

Nikolaus Hansen

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

101
papers

8,283
citations

25
h-index

90
g-index

122
ext. papers

9,991
ext. citations

2.2
avg, IF

6.49
L-index

#	Paper	IF	Citations
101	Completely derandomized self-adaptation in evolution strategies. <i>Evolutionary Computation</i> , 2001 , 9, 159-95	4.3	2479
100	Reducing the time complexity of the derandomized evolution strategy with covariance matrix adaptation (CMA-ES). <i>Evolutionary Computation</i> , 2003 , 11, 1-18	4.3	1234
99	USPEX Evolutionary crystal structure prediction. <i>Computer Physics Communications</i> , 2006 , 175, 713-720	4.2	748
98	The CMA Evolution Strategy: A Comparing Review. <i>Studies in Fuzziness and Soft Computing</i> , 2006 , 75-102	0.7	745
97	Covariance matrix adaptation for multi-objective optimization. <i>Evolutionary Computation</i> , 2007 , 15, 1-28	4.3	550
96	Evaluating the CMA Evolution Strategy on Multimodal Test Functions. <i>Lecture Notes in Computer Science</i> , 2004 , 282-291	0.9	264
95	A Method for Handling Uncertainty in Evolutionary Optimization With an Application to Feedback Control of Combustion. <i>IEEE Transactions on Evolutionary Computation</i> , 2009 , 13, 180-197	15.6	193
94	Comparing results of 31 algorithms from the black-box optimization benchmarking BBOB-2009 2010 ,		173
93	Learning probability distributions in continuous evolutionary algorithms – a comparative review. <i>Natural Computing</i> , 2004 , 3, 77-112	1.3	171
92	Benchmarking a BI-population CMA-ES on the BBOB-2009 function testbed 2009 ,		139
91	A Derandomized Approach to Self-Adaptation of Evolution Strategies. <i>Evolutionary Computation</i> , 1994 , 2, 369-380	4.3	134
90	A Simple Modification in CMA-ES Achieving Linear Time and Space Complexity. <i>Lecture Notes in Computer Science</i> , 2008 , 296-305	0.9	92
89	A computational efficient covariance matrix update and a (1+1)-CMA for evolution strategies 2006 ,		85
88	Impacts of invariance in search: When CMA-ES and PSO face ill-conditioned and non-separable problems. <i>Applied Soft Computing Journal</i> , 2011 , 11, 5755-5769	7.5	81
87	Step-size adaptation based on non-local use of selection information. <i>Lecture Notes in Computer Science</i> , 1994 , 189-198	0.9	81
86	Efficient covariance matrix update for variable metric evolution strategies. <i>Machine Learning</i> , 2009 , 75, 167-197	4	79
85	Evolution Strategies 2015 , 871-898		62

84	The CMA Evolution Strategy: A Comparing Review 2006 , 75		62
83	COCO: a platform for comparing continuous optimizers in a black-box setting. <i>Optimization Methods and Software</i> , 2021 , 36, 114-144	1.3	49
82	A (1+1)-CMA-ES for constrained optimisation 2012 ,		47
81	Local Meta-models for Optimization Using Evolution Strategies. <i>Lecture Notes in Computer Science</i> , 2006 , 939-948	0.9	44
80	Mirrored Sampling and Sequential Selection for Evolution Strategies 2010 , 11-21		32
79	Principled Design of Continuous Stochastic Search: From Theory to Practice. <i>Natural Computing Series</i> , 2014 , 145-180	2.5	30
78	An analysis of mutative sigma-self-adaptation on linear fitness functions. <i>Evolutionary Computation</i> , 2006 , 14, 255-75	4.3	29
77	Improved step size adaptation for the MO-CMA-ES 2010 ,		26
76	Invariance, Self-Adaptation and Correlated Mutations in Evolution Strategies. <i>Lecture Notes in Computer Science</i> , 2000 , 355-364	0.9	25
75	Tutorial CMA-ES 2012 ,		24
74	Reconsidering the progress rate theory for evolution strategies in finite dimensions 2006 ,		23
73	Benchmarking a weighted negative covariance matrix update on the BBOB-2010 noiseless testbed 2010 ,		22
72	A Mixed Bayesian Optimization Algorithm with Variance Adaptation. <i>Lecture Notes in Computer Science</i> , 2004 , 352-361	0.9	22
71	Benchmarking Numerical Multiobjective Optimizers Revisited 2015 ,		21
70	Steady-State Selection and Efficient Covariance Matrix Update in the Multi-objective CMA-ES 2007 , 171-185		21
69	Active covariance matrix adaptation for the (1+1)-CMA-ES 2010 ,		20
68	Adaptive Encoding: How to Render Search Coordinate System Invariant. <i>Lecture Notes in Computer Science</i> , 2008 , 205-214	0.9	20
67	Comparison-based natural gradient optimization in high dimension 2014 ,		19

66	Log-Linear Convergence and Divergence of the Scale-Invariant (1+1)-ES in Noisy Environments. <i>Algorithmica</i> , 2011 , 59, 425-460	0.9	19
65	Mirrored sampling in evolution strategies with weighted recombination 2011 ,		18
64	Benchmarking the local metamodel CMA-ES on the noiseless BBOB2013 test bed 2013 ,		17
63	Benchmarking a BI-population CMA-ES on the BBOB-2009 noisy testbed 2009 ,		17
62	A Comparative Study of Large-Scale Variants of CMA-ES. <i>Lecture Notes in Computer Science</i> , 2018 , 3-15	0.9	17
61	When Do Heavy-Tail Distributions Help?. <i>Lecture Notes in Computer Science</i> , 2006 , 62-71	0.9	17
60	Linear Convergence of Comparison-based Step-size Adaptive Randomized Search via Stability of Markov Chains. <i>SIAM Journal on Optimization</i> , 2016 , 26, 1589-1624	2	16
59	CMA-ES 2011 ,		16
58	Theory of Evolution Strategies: A New Perspective. <i>Theoretical Computer Science</i> , 2011 , 289-325		16
57	A global surrogate assisted CMA-ES 2019 ,		14
56	Projection-Based Restricted Covariance Matrix Adaptation for High Dimension 2016 ,		13
55	A median success rule for non-elitist evolution strategies 2013 ,		12
54	Unbounded Population MO-CMA-ES for the Bi-Objective BBOB Test Suite 2016 ,		10
53	Increasing the Serial and the Parallel Performance of the CMA-Evolution Strategy with Large Populations. <i>Lecture Notes in Computer Science</i> , 2002 , 422-431	0.9	10
52	Recombination for Learning Strategy Parameters in the MO-CMA-ES. <i>Lecture Notes in Computer Science</i> , 2009 , 155-168	0.9	9
51	Convergence of the Continuous Time Trajectories of Isotropic Evolution Strategies on Monotonic (mathcal C^2)-composite Functions. <i>Lecture Notes in Computer Science</i> , 2012 , 42-51	0.9	9
50	Augmented Lagrangian Constraint Handling for CMA-ES [Case of a Single Linear Constraint. <i>Lecture Notes in Computer Science</i> , 2016 , 181-191	0.9	9
49	Quality gain analysis of the weighted recombination evolution strategy on general convex quadratic functions. <i>Theoretical Computer Science</i> , 2020 , 832, 42-67	1.1	9

48	Mixed-integer benchmark problems for single- and bi-objective optimization 2019 ,		8
47	Linearly Convergent Evolution Strategies via Augmented Lagrangian Constraint Handling 2017 ,		8
46	Benchmarking the (1+1)-CMA-ES on the BBOB-2009 function testbed 2009 ,		8
45	Uncrowded hypervolume improvement 2019 ,		7
44	Benchmarking CMAES-APOP on the BBOB noiseless testbed 2017 ,		7
43	Maximum Likelihood-Based Online Adaptation of Hyper-Parameters in CMA-ES. <i>Lecture Notes in Computer Science</i> , 2014 , 70-79	0.9	7
42	Analyzing the impact of mirrored sampling and sequential selection in elitist evolution strategies 2011 ,		6
41	Benchmarking of continuous black box optimization algorithms. <i>Evolutionary Computation</i> , 2012 , 20, 481	4.3	6
40	How to Assess Step-Size Adaptation Mechanisms in Randomised Search. <i>Lecture Notes in Computer Science</i> , 2014 , 60-69	0.9	6
39	Online Model Selection for Restricted Covariance Matrix Adaptation. <i>Lecture Notes in Computer Science</i> , 2016 , 3-13	0.9	6
38	Quantitative Performance Assessment of Multiobjective Optimizers: The Average Runtime Attainment Function. <i>Lecture Notes in Computer Science</i> , 2017 , 103-119	0.9	6
37	Quality Gain Analysis of the Weighted Recombination Evolution Strategy on General Convex Quadratic Functions 2017 ,		5
36	Mirrored variants of the (1,2)-CMA-ES compared on the noiseless BBOB-2010 testbed 2010 ,		5
35	Cumulative Step-Size Adaptation on Linear Functions. <i>Lecture Notes in Computer Science</i> , 2012 , 72-81	0.9	5
34	Benchmarking large-scale continuous optimizers: The bbob-largescale testbed, a COCO software guide and beyond. <i>Applied Soft Computing Journal</i> , 2020 , 97, 106737	7.5	5
33	The Impact of Variation Operators on the Performance of SMS-EMOA on the Bi-objective BBOB-2016 Test Suite 2016 ,		5
32	Continuous Optimization and CMA-ES 2015 ,		4
31	Markov chain analysis of evolution strategies on a linear constraint optimization problem 2014 ,		4

30	Benchmarking a weighted negative covariance matrix update on the BBOB-2010 noisy testbed 2010 ,		4
29	The impact of sample volume in random search on the bbob test suite 2019 ,		3
28	On Bi-objective Convex-Quadratic Problems. <i>Lecture Notes in Computer Science</i> , 2019 , 3-14	0.9	3
27	Benchmarking MATLAB's gamultiobj (NSGA-II) on the Bi-objective BBOB-2016 Test Suite 2016 ,		3
26	Evolution strategies and CMA-ES (covariance matrix adaptation) 2014 ,		3
25	Scalable structural break detection. <i>Applied Soft Computing Journal</i> , 2012 , 12, 3408-3420	7.5	3
24	Mirrored variants of the (1,2)-CMA-ES compared on the noisy BBOB-2010 testbed 2010 ,		3
23	Benchmarking the (1,4)-CMA-ES with mirrored sampling and sequential selection on the noisy BBOB-2010 testbed 2010 ,		3
22	Black-box optimization benchmarking of NEWUOA compared to BIPOP-CMA-ES 2010 ,		3
21	Benchmarking the (1,4)-CMA-ES with mirrored sampling and sequential selection on the noiseless BBOB-2010 testbed 2010 ,		3
20	Investigating the impact of sequential selection in the (1,4)-CMA-ES on the noisy BBOB-2010 testbed 2010 ,		3
19	The Impact of Search Volume on the Performance of RANDOMSEARCH on the Bi-objective BBOB-2016 Test Suite 2016 ,		3
18	CMA-ES and Advanced Adaptation Mechanisms 2016 ,		3
17	Tutorial CMA-ES 2013 ,		2
16	Comparing the (1+1)-CMA-ES with a mirrored (1+2)-CMA-ES with sequential selection on the noiseless BBOB-2010 testbed 2010 ,		2
15	Covariance Matrix Adaptation Evolution Strategy for Multidisciplinary Optimization of Expendable Launcher Family 2010 ,		2
14	On the impact of active covariance matrix adaptation in the CMA-ES with mirrored mutations and small initial population size on the noiseless BBOB testbed 2012 ,		2
13	Evolutionary Optimization of Feedback Controllers for Thermoacoustic Instabilities. <i>IUTAM Symposium on Cellular, Molecular and Tissue Mechanics</i> , 2008 , 311-317	0.3	2

12	Object-Oriented Programming of Optimizers [Examples in Scilab]499-538		2
11	Multidisciplinary Optimization in the Design of Future Space Launchers459-468		2
10	Benchmarking the Pure Random Search on the Bi-objective BBOB-2016 Testbed 2016 ,		2
9	Permuted Orthogonal Block-Diagonal Transformation Matrices for Large Scale Optimization Benchmarking 2016 ,		2
8	Benchmarking RM-MEDA on the Bi-objective BBOB-2016 Test Suite 2016 ,		2
7	Markov Chain Analysis of Cumulative Step-Size Adaptation on a Linear Constrained Problem. <i>Evolutionary Computation</i> , 2015 , 23, 611-40	4.3	1
6	Analysis of Linear Convergence of a (1 + 1)-ES with Augmented Lagrangian Constraint Handling 2016 ,		1
5	On invariance and linear convergence of evolution strategies with augmented Lagrangian constraint handling. <i>Theoretical Computer Science</i> , 2020 , 832, 68-97	1.1	1
4	An ODE method to prove the geometric convergence of adaptive stochastic algorithms. <i>Stochastic Processes and Their Applications</i> , 2022 , 145, 269-307	1.1	0
3	Scaling-invariant Functions versus Positively Homogeneous Functions. <i>Journal of Optimization Theory and Applications</i> , 2021 , 191, 363	1.6	0
2	Sparse Inverse Covariance Learning for CMA-ES with Graphical Lasso. <i>Lecture Notes in Computer Science</i> , 2020 , 707-718	0.9	
1	A SIGEVO impact award for a paper arising from the COCO platform. <i>ACM SIGEVOlution</i> , 2021 , 13, 1-11	0.1	