

Christian Igel

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.

99
papers

4,296
citations

28
h-index

65
g-index

116
ext. papers

5,351
ext. citations

4.3
avg, IF

5.84
L-index

#	Paper	IF	Citations
99	Covariance matrix adaptation for multi-objective optimization. <i>Evolutionary Computation</i> , 2007 , 15, 1-28	4.3	550
98	The German Traffic Sign Recognition Benchmark: A multi-class classification competition 2011 ,		344
97	Empirical evaluation of the improved Rprop learning algorithms. <i>Neurocomputing</i> , 2003 , 50, 105-123	5.4	315
96	Evolutionary tuning of multiple SVM parameters. <i>Neurocomputing</i> , 2005 , 64, 107-117	5.4	293
95	Detection of traffic signs in real-world images: The German traffic sign detection benchmark 2013 ,		272
94	Training restricted Boltzmann machines: An introduction. <i>Pattern Recognition</i> , 2014 , 47, 25-39	7.7	263
93	Deep feature learning for knee cartilage segmentation using a triplanar convolutional neural network. <i>Lecture Notes in Computer Science</i> , 2013 , 16, 246-53	0.9	243
92	An Introduction to Restricted Boltzmann Machines. <i>Lecture Notes in Computer Science</i> , 2012 , 14-36	0.9	214
91	Early detection of Alzheimer's disease using MRI hippocampal texture. <i>Human Brain Mapping</i> , 2016 , 37, 1148-61	5.9	108
90	Cross-reactive metal ion sensor array in a micro titer plate format. <i>Analytical Chemistry</i> , 2003 , 75, 4389-96	8	99
89	Differential diagnosis of mild cognitive impairment and Alzheimer's disease using structural MRI cortical thickness, hippocampal shape, hippocampal texture, and volumetry. <i>NeuroImage: Clinical</i> , 2017 , 13, 470-482	5.3	85
88	A computational efficient covariance matrix update and a (1+1)-CMA for evolution strategies 2006 ,		85
87	Efficient covariance matrix update for variable metric evolution strategies. <i>Machine Learning</i> , 2009 , 75, 167-197	4	79
86	An unexpectedly large count of trees in the West African Sahara and Sahel. <i>Nature</i> , 2020 , 587, 78-82	50.4	77
85	A No-Free-Lunch Theorem for Non-Uniform Distributions of Target Functions. <i>Mathematical Modelling and Algorithms</i> , 2004 , 3, 313-322		70
84	On classes of functions for which No Free Lunch results hold. <i>Information Processing Letters</i> , 2003 , 86, 317-321	0.8	69
83	Active learning with support vector machines. <i>Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery</i> , 2014 , 4, 313-326	6.9	59

82	Registration of CT and Intraoperative 3-D Ultrasound Images of the Spine Using Evolutionary and Gradient-Based Methods. <i>IEEE Transactions on Evolutionary Computation</i> , 2008 , 12, 284-296	15.6	57
81	Neuroevolution strategies for episodic reinforcement learning. <i>Journal of Algorithms</i> , 2009 , 64, 152-168		42
80	Gradient-based adaptation of general gaussian kernels. <i>Neural Computation</i> , 2005 , 17, 2099-105	2.9	40
79	A dynamic neural field model of mesoscopic cortical activity captured with voltage-sensitive dye imaging. <i>PLoS Computational Biology</i> , 2010 , 6, e1000919	5	38
78	Hoeffding and Bernstein races for selecting policies in evolutionary direct policy search 2009 ,		37
77	Gradient-based optimization of kernel-target alignment for sequence kernels applied to bacterial gene start detection. <i>IEEE/ACM Transactions on Computational Biology and Bioinformatics</i> , 2007 , 4, 216-228		35
76	Multi-objective Model Selection for Support Vector Machines. <i>Lecture Notes in Computer Science</i> , 2005 , 534-546	0.9	34
75	Bounding the bias of contrastive divergence learning. <i>Neural Computation</i> , 2011 , 23, 664-73	2.9	31
74	EVOLUTIONARY MULTI-OBJECTIVE OPTIMISATION OF NEURAL NETWORKS FOR FACE DETECTION. <i>International Journal of Computational Intelligence and Applications</i> , 2004 , 04, 237-253	1.2	30
73	Operator adaptation in evolutionary computation and its application to structure optimization of neural networks. <i>Neurocomputing</i> , 2003 , 55, 347-361	5.4	30
72	Multi-Objective Optimization of Support Vector Machines 2006 , 199-220		29
71	Improved step size adaptation for the MO-CMA-ES 2010 ,		26
70	Developing and validating COVID-19 adverse outcome risk prediction models from a bi-national European cohort of 5594 patients. <i>Scientific Reports</i> , 2021 , 11, 3246	4.9	26
69	Speeding up many-objective optimization by Monte Carlo approximations. <i>Artificial Intelligence</i> , 2013 , 204, 22-29	3.6	25
68	One Network to Segment Them All: A General, Lightweight System for Accurate 3D Medical Image Segmentation. <i>Lecture Notes in Computer Science</i> , 2019 , 30-38	0.9	25
67	Optimization of dynamic neural fields. <i>Neurocomputing</i> , 2001 , 36, 225-233	5.4	22
66	Evolution Strategies for Direct Policy Search. <i>Lecture Notes in Computer Science</i> , 2008 , 428-437	0.9	22
65	Steady-State Selection and Efficient Covariance Matrix Update in the Multi-objective CMA-ES 2007 , 171-185		21

64	Empirical Analysis of the Divergence of Gibbs Sampling Based Learning Algorithms for Restricted Boltzmann Machines. <i>Lecture Notes in Computer Science</i> , 2010 , 208-217	0.9	21
63	U-Sleep: resilient high-frequency sleep staging. <i>Npj Digital Medicine</i> , 2021 , 4, 72	15.7	20
62	Rprop Using the Natural Gradient 2005 , 259-272		20
61	Maximum likelihood model selection for 1-norm soft margin SVMs with multiple parameters. <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , 2010 , 32, 1522-8	13.3	19
60	Second-order SMO improves SVM online and active learning. <i>Neural Computation</i> , 2008 , 20, 374-82	2.9	19
59	Evolutionary optimization of sequence kernels for detection of bacterial gene starts. <i>International Journal of Neural Systems</i> , 2007 , 17, 369-81	6.2	19
58	A No-Free-Lunch theorem for non-uniform distributions of target functions. <i>Mathematical Modelling and Algorithms</i> , 2005 , 3, 313-322		19
57	Accurate Segmentation of Dental Panoramic Radiographs with U-NETS 2019 ,		18
56	Toward registration of 3D ultrasound and CT images of the spine in clinical praxis: design and evaluation of a data acquisition protocol. <i>Ultrasound in Medicine and Biology</i> , 2009 , 35, 1773-82	3.5	18
55	Neutrality and self-adaptation. <i>Natural Computing</i> , 2003 , 2, 117-132	1.3	16
54	The International Workshop on Osteoarthritis Imaging Knee MRI Segmentation Challenge: A Multi-Institute Evaluation and Analysis Framework on a Standardized Dataset. <i>Radiology: Artificial Intelligence</i> , 2021 , 3, e200078	8.7	16
53	The flip-the-state transition operator for restricted Boltzmann machines. <i>Machine Learning</i> , 2013 , 93, 53-69	4	15
52	Scalarization versus indicator-based selection in multi-objective CMA evolution strategies 2008 ,		14
51	Task-dependent evolution of modularity in neural networks. <i>Connection Science</i> , 2002 , 14, 219-229	2.8	14
50	Reducing the number of fitness evaluations in graph genetic programming using a canonical graph indexed database. <i>Evolutionary Computation</i> , 2007 , 15, 199-221	4.3	13
49	Predicting electrical storms by remote monitoring of implantable cardioverter-defibrillator patients using machine learning. <i>Europace</i> , 2019 , 21, 268-274	3.9	13
48	Evolutionary Optimization of Neural Systems: The Use of Strategy Adaptation 2005 , 103-123		13
47	Sacrificing information for the greater good: how to select photometric bands for optimal accuracy. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017 , 464, 2577-2596	4.3	12

46	Separating Timing, Movement Conditions and Individual Differences in the Analysis of Human Movement. <i>PLoS Computational Biology</i> , 2016 , 12, e1005092	5	10
45	Integrated Optimization of Long-Range Underwater Signal Detection, Feature Extraction, and Classification for Nuclear Treaty Monitoring. <i>IEEE Transactions on Geoscience and Remote Sensing</i> , 2016 , 54, 3649-3659	8.1	10
44	Unbounded Population MO-CMA-ES for the Bi-Objective BBOB Test Suite 2016 ,		10
43	A More Efficient Rank-one Covariance Matrix Update for Evolution Strategies 2015 ,		9
42	Variable Metric Reinforcement Learning Methods Applied to the Noisy Mountain Car Problem. <i>Lecture Notes in Computer Science</i> , 2008 , 136-150	0.9	9
41	Recombination for Learning Strategy Parameters in the MO-CMA-ES. <i>Lecture Notes in Computer Science</i> , 2009 , 155-168	0.9	9
40	Multi-Objective Neural Network Optimization for Visual Object Detection 2006 , 629-655		9
39	Adaptive pattern recognition in real-time video-based soccer analysis. <i>Journal of Real-Time Image Processing</i> , 2017 , 13, 345-361	1.9	8
38	Shape Index Descriptors Applied to Texture-Based Galaxy Analysis 2013 ,		8
37	The logarithmic hypervolume indicator 2011 ,		7
36	No Free Lunch Theorems: Limitations and Perspectives of Metaheuristics. <i>Natural Computing Series</i> , 2014 , 1-23	2.5	7
35	Femoral cartilage segmentation in knee MRI scans using two stage voxel classification. <i>Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference</i> , 2013 , 2013, 5469-72	0.9	6
34	Nearest neighbour regression outperforms model-based prediction of specific star formation rate 2013 ,		6
33	Uncertainty handling CMA-ES for reinforcement learning 2009 ,		6
32	Huge Music Archives on Mobile Devices. <i>IEEE Signal Processing Magazine</i> , 2011 , 28, 24-39	9.4	6
31	Registration of bone structures in 3D ultrasound and CT data: Comparison of different optimization strategies. <i>International Congress Series</i> , 2005 , 1281, 242-247		6
30	Real-Time Estimation of Optical Flow Based on Optimized Haar Wavelet Features. <i>Lecture Notes in Computer Science</i> , 2011 , 448-461	0.9	6
29	A bound for the convergence rate of parallel tempering for sampling restricted Boltzmann machines. <i>Theoretical Computer Science</i> , 2015 , 598, 102-117	1.1	5

28	Qualitative and Quantitative Assessment of Step Size Adaptation Rules 2017 ,		5
27	New Uncertainty Handling Strategies in Multi-objective Evolutionary Optimization 2010 , 260-269		5
26	Efficient update of the covariance matrix inverse in iterated linear discriminant analysis. <i>Pattern Recognition Letters</i> , 2010 , 31, 1903-1907	4.7	5
25	Evolutionary Adaptation of Nonlinear Dynamical Systems in Computational Neuroscience. <i>Genetic Programming and Evolvable Machines</i> , 2004 , 5, 215-227	2	4
24	Uncertainty Handling in Model Selection for Support Vector Machines. <i>Lecture Notes in Computer Science</i> , 2008 , 185-194	0.9	4
23	Population-Contrastive-Divergence: Does consistency help with RBM training?. <i>Pattern Recognition Letters</i> , 2018 , 102, 1-7	4.7	3
22	A Note on Generalization Loss When Evolving Adaptive Pattern Recognition Systems. <i>IEEE Transactions on Evolutionary Computation</i> , 2013 , 17, 345-352	15.6	3
21	Scaling up indicator-based MOEAs by approximating the least hypervolume contributor 2010 ,		3
20	Registrierung von Knochen in 3D-Ultraschall- und CT-Daten: Vergleich verschiedener Optimierungsverfahren 2005 , 345-349		3
19	Evolutionary Optimization of Sequence Kernels for Detection of Bacterial Gene Starts. <i>Lecture Notes in Computer Science</i> , 2006 , 827-836	0.9	3
18	Impact of device programming on the success of the first anti-tachycardia pacing therapy: An anonymized large-scale study. <i>PLoS ONE</i> , 2019 , 14, e0219533	3.7	2
17	Introduction to the Special Issue on Machine Learning for Traffic Sign Recognition. <i>IEEE Transactions on Intelligent Transportation Systems</i> , 2012 , 13, 1481-1483	6.1	2
16	Cascaded classifier for large-scale data applied to automatic segmentation of articular cartilage 2012 ,		2
15	Evolving field models for inhibition effects in early vision. <i>Neurocomputing</i> , 2002 , 44-46, 467-472	5.4	2
14	Algorithms for estimating the partition function of restricted Boltzmann machines. <i>Artificial Intelligence</i> , 2020 , 278, 103195	3.6	2
13	Training Big Random Forests with Little Resources 2018 ,		2
12	Using machine learning for predicting intensive care unit resource use during the COVID-19 pandemic in Denmark. <i>Scientific Reports</i> , 2021 , 11, 18959	4.9	2
11	On PAC-Bayesian bounds for random forests. <i>Machine Learning</i> , 2019 , 108, 1503-1522	4	1

10	Echtzeit-Videoanalyse im Fußball. <i>KI - Kunstliche Intelligenz</i> , 2013 , 27, 235-240	1.8	1
9	Linear feature selection in texture analysis - A PLS based method. <i>Machine Vision and Applications</i> , 2013 , 24, 1435-1444	2.8	1
8	Hydroacoustic Signal Classification Using Kernel Functions for Variable Feature Sets 2010 ,		1
7	Multi-Objective Optimization of Support Vector Machines 2006 , 199-220		1
6	Resilient Approximation of Kernel Classifiers. <i>Lecture Notes in Computer Science</i> , 2007 , 139-148	0.9	1
5	Sparse Incomplete LU-Decomposition for Wave Form Designs Under Realistic Conditions. <i>Lecture Notes in Computer Science</i> , 2018 , 512-524	0.9	1
4	Genesis of Organic Computing Systems: Coupling Evolution and Learning. <i>Understanding Complex Systems</i> , 2009 , 141-166	0.4	1
3	Chaining syllogism applied to fuzzy IF-THEN rules and rule bases. <i>Lecture Notes in Computer Science</i> , 1997 , 179-188	0.9	1
2	Improved Working Set Selection for LaRank. <i>Lecture Notes in Computer Science</i> , 2011 , 327-334	0.9	
1	Multi-Objective Neural Network Optimization for Visual Object Detection 2006 , 629-655		