

# Bernhard Sendhoff

## List of Publications by Year in descending order

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151  
papers

7,305  
citations

230014

27  
h-index

73587

79  
g-index

155  
all docs

155  
docs citations

155  
times ranked

5408  
citing authors

#	ARTICLE	IF	CITATIONS
1	Multitask Shape Optimization Using a 3-D Point Cloud Autoencoder as Unified Representation. IEEE Transactions on Evolutionary Computation, 2022, 26, 206-217.	7.5	12
2	Exploiting Local Geometric Features in Vehicle Design Optimization with 3D Point Cloud Autoencoders. , 2021, , .		4
3	A new acquisition function for robust Bayesian optimization of unconstrained problems. , 2021, , .		1
4	Exploiting Generative Models for Performance Predictions of 3D Car Designs. , 2021, , .		3
5	Point2FFD: Learning Shape Representations of Simulation-Ready 3D Models for Engineering Design Optimization. , 2021, , .		1
6	Feature Visualization for 3D Point Cloud Autoencoders. , 2020, , .		14
7	Exploring Clinical Time Series Forecasting with Meta-Features in Variational Recurrent Models. , 2020, , .		1
8	Representing Experience in Continuous Evolutionary optimisation through Problem-tailored Search Operators. , 2020, , .		3
9	Exploring Dimensionality Reduction Techniques for Efficient Surrogate-Assisted optimization. , 2020, , .		7
10	Back To Meshes: Optimal Simulation-ready Mesh Prototypes For Autoencoder-based 3D Car Point Clouds. , 2020, , .		2
11	Quantifying The Generative Capabilities Of Variational Autoencoders For 3D Car Point Clouds. , 2020, , .		12
12	Improving Sampling in Evolution Strategies Through Mixture-Based Distributions Built from Past Problem Instances. Lecture Notes in Computer Science, 2020, , 583-596.	1.0	3
13	Scalability of Learning Tasks on 3D CAE Models Using Point Cloud Autoencoders. , 2019, , .		9
14	Learning Time-Series Data of Industrial Design Optimization using Recurrent Neural Networks. , 2019, , .		3
15	Optimal Evolutionary Optimization Hyper-parameters to Mimic Human User Behavior. , 2019, , .		0
16	Learning Transferable Variation Operators in a Continuous Genetic Algorithm. , 2019, , .		3
17	An Empirical Comparison of Meta-Modeling Techniques for Robust Design Optimization. , 2019, , .		5
18	On the Efficiency of a Point Cloud Autoencoder as a Geometric Representation for Shape Optimization. , 2019, , .		14

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19	When and How to Transfer Knowledge in Dynamic Multi-objective Optimization. , 2019, , .		15
20	Solving Incremental Optimization Problems via Cooperative Coevolution. IEEE Transactions on Evolutionary Computation, 2019, 23, 762-775.	7.5	11
21	Toward a Steady-State Analysis of an Evolution Strategy on a Robust Optimization Problem With Noise-Induced Multimodality. IEEE Transactions on Evolutionary Computation, 2017, 21, 629-643.	7.5	12
22	Simplify Your Covariance Matrix Adaptation Evolution Strategy. IEEE Transactions on Evolutionary Computation, 2017, 21, 746-759.	7.5	76
23	Test Problems for Large-Scale Multiobjective and Many-Objective Optimization. IEEE Transactions on Cybernetics, 2017, 47, 4108-4121.	6.2	220
24	Target shape design optimization by evolving B-splines with cooperative coevolution. Applied Soft Computing Journal, 2016, 48, 672-682.	4.1	20
25	A Reference Vector Guided Evolutionary Algorithm for Many-Objective Optimization. IEEE Transactions on Evolutionary Computation, 2016, 20, 773-791.	7.5	1,140
26	Preference representation using Gaussian functions on a hyperplane in evolutionary multi-objective optimization. Soft Computing, 2016, 20, 2733-2757.	2.1	12
27	Robust Optimization Over Time: Problem Difficulties and Benchmark Problems. IEEE Transactions on Evolutionary Computation, 2015, 19, 731-745.	7.5	35
28	A Multiobjective Evolutionary Algorithm Using Gaussian Process-Based Inverse Modeling. IEEE Transactions on Evolutionary Computation, 2015, 19, 838-856.	7.5	295
29	What are dynamic optimization problems?. , 2014, , .		16
30	A new self-adaptation scheme for differential evolution. Neurocomputing, 2014, 146, 2-16.	3.5	46
31	Shape mining: A holistic data mining approach for engineering design. Advanced Engineering Informatics, 2014, 28, 166-185.	4.0	27
32	A review of concurrent optimisation methods. International Journal of Bio-Inspired Computation, 2014, 6, 22.	0.6	6
33	An examination of different fitness and novelty based selection methods for the evolution of neural networks. Soft Computing, 2013, 17, 753-767.	2.1	12
34	A framework for finding robust optimal solutions over time. Memetic Computing, 2013, 5, 3-18.	2.7	130
35	Finding Robust Solutions to Dynamic Optimization Problems. Lecture Notes in Computer Science, 2013, , 616-625.	1.0	29
36	Evolution by Adapting Surrogates. Evolutionary Computation, 2013, 21, 313-340.	2.3	62

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37	Novelty and interestingness measures for design-space exploration. , 2013, , .		10
38	Evolutionary Complex Engineering Optimization: Opportunities and Challenges [Guest Editorial]. IEEE Computational Intelligence Magazine, 2013, 8, 12-15.	3.4	21
39	Learning-Guided Exploration in Airfoil Optimization. Lecture Notes in Computer Science, 2013, , 505-512.	1.0	1
40	Evolution and Analysis of Genetic Networks for Stable Cellular Growth and Regeneration. Artificial Life, 2012, 18, 425-444.	1.0	7
41	Quantitative analysis of redundancy in evolution of developmental systems. , 2012, , .		3
42	Multi co-objective evolutionary optimization: Cross surrogate augmentation for computationally expensive problems. , 2012, , .		13
43	Application of Sensitivity Analysis for an Improved Representation in Evolutionary Design Optimization. , 2012, , .		2
44	The Effect of Reynolds Number on a Transonic Swept Fan OGV in a Small Turbofan Engine. , 2012, , .		0
45	Characterizing environmental changes in Robust Optimization Over Time. , 2012, , .		4
46	A Unified Framework for Symbiosis of Evolutionary Mechanisms with Application to Water Clusters Potential Model Design. IEEE Computational Intelligence Magazine, 2012, 7, 20-35.	3.4	23
47	Redundancy creates opportunity in developmental representations. , 2011, , .		3
48	The Effect of Proprioceptive Feedback on the Distribution of Sensory Information in a Model of an Undulatory Organism. Lecture Notes in Computer Science, 2011, , 18-26.	1.0	1
49	Cross-Ball: A new morphogenetic self-reconfigurable modular robot. , 2011, , .		20
50	Robustness of glycolysis in yeast to internal and external noise. Physical Review E, 2011, 84, 021913.	0.8	18
51	Autonomous experimental design optimization of a flapping wing. Genetic Programming and Evolvable Machines, 2011, 12, 23-47.	1.5	5
52	Evolution of neural symmetry and its coupled alignment to body plan morphology. , 2011, , .		0
53	Evolvability of graph- and Vector Field Embryogeny representations. , 2011, , .		0
54	Emerged Coupling of Motor Control and Morphological Development in Evolution of Multi-cellular Animats. Lecture Notes in Computer Science, 2011, , 27-34.	1.0	14

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55	Generalizing Surrogate-Assisted Evolutionary Computation. IEEE Transactions on Evolutionary Computation, 2010, 14, 329-355.	7.5	387
56	Evolving heterochrony for cellular differentiation using vector field embryogeny. , 2010, , .		2
57	Emergent Distribution of Computational Workload in the Evolution of an Undulatory Animat. Lecture Notes in Computer Science, 2010, , 587-596.	1.0	0
58	Global shape with morphogen gradients and motile polarized cells. , 2009, , .		16
59	Effect of End Wall Contouring on Performance of Ultra-Low Aspect Ratio Transonic Turbine Inlet Guide Vanes. Journal of Turbomachinery, 2009, 131, .	0.9	7
60	A New Concept of a Two-Dimensional Supersonic Relative Inlet Mach Number Compressor Cascade. , 2009, , .		0
61	The Influence of Learning on Evolution: A Mathematical Framework. Artificial Life, 2009, 15, 227-245.	1.0	29
62	A systems approach to evolutionary multiobjective structural optimization and beyond. IEEE Computational Intelligence Magazine, 2009, 4, 62-76.	3.4	145
63	Pareto analysis of evolutionary and learning systems. Frontiers of Computer Science, 2009, 3, 4-17.	0.6	5
64	Lamarckian memetic algorithms: local optimum and connectivity structure analysis. Memetic Computing, 2009, 1, 175-190.	2.7	74
65	Corrections to "Pareto-Based Multiobjective Machine Learning: An Overview and Case Studies" [May 08 397-415]. IEEE Transactions on Systems, Man and Cybernetics, Part C: Applications and Reviews, 2009, 39, 373-373.	3.3	8
66	Influence of regulation logic on the easiness of evolving sustained oscillation for gene regulatory networks. , 2009, , .		7
67	Evolutionary multi-objective optimization of robustness and innovation in redundant genetic representations. , 2009, , .		10
68	Genesis of Organic Computing Systems: Coupling Evolution and Learning. Understanding Complex Systems, 2009, , 141-166.	0.3	2
69	Creating Brain-Like Intelligence. Lecture Notes in Computer Science, 2009, , 1-14.	1.0	8
70	A Gene Regulatory Model for the Development of Primitive Nervous Systems. Lecture Notes in Computer Science, 2009, , 48-55.	1.0	8
71	Vector Field Embryogeny. PLoS ONE, 2009, 4, e8177.	1.1	5
72	Interaction Detection in Aerodynamic Design Data. Lecture Notes in Computer Science, 2009, , 160-167.	1.0	3

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73	Fuzzy Logic in Evolving in silico Oscillatory Dynamics for Gene Regulatory Networks. Studies in Fuzziness and Soft Computing, 2009, , 315-327.	0.6	2
74	Knowledge Extraction from Aerodynamic Design Data and its Application to 3D Turbine Blade Geometries. Mathematical Modelling and Algorithms, 2008, 7, 329-350.	0.5	19
75	Combination of EDA and DE for continuous biobjective optimization. , 2008, , .		9
76	Evolving in silico bistable and oscillatory dynamics for gene regulatory network motifs. , 2008, , .		6
77	Pareto-Based Multiobjective Machine Learning: An Overview and Case Studies. IEEE Transactions on Systems, Man and Cybernetics, Part C: Applications and Reviews, 2008, 38, 397-415.	3.3	304
78	Toward a gene regulatory network model for evolving chemotaxis behavior. , 2008, , .		1
79	A cellular model for the evolutionary development of lightweight material with an inner structure. , 2008, , .		18
80	Prediction of convergence dynamics of design performance using differential recurrent neural networks. , 2008, , .		2
81	Modeling Regularity to Improve Scalability of Model-Based Multiobjective Optimization Algorithms. Natural Computing Series, 2008, , 331-355.	2.2	4
82	Representing the Change - Free Form Deformation for Evolutionary Design Optimization. Studies in Computational Intelligence, 2008, , 63-86.	0.7	16
83	Evolutionary Optimization with Dynamic Fidelity Computational Models. Lecture Notes in Computer Science, 2008, , 235-242.	1.0	18
84	Covariance Matrix Adaptation Revisited – The CMA Evolution Strategy –. Lecture Notes in Computer Science, 2008, , 123-132.	1.0	81
85	Rule Extraction from Compact Pareto-optimal Neural Networks. Studies in Computational Intelligence, 2008, , 71-90.	0.7	0
86	A study on metamodeling techniques, ensembles, and multi-surrogates in evolutionary computation. , 2007, , .		66
87	Global multiobjective optimization via estimation of distribution algorithm with biased initialization and crossover. , 2007, , .		11
88	Adaptive modelling strategy for continuous multi-objective optimization. , 2007, , .		3
89	Evolutionary Algorithms in the Presence of Noise: To Sample or Not to Sample. , 2007, , .		12
90	Effect of Endwall Contouring on Performance of Ultra-Low Aspect Ratio Transonic Turbine Inlet Guide Vanes. , 2007, , 931.		3

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91	Target shape design optimization by evolving splines. , 2007, , .		15
92	Emergence of feedback in artificial gene regulatory networks. , 2007, , .		12
93	Prediction-Based Population Re-initialization for Evolutionary Dynamic Multi-objective Optimization. , 2007, , 832-846.		120
94	Influence of Plasticity and Learning on Evolution under Directional Selection. American Naturalist, 2007, 170, E47-E58.	1.0	113
95	Robust optimization – A comprehensive survey. Computer Methods in Applied Mechanics and Engineering, 2007, 196, 3190-3218.	3.4	1,221
96	Emergent Technology Technical Committee [Society Briefs]. IEEE Computational Intelligence Magazine, 2007, 2, 5-8.	3.4	1
97	Efficient Hierarchical Parallel Genetic Algorithms using Grid computing. Future Generation Computer Systems, 2007, 23, 658-670.	4.9	164
98	Individual-based Management of Meta-models for Evolutionary Optimization with Application to Three-Dimensional Blade Optimization. Studies in Computational Intelligence, 2007, , 225-250.	0.7	24
99	Evolutionary Multi-objective Optimization of Spiking Neural Networks. Lecture Notes in Computer Science, 2007, , 370-379.	1.0	15
100	On the Adaptive Disadvantage of Lamarckianism in Rapidly Changing Environments. , 2007, , 355-364.		8
101	Word Recognition with a Hierarchical Neural Network. , 2007, , 142-151.		2
102	Knowledge Extraction from Unstructured Surface Meshes. , 2007, , 497-506.		1
103	Functions with noise-induced multimodality: a test for evolutionary robust Optimization-properties and performance analysis. IEEE Transactions on Evolutionary Computation, 2006, 10, 507-526.	7.5	23
104	Optimization of micro heat exchanger: CFD, analytical approach and multi-objective evolutionary algorithms. International Journal of Heat and Mass Transfer, 2006, 49, 1090-1099.	2.5	174
105	Inverse multi-objective robust evolutionary design. Genetic Programming and Evolvable Machines, 2006, 7, 383-404.	1.5	32
106	Evolutionary computation benchmarking repository [Developmental Tools]. IEEE Computational Intelligence Magazine, 2006, 1, 50-60.	3.4	1
107	A Study of Advanced High-Loaded Transonic Turbine Airfoils. Journal of Turbomachinery, 2006, 128, 650-657.	0.9	24
108	Multi-network evolutionary systems and automatic decomposition of complex problems. International Journal of General Systems, 2006, 35, 259-274.	1.2	19

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109	Direct Manipulation of Free Form Deformation in Evolutionary Design Optimisation. Lecture Notes in Computer Science, 2006, , 352-361.	1.0	16
110	Modelling the Population Distribution in Multi-objective Optimization by Generative Topographic Mapping. Lecture Notes in Computer Science, 2006, , 443-452.	1.0	8
111	Simultaneous Generation of Accurate and Interpretable Neural Network Classifiers. , 2006, , 291-312.		23
112	Environments Conducive to Evolution of Modularity. Lecture Notes in Computer Science, 2006, , 603-612.	1.0	2
113	Simultaneous Generation of Accurate and Interpretable Neural Network Classifiers. , 2006, , 289-312.		0
114	Three Dimensional Aerodynamic Optimization for an Ultra-Low Aspect Ratio Transonic Turbine Stator Blade. , 2005, , 651.		10
115	Morphing methods in evolutionary design optimization. , 2005, , .		7
116	Three dimensional evolutionary aerodynamic design optimization with CMA-ES. , 2005, , .		15
117	Evolutionary Optimization of a Hierarchical Object Recognition Model. IEEE Transactions on Systems, Man, and Cybernetics, 2005, 35, 426-437.	5.5	23
118	A Multi-cluster Grid Enabled Evolution Framework for Aerodynamic Airfoil Design Optimization. Lecture Notes in Computer Science, 2005, , 1112-1121.	1.0	9
119	Evolutionary Multi-objective Optimization for Simultaneous Generation of Signal-Type and Symbol-Type Representations. Lecture Notes in Computer Science, 2005, , 752-766.	1.0	23
120	Advanced High Turning Compressor Airfoils for Low Reynolds Number Conditionâ€”Part I: Design and Optimization. Journal of Turbomachinery, 2004, 126, 350-359.	0.9	43
121	Constructing Dynamic Optimization Test Problems Using the Multi-objective Optimization Concept. Lecture Notes in Computer Science, 2004, , 525-536.	1.0	75
122	On the Impact of Systematic Noise on the Evolutionary Optimization Performanceâ€”A Sphere Model Analysis. Genetic Programming and Evolvable Machines, 2004, 5, 327-360.	1.5	14
123	On Test Functions for Evolutionary Multi-objective Optimization. Lecture Notes in Computer Science, 2004, , 792-802.	1.0	68
124	A Study of Advanced High Loaded Transonic Turbine Airfoils. , 2004, , 1275.		1
125	Reducing Fitness Evaluations Using Clustering Techniques and Neural Network Ensembles. Lecture Notes in Computer Science, 2004, , 688-699.	1.0	109
126	Credit Assignment Among Neurons in Co-evolving Populations. Lecture Notes in Computer Science, 2004, , 882-891.	1.0	13



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127	Coupling of Evolution and Learning to Optimize a Hierarchical Object Recognition Model. Lecture Notes in Computer Science, 2004, , 662-671.	1.0	1
128	Comparison of Steady-State and Generational Evolution Strategies for Parallel Architectures. Lecture Notes in Computer Science, 2004, , 253-262.	1.0	2
129	Extracting Interpretable Fuzzy Rules from RBF Networks. Neural Processing Letters, 2003, 17, 149-164.	2.0	66
130	Trade-Off between Performance and Robustness: An Evolutionary Multiobjective Approach. Lecture Notes in Computer Science, 2003, , 237-251.	1.0	118
131	Solving Three-Objective Optimization Problems Using Evolutionary Dynamic Weighted Aggregation: Results and Analysis. Lecture Notes in Computer Science, 2003, , 636-637.	1.0	7
132	Advanced High Turning Compressor Airfoils for Low Reynolds Number Condition: Part 1 " Design and Optimization. , 2003, , 437.		14
133	A framework for evolutionary optimization with approximate fitness functions. IEEE Transactions on Evolutionary Computation, 2002, 6, 481-494.	7.5	502
134	Aerodynamic Shape Optimisation using Evolution Strategies. , 2002, , 83-94.		8
135	Optimisation of a Stator Blade Used in a Transonic Compressor Cascade with Evolution Strategies. , 2000, , 45-54.		20
136	A Model for the Dynamic Interaction Between Evolution and Learning. Neural Processing Letters, 1999, 10, 181-193.	2.0	11
137	Knowledge Incorporation into Neural Networks From Fuzzy Rules. Neural Processing Letters, 1999, 10, 231-242.	2.0	19
138	On generating FC/sup 3/ fuzzy rule systems from data using evolution strategies. IEEE Transactions on Systems, Man, and Cybernetics, 1999, 29, 829-845.	5.5	157
139	Optimisation of density estimation models with evolutionary algorithms. Lecture Notes in Computer Science, 1998, , 998-1007.	1.0	5
140	An extended Elman net for modeling time series. Lecture Notes in Computer Science, 1997, , 427-432.	1.0	12
141	HOW TO DETERMINE THE REDUNDANCY OF NOISY CHAOTIC TIME SERIES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 1996, 06, 101-117.	0.7	9
142	Variable encoding of modular neural networks for time series prediction. , 0, , .		9
143	Optimization for problem classes-neural networks that learn to learn. , 0, , .		10
144	Evolutionary feature design for object recognition with hierarchical networks. , 0, , .		1

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145	Exploiting ensemble diversity for automatic feature extraction. , 0, , .		6
146	Evolutionary multi-objective optimisation with a hybrid representation. , 0, , .		9
147	A critical survey of performance indices for multi-objective optimisation. , 0, , .		132
148	Connectedness, regularity and the success of local search in evolutionary multi-objective optimization. , 0, , .		8
149	Target shape design optimization with evolutionary computation. , 0, , .		4
150	Comparative studies on micro heat exchanger optimisation. , 0, , .		4
151	Comparing neural networks and Kriging for fitness approximation in evolutionary optimization. , 0, , .		38