

# Carsten Witt

## List of Publications by Year in descending order

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Version: 2024-02-01

113  
papers

3,261  
citations

172207

29  
h-index

197535

49  
g-index

115  
all docs

115  
docs citations

115  
times ranked

678  
citing authors

#	ARTICLE	IF	CITATIONS
1	Runtime Analysis of the $(\frac{1}{4}l+1)$ EA on Simple Pseudo-Boolean Functions. <i>Evolutionary Computation</i> , 2006, 14, 65-86.	2.3	164
2	Tight Bounds on the Optimization Time of a Randomized Search Heuristic on Linear Functions. <i>Combinatorics Probability and Computing</i> , 2013, 22, 294-318.	0.8	161
3	Black-Box Search by Unbiased Variation. <i>Algorithmica</i> , 2012, 64, 623-642.	1.0	154
4	Bioinspired Computation in Combinatorial Optimization. <i>Natural Computing Series</i> , 2010, , .	2.2	148
5	Improved time complexity analysis of the Simple Genetic Algorithm. <i>Theoretical Computer Science</i> , 2015, 605, 21-41.	0.5	106
6	Simplified Drift Analysis for Proving Lower Bounds in Evolutionary Computation. <i>Algorithmica</i> , 2011, 59, 369-386.	1.0	103
7	Worst-Case and Average-Case Approximations by Simple Randomized Search Heuristics. <i>Lecture Notes in Computer Science</i> , 2005, , 44-56.	1.0	99
8	Approximating Covering Problems by Randomized Search Heuristics Using Multi-Objective Models. <i>Evolutionary Computation</i> , 2010, 18, 617-633.	2.3	90
9	Analysis of Diversity-Preserving Mechanisms for Global Exploration. <i>Evolutionary Computation</i> , 2009, 17, 455-476.	2.3	83
10	Runtime Analysis of a Simple Ant Colony Optimization Algorithm. <i>Algorithmica</i> , 2009, 54, 243.	1.0	78
11	Analysis of different MMAS ACO algorithms on unimodal functions and plateaus. <i>Swarm Intelligence</i> , 2009, 3, 35-68.	1.3	78
12	Theoretical analysis of fitness-proportional selection. , 2009, , .		58
13	A Note on Problem Difficulty Measures in Black-Box Optimization: Classification, Realizations and Predictability. <i>Evolutionary Computation</i> , 2007, 15, 435-443.	2.3	57
14	On the runtime analysis of the Simple Genetic Algorithm. <i>Theoretical Computer Science</i> , 2014, 545, 2-19.	0.5	57
15	Ant Colony Optimization and the minimum spanning tree problem. <i>Theoretical Computer Science</i> , 2010, 411, 2406-2413.	0.5	55
16	Runtime analysis of a binary particle swarm optimizer. <i>Theoretical Computer Science</i> , 2010, 411, 2084-2100.	0.5	53
17	On the Optimization of Monotone Polynomials by Simple Randomized Search Heuristics. <i>Combinatorics Probability and Computing</i> , 2005, 14, 225-247.	0.8	49
18	Runtime analysis of ant colony optimization on dynamic shortest path problems. <i>Theoretical Computer Science</i> , 2015, 561, 73-85.	0.5	47

#	ARTICLE	IF	CITATIONS
19	Theoretical analysis of two ACO approaches for the traveling salesman problem. Swarm Intelligence, 2012, 6, 1-21.	1.3	45
20	Population size versus runtime of a simple evolutionary algorithm. Theoretical Computer Science, 2008, 403, 104-120.	0.5	44
21	Sharp bounds by probability-generating functions and variable drift. , 2011, , .		42
22	The ( $(1+\lambda)1$ ) Evolutionary Algorithm with Self-Adjusting Mutation Rate. Algorithmica, 2019, 81, 593-631.	1.0	40
23	Analyses of Simple Hybrid Algorithms for the Vertex Cover Problem. Evolutionary Computation, 2009, 17, 3-19.	2.3	37
24	Self-adjusting evolutionary algorithms for multimodal optimization. , 2020, , .		37
25	A few ants are enough. , 2010, , .		36
26	A method to derive fixed budget results from expected optimisation times. , 2013, , .		36
27	(1+1) EA on Generalized Dynamic OneMax. , 2015, , .		36
28	The Interplay of Population Size and Mutation Probability in the ( $(1+\lambda)1$ ) EA on OneMax. Algorithmica, 2017, 78, 587-609.	1.0	36
29	Concentrated Hitting Times of Randomized Search Heuristics with Variable Drift. Lecture Notes in Computer Science, 2014, , 686-697.	1.0	36
30	On the analysis of a simple evolutionary algorithm on quadratic pseudo-boolean functions. Journal of Discrete Algorithms, 2005, 3, 61-78.	0.7	35
31	On the runtime analysis of the 1-ANT ACO algorithm. , 2007, , .		35
32	Black-box search by unbiased variation. , 2010, , .		35
33	Fitness levels with tail bounds for the analysis of randomized search heuristics. Information Processing Letters, 2014, 114, 38-41.	0.4	35
34	On the Choice of the Update Strength in Estimation-of-Distribution Algorithms and Ant Colony Optimization. Algorithmica, 2019, 81, 1450-1489.	1.0	35
35	Runtime analysis of the 1-ANT ant colony optimizer. Theoretical Computer Science, 2011, 412, 1629-1644.	0.5	30
36	Rigorous Analyses for the Combination of Ant Colony Optimization and Local Search. Lecture Notes in Computer Science, 2008, , 132-143.	1.0	30

#	ARTICLE	IF	CITATIONS
37	Runtime Analysis of the $(\frac{1}{4} + 1)$ EA on Simple Pseudo-Boolean Functions. <i>Evolutionary Computation</i> , 2006, 14, 65-86.	2.3	29
38	Approximating covering problems by randomized search heuristics using multi-objective models. , 2007, , .		29
39	Quasirandom evolutionary algorithms. , 2010, , .		28
40	Update Strength in EDAs and ACO. , 2016, , .		28
41	Upper Bounds on the Running Time of the Univariate Marginal Distribution Algorithm on OneMax. <i>Algorithmica</i> , 2019, 81, 632-667.	1.0	28
42	MMAS Versus Population-Based EA on a Family of Dynamic Fitness Functions. <i>Algorithmica</i> , 2016, 75, 554-576.	1.0	27
43	The $(1 + \frac{1}{i})$ evolutionary algorithm with self-adjusting mutation rate. , 2017, , .		27
44	Rigorous runtime analysis of a $(\frac{1}{4}+1)$ ES for the sphere function. , 2005, , .		26
45	When do evolutionary algorithms optimize separable functions in parallel?. , 2013, , .		26
46	Runtime analysis for self-adaptive mutation rates. , 2018, , .		26
47	Stagnation detection in highly multimodal fitness landscapes. , 2021, , .		26
48	Theoretical analysis of diversity mechanisms for global exploration. , 2008, , .		25
49	Runtime analysis of binary PSO. , 2008, , .		24
50	A Runtime Analysis of Parallel Evolutionary Algorithms in Dynamic Optimization. <i>Algorithmica</i> , 2017, 78, 641-659.	1.0	23
51	Simplified Drift Analysis for Proving Lower Bounds in Evolutionary Computation. <i>Lecture Notes in Computer Science</i> , 2008, , 82-91.	1.0	23
52	Upper bounds on the runtime of the univariate marginal distribution algorithm on onemax. , 2017, , .		21
53	Medium step sizes are harmful for the compact genetic algorithm. , 2018, , .		21
54	Runtime Analysis for Self-adaptive Mutation Rates. <i>Algorithmica</i> , 2021, 83, 1012-1053.	1.0	21

#	ARTICLE	IF	CITATIONS
55	Lower Bounds on the Run Time of the Univariate Marginal Distribution Algorithm on OneMax. , 2017, , .		21
56	Stagnation Detection with Randomized Local Search. Lecture Notes in Computer Science, 2021, , 152-168.	1.0	20
57	Why standard particle swarm optimisers elude a theoretical runtime analysis. , 2009, , .		19
58	Domino convergence. , 2018, , .		18
59	Analysis of an iterated local search algorithm for vertex cover in sparse random graphs. Theoretical Computer Science, 2012, 425, 117-125.	0.5	17
60	Detecting structural breaks in time series via genetic algorithms. Soft Computing, 2017, 21, 4707-4720.	2.1	17
61	The Complex Parameter Landscape of the Compact Genetic Algorithm. Algorithmica, 2021, 83, 1096-1137.	1.0	17
62	Optimal Mutation Rates for the $(1 + \lambda)$ EA on OneMax Through Asymptotically Tight Drift Analysis. Algorithmica, 2018, 80, 1710-1731.	1.0	16
63	Computational Complexity of Ant Colony Optimization and Its Hybridization with Local Search. Studies in Computational Intelligence, 2009, , 91-120.	0.7	15
64	Revised analysis of the $(1+1)$ ea for the minimum spanning tree problem. , 2014, , .		15
65	Lower bounds on the run time of the Univariate Marginal Distribution Algorithm on OneMax. Theoretical Computer Science, 2020, 832, 143-165.	0.5	15
66	Population Size vs. Mutation Strength for the $(1+\lambda)$ EA on OneMax. , 2015, , .		14
67	Finite First Hitting Time Versus Stochastic Convergence in Particle Swarm Optimisation. Operations Research/ Computer Science Interfaces Series, 2013, , 1-20.	0.3	14
68	A tight lower bound on the expected runtime of standard steady state genetic algorithms. , 2020, , .		14
69	Self-Adjusting Evolutionary Algorithms for Multimodal Optimization. Algorithmica, 2022, 84, 1694-1723.	1.0	12
70	On Steady-State Evolutionary Algorithms and Selective Pressure: Why Inverse Rank-Based Allocation of Reproductive Trials Is Best. ACM Transactions on Evolutionary Learning, 2021, 1, 1-38.	2.7	11
71	On the Optimization of Monotone Polynomials by the $(1+1)$ EA and Randomized Local Search. Lecture Notes in Computer Science, 2003, , 622-633.	1.0	11
72	An Analysis of the $(\frac{1}{4}+1)$ EA on Simple Pseudo-Boolean Functions. Lecture Notes in Computer Science, 2004, , 761-773.	1.0	11

#	ARTICLE	IF	CITATIONS
73	Population size vs. runtime of a simple EA. , 0, , .		9
74	On the analysis of the simple genetic algorithm. , 2012, , .		9
75	Bioinspired computation in combinatorial optimization. , 2012, , .		9
76	Bioinspired computation in combinatorial optimization. , 2013, , .		9
77	MMAS vs. population-based EA on a family of dynamic fitness functions. , 2014, , .		9
78	On crossing fitness valleys with majority-vote crossover and estimation-of-distribution algorithms. , 2021, , .		9
79	Comparing Variants of MMAS ACO Algorithms on Pseudo-Boolean Functions. , 2007, , 61-75.		9
80	Minimizing Stall Time in Single and Parallel Disk Systems Using Multicommodity Network Flows. Lecture Notes in Computer Science, 2001, , 12-24.	1.0	8
81	Theoretical Properties of Two ACO Approaches for the Traveling Salesman Problem. Lecture Notes in Computer Science, 2010, , 324-335.	1.0	8
82	The Impact of a Sparse Migration Topology on the Runtime of Island Models in Dynamic Optimization. Algorithmica, 2018, 80, 1634-1657.	1.0	7
83	Tight Bounds on the Expected Runtime of a Standard Steady State Genetic Algorithm. Algorithmica, 2022, 84, 1603-1658.	1.0	7
84	Lower bounds on the runtime of crossover-based algorithms via decoupling and family graphs. , 2019, , .		6
85	Sharp bounds on the runtime of the (1+1) EA via drift analysis and analytic combinatorial tools. , 2019, , .		6
86	Theory of Particle Swarm Optimization. Theoretical Computer Science, 2011, , 197-223.	1.2	5
87	Runtime analysis of ant colony optimization on dynamic shortest path problems. , 2013, , .		5
88	On the Utility of Island Models in Dynamic Optimization. , 2015, , .		5
89	Improved runtime results for simple randomised search heuristics on linear functions with a uniform constraint. , 2019, , .		5
90	Rigorous Runtime Analysis of Swarm Intelligence Algorithms – An Overview. Studies in Computational Intelligence, 2009, , 157-177.	0.7	5

#	ARTICLE	IF	CITATIONS
91	Optimal Mutation Rates for the $(1+\lambda)$ EA on OneMax. , 2016, , .		5
92	The compact genetic algorithm struggles on Cliff functions. , 2022, , .		5
93	Theory of Randomized Search Heuristics. Algorithmica, 2012, 64, 621-622.	1.0	3
94	Improved runtime analysis of the simple genetic algorithm. , 2013, , .		3
95	The Impact of Migration Topology on the Runtime of Island Models in Dynamic Optimization. , 2016, , .		3
96	Edge-Matching Problems with Rotations. Lecture Notes in Computer Science, 2011, , 114-125.	1.0	3
97	Evolutionary Algorithms with Self-adjusting Asymmetric Mutation. Lecture Notes in Computer Science, 2020, , 664-677.	1.0	3
98	On improving approximate solutions by evolutionary algorithms. , 2007, , .		2
99	Improved Runtime Results for Simple Randomised Search Heuristics on Linear Functions with a Uniform Constraint. Algorithmica, 2021, 83, 3209-3237.	1.0	2
100	Improved Fixed-Budget Results via Drift Analysis. Lecture Notes in Computer Science, 2020, , 648-660.	1.0	2
101	Simulated annealing is a polynomial-time approximation scheme for the minimum spanning tree problem. , 2022, , .		2
102	Collaborative Research Centre 531: Computational Intelligence â€“ Theory and Practice (Sonderforschungsbereich 531: Computational Intelligence â€“ Theorie und Praxis). IT - Information Technology, 2007, 49, 49-57.	0.6	1
103	Guest Editorial: Theory of Evolutionary Computation. Algorithmica, 2016, 75, 425-427.	1.0	1
104	Theory of estimation-of-distribution algorithms. , 2018, , .		1
105	Theory of estimation-of-distribution algorithms. , 2019, , .		1
106	Greedy Local Search and Vertex Cover in Sparse Random Graphs. Lecture Notes in Computer Science, 2009, , 410-419.	1.0	1
107	Theory of estimation-of-distribution algorithms. , 2020, , .		1
108	Ingo Wegener. Evolutionary Computation, 2009, 17, 1-2.	2.3	0

#	ARTICLE	IF	CITATIONS
109	Theory of randomised search heuristics in combinatorial optimisation. , 2010, , .		0
110	Theory of randomized search heuristics in combinatorial optimization. , 2011, , .		0
111	Evolutionary algorithms for the detection of structural breaks in time series. , 2013, , .		0
112	Bioinspired computation in combinatorial optimization. , 2014, , .		0
113	Lower Bounds on the Runtime of Crossover-Based Algorithms via Decoupling and Family Graphs. Algorithmica, 2020, 83, 3180.	1.0	0