	34
35	Explicit Control of Diversity and Effective Variation Distance in Linear Genetic Programming. Lecture Notes in Computer Science, 2002, , 37-49.	1.3	33
36	Self Modifying Cartesian Genetic Programming: Fibonacci, Squares, Regression and Summing. Lecture Notes in Computer Science, 2009, , 133-144.	1.3	31

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37	Evolutionary dynamics on multiple scales: a quantitative analysis of the interplay between genotype, phenotype, and fitness in linear genetic programming. Genetic Programming and Evolvable Machines, 2012, 13, 305-337.	2.2	30
38	Software Tools for DNA Sequence Design. Genetic Programming and Evolvable Machines, 2003, 4, 153-171.	2.2	29
39	Risk Factors for Cervical Precancer and Cancer in HIV-Infected, HPV-Positive Rwandan Women. PLoS ONE, 2010, 5, e13525.	2.5	28
40	The Challenge of Complexity. Genetic Algorithms and Evolutionary Computation, 2004, , 243-260.	0.3	27
41	Artificial Gene Regulatory Networksâ€"A Review. Artificial Life, 2019, 24, 296-328.	1.3	27
42	Self-replicating sequences of binary numbers. Foundations I: General. Biological Cybernetics, 1993, 69, 269-274.	1.3	26
43	Evolvability and Speed of Evolutionary Algorithms in Light of Recent Developments in Biology. Journal of Artificial Evolution and Applications, 2010, 2010, 1-28.	1.8	26
44	Learning to move a robot with random morphology. Lecture Notes in Computer Science, 1998, , 165-178.	1.3	26
45	The effect of extensive use of the mutation operator on generalization in genetic programming using sparse data sets. Lecture Notes in Computer Science, 1996, , 300-309.	1.3	25
46	On the Dynamics of an Artificial Regulatory Network. Lecture Notes in Computer Science, 2003, , 217-227.	1.3	25
47	Automatic feature engineering for regression models with machine learning: An evolutionary computation and statistics hybrid. Information Sciences, 2018, 430-431, 287-313.	6.9	25
48	Linear-Tree GP and Its Comparison with Other GP Structures. Lecture Notes in Computer Science, 2001, , 302-312.	1.3	24
49	Evolving novel image features using Genetic Programming-based image transforms. , 2009, , .		23
50	Variable population size and evolution acceleration: a case study with a parallel evolutionary algorithm. Genetic Programming and Evolvable Machines, 2010, 11, 205-225.	2.2	23
51	Expensive Multiobjective Evolutionary Optimization Assisted by Dominance Prediction. IEEE Transactions on Evolutionary Computation, 2022, 26, 159-173.	10.0	23
52	Discovery of email communication networks from the Enron corpus with a genetic algorithm using social network analysis. , 2009, , .		22
53	Evolution on Neutral Networks in Genetic Programming. , 2006, , 207-221.		22
54	Learning in a competitive network. Neural Networks, 1990, 3, 423-435.	5.9	21

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55	Genetic Programming and Emergence. Genetic Programming and Evolvable Machines, 2014, 15, 63-73.	2.2	20
56	Spontaneous Group Formation in the Seceder Model. Physical Review Letters, 2000, 84, 3205-3208.	7.8	19
57	A Comparison of Cartesian Genetic Programming and Linear Genetic Programming. Lecture Notes in Computer Science, 2008, , 182-193.	1.3	19
58	Linear Genetic Programming GPGPU on Microsoft's Xbox 360. , 2008, , .		19
59	Self modifying Cartesian Genetic Programming: Parity. , 2009, , .		19
60	Accelerating Genetic Programming through Graphics Processing Units.. Genetic and Evolutionary Computation, 2009, , 1-19.	1.0	19
61	An Intelligent Model for the Prediction of Bond Strength of FRP Bars in Concrete: A Soft Computing Approach. Technologies, 2019, 7, 42.	5.1	18
62	Evolving Noisy Oscillatory Dynamics in Genetic Regulatory Networks. Lecture Notes in Computer Science, 2006, , 290-299.	1.3	18
63	Self-organization in a system of binary strings with spatial interactions. Physica D: Nonlinear Phenomena, 1999, 125, 85-104.	2.8	17
64	Evolving Dynamics in an Artificial Regulatory Network Model. Lecture Notes in Computer Science, 2004, , 571-580.	1.3	17
65	Genetic Programming of an Algorithmic Chemistry. , 2005, , 175-190.		17
66	Robustness, Evolvability, and Accessibility in Linear Genetic Programming. Lecture Notes in Computer Science, 2011, , 13-24.	1.3	17
67	Cache consensus: rapid object sorting by a robotic swarm. Swarm Intelligence, 2014, 8, 61-87.	2.2	17
68	Adaption of Operator Probabilities in Genetic Programming. Lecture Notes in Computer Science, 2001, , 325-336.	1.3	17
69	Meta-Evolution in Graph GP. Lecture Notes in Computer Science, 1999, , 15-28.	1.3	17
70	Quantum and classical parallelism in parity algorithms for ensemble quantum computers. Physical Review A, 2005, 71, .	2.5	16
71	A Genetic Programming Approach to the Generation of Hyper-Heuristics for the Uncapacitated Examination Timetabling Problem. , 2007, , 223-234.		16
72	The Effects of Recombination on Phenotypic Exploration and Robustness in Evolution. Artificial Life, 2014, 20, 457-470.	1.3	16

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73	Reducing the Number of Fitness Evaluations in Graph Genetic Programming Using a Canonical Graph Indexed Database. Evolutionary Computation, 2007, 15, 199-221.	3.0	15
74	Self-replicating sequences of binary numbers. Computers and Mathematics With Applications, 1993, 26, 1-8.	2.7	14
75	Speech sound discrimination with genetic programming. Lecture Notes in Computer Science, 1998, , 113-129.	1.3	14
76	Why complex systems engineering needs biological development. Complexity, 2007, 13, 12-21.	1.6	14
77	Self modifying cartesian genetic programming. , 2010, , .		14
78	More on Computational Effort Statistics for Genetic Programming. Lecture Notes in Computer Science, 2003, , 164-172.	1.3	14
79	A network perspective on genotype–phenotype mapping in genetic programming. Genetic Programming and Evolvable Machines, 2020, 21, 375-397.	2.2	14
80	Self-Modifying Cartesian Genetic Programming. Natural Computing Series, 2011, , 101-124.	2.2	13
81	Deployment of CPU and GPU-based genetic programming on heterogeneous devices. , 2009, , .		12
82	Neutrality and variability. , 2009, , .		12
83	Decreasing the Number of Evaluations in Evolutionary Algorithms by Using a Meta-model of the Fitness Function. Lecture Notes in Computer Science, 2003, , 264-275.	1.3	12
84	A Developmental Approach to the Uncapacitated Examination Timetabling Problem. Lecture Notes in Computer Science, 2008, , 276-285.	1.3	12
85	The Role of Population Size in Rate of Evolution in Genetic Programming. Lecture Notes in Computer Science, 2009, , 85-96.	1.3	12
86	A new learning algorithm for synergetic computers. Biological Cybernetics, 1989, 62, 107-111.	1.3	11
87	Evolving Hogg's Quantum Algorithm Using Linear-Tree GP. Lecture Notes in Computer Science, 2003, , 390-400.	1.3	11
88	Neutrality, Robustness, and Evolvability in Genetic Programming. Genetic and Evolutionary Computation, 2018, , 101-117.	1.0	11
89	Interactive evolution. , 0, , .		11
90	Robust competitive networks. Physical Review A, 1992, 45, 4132-4145.	2.5	10

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91	Artificial Chemistries â€" Towards Constructive Dynamical Systems. Solid State Phenomena, 2004, 97-98, 43-50.	0.3	10
92	WiMAX Network Planning Using Adaptive-Population-Size Genetic Algorithm. Lecture Notes in Computer Science, 2010, , 31-40.	1.3	10
93	A Survey of Self Modifying Cartesian Genetic Programming. Genetic and Evolutionary Computation, 2011, , 91-107.	1.0	10
94	Evolving blackbox quantum algorithms using genetic programming. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 2008, 22, 285-297.	1.1	9
95	Evolution, development and learning using self-modifying cartesian genetic programming. , 2009, , .		9
96	Implementing cartesian genetic programming classifiers on graphics processing units using GPU.NET. , 2011, , .		9
97	Predicting High-Performance Concrete Compressive Strength Using Features Constructed by Kaizen Programming. , 2015, , .		9
98	Evolving Adaptive Traffic Signal Controllers for a Real Scenario Using Genetic Programming with an Epigenetic Mechanism. , 2017, , .		9
99	Batch tournament selection for genetic programming. , 2019, , .		9
100	Robustness and Evolvability of Recombination in Linear Genetic Programming. Lecture Notes in Computer Science, 2013, , 97-108.	1.3	9
101	Self-replicating sequences of binary numbers. Foundations II: Strings of length N=4. Biological Cybernetics, 1993, 69, 275-281.	1.3	8
102	Evolutionary Computation and Genetic Programming. , 2013, , 429-447.		8
103	Emergent Tangled Program Graphs in Partially Observable Recursive Forecasting and ViZDoom Navigation Tasks. ACM Transactions on Evolutionary Learning, 2021, 1, 1-41.	3.5	8
104	Self-organizing algorithms derived from RNA interactions. Lecture Notes in Computer Science, 1995, , 69-102.	1.3	8
105	Interactive evolution for simulated natural evolution. Lecture Notes in Computer Science, 1996, , 259-272.	1.3	8
106	Deployment of parallel linear genetic programming using GPUs on PC and video game console platforms. Genetic Programming and Evolvable Machines, 2010, 11, 147-184.	2.2	7
107	On a simple stochastic neuron â€" Like unit. Biological Cybernetics, 1988, 60, 153-160.	1.3	6
108	The time-into-intensity-mapping network. Biological Cybernetics, 1991, 66, 115-121.	1.3	6

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109	Fast and effective predictability filters for stock price series using linear genetic programming. , 2010, , .		6
110	Comparison of Selection Strategies for Evolutionary Quantum Circuit Design. Lecture Notes in Computer Science, 2004, , 557-568.	1.3	6
111	An Algorithmic Chemistry for Genetic Programming. Lecture Notes in Computer Science, 2005, , 1-12.	1.3	6
112	Interactive evolution. , 0, , .		6
113	Evolving hierarchical memory-prediction machines in multi-task reinforcement learning. Genetic Programming and Evolvable Machines, 2021, 22, 573-605.	2.2	6
114	An energy function for specialization. Physica D: Nonlinear Phenomena, 1990, 42, 257-264.	2.8	5
115	Augmenting artificial development with local fitness. , 2009, , .		5
116	Recovery properties of distributed cluster head election using reaction–diffusion. Swarm Intelligence, 2011, 5, 225-255.	2.2	5
117	Artificial Life. , 2012, , 1805-1834.		5
118	Self-Organizing Systems. , 2003, , 589-598.		4
119	Total synthesis of algorithmic chemistries. , 2005, , .		4
120	ANALYSIS OF PREFERENTIAL NETWORK MOTIF GENERATION IN AN ARTIFICIAL REGULATORY NETWORK MODEL CREATED BY DUPLICATION AND DIVERGENCE. International Journal of Modeling, Simulation, and Scientific Computing, 2007, 10, 155-172.	1.4	4
121	An eigen analysis of the GP community. Genetic Programming and Evolvable Machines, 2008, 9, 171-182.	2.2	4
122	Interday foreign exchange trading using linear genetic programming. , 2010, , .		4
123	Hardware Acceleration for CGP: Graphics Processing Units. Natural Computing Series, 2011, , 231-253.	2.2	4
124	A hybrid genetic programming decision making system for RoboCup soccer simulation. , 2017, , .		4
125	Towards a Metabolic Robot Control System. , 1998, , 305-317.		4
126	Kaizen Programming for Feature Construction for Classification. Genetic and Evolutionary Computation, 2016, , 39-57.	1.0	4

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127	Mechanisms for Complex Systems Engineering Through Artificial Development. Understanding Complex Systems, 2012, , 331-351.	0.6	4
128	Genetic Programming and Its Application in Machining Technology. Natural Computing Series, 2003, , 194-241.	2.2	4
129	Stability of Metabolic and Balanced Organisations. Lecture Notes in Computer Science, 2001, , 196-205.	1.3	4
130	Long-Term Evolution Experiment with Genetic Programming. Artificial Life, 0, , 173-204.	1.3	4
131	A network of multistate units capable of associative memory and pattern classification. Physica D: Nonlinear Phenomena, 1989, 34, 418-426.	2.8	3
132	A new dynamical approach to the travelling salesman problem. Physics Letters, Section A: General, Atomic and Solid State Physics, 1989, 136, 45-51.	2.1	3
133	Stock trading using linear genetic programming with multiple time frames. , 2011, , .		3
134	The unconstrained automated generation of cell image features for medical diagnosis. , 2012, , .		3
135	Artificial Intelligence: Genetic Programming. , 2015, , 41-45.		3
136	Quantitative Analysis of Evolvability using Vertex Centralities in Phenotype Network. , 2016, , .		3
137	The effects of taxes on wealth inequality in Artificial Chemistry models of economic activity. PLoS ONE, 2021, 16, e0255719.	2.5	3
138	Interday and Intraday Stock Trading Using Probabilistic Adaptive Mapping Developmental Genetic Programming and Linear Genetic Programming. Studies in Computational Intelligence, 2010, , 191-212.	0.9	3
139	Population processing â€" a powerful class of parallel algorithms. BioSystems, 1989, 22, 163-172.	2.0	2
140	How to Program Artificial Chemistries. Lecture Notes in Computer Science, 2003, , 20-30.	1.3	2
141	Detecting anomalies in spatiotemporal data using genetic algorithms with fuzzy community membership. , 2010, , .		2
142	Evolving Reaction-Diffusion Systems on GPU. Lecture Notes in Computer Science, 2011, , 208-223.	1.3	2
143	Automated design for playability in computer game agents. , 2014, , .		2
144	Human recognition through walking styles by multiwavelet transform. , 2016, , .		2

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145	Complex Network Analysis of a Genetic Programming Phenotype Network. Lecture Notes in Computer Science, 2019, , 49-63.	1.3	2
146	Population Exploration on Genotype Networks in Genetic Programming. Lecture Notes in Computer Science, 2014, , 424-433.	1.3	2
147	Measuring rate of evolution in genetic programming using amino acid to synonymous substitution ratioka/ks. , 2008, , .		1
148	An evolutionary approach to planning IEEE 802.16 networks. , 2009, , .		1
149	Soft memory for stock market analysis using linear and developmental genetic programming. , 2009, , .		1
150	Large network analysis for fisheries management using coevolutionary genetic algorithms. , 2011, , .		1
151	Using sector information with linear genetic programming for intraday equity price trend analysis. , 2012, , .		1
152	Introduction to Gene Regulatory Networks. , 2015, , .		1
153	Survival of the Unfittest? - The Seceder Model and its Fitness Landscape. Lecture Notes in Computer Science, 2001, , 100-109.	1.3	1
154	Algorithmic Trading with Developmental and Linear Genetic Programming. Genetic and Evolutionary Computation, 2010, , 119-134.	1.0	1
155	THE USE OF EVOLUTIONARY COMPUTATION IN KNOWLEDGE DISCOVERY: THE EXAMPLE OF INTRUSION DETECTION SYSTEMS. Advances in Computer Science and Engineering, 2010, , 27-59.	0.2	1
156	Some Remarks on Code Evolution with Genetic Programming. Emergence, Complexity and Computation, 2018, , 145-156.	0.3	1
157	From Dynamics to Novelty: An Agent-Based Model of the Economic System. Artificial Life, 2022, , 1-38.	1.3	1
158	Achieving desirable gameplay objectives by niched evolution of game parameters. , 2012, , .		0
159	Parallel exhaustive search vs. evolutionary computation in a large real world network search space. , 2012, , .		0
160	Machiavellian agents: Player modelling to deceive and be deceived. , 2015, , .		0
161	Introduction to gene regulatory networks. , 2017, , .		0
162	Artificial Chemistries on GPU. Natural Computing Series, 2013, , 389-419.	2.2	0

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163	Prediction of normalized signal strength on DNA sequencing micro arrays by n-grams within a neural network model. Bioinformation, 2019, 15, 388-393.	0.5	0
164	An Evolutionary System for Better Automatic Software Repair. Genetic and Evolutionary Computation, 2020, , 383-406.	1.0	0