Achille Messac

List of Publications by Year
in descending order

122 papers	4,519 citations	136740 32 h-index	128067 60 g-index
123 all docs	123 docs citations	123 times ranked	2481 citing authors

#	Article	IF	Citations
1	Concurrent surrogate model selection (COSMOS): optimizing model type, kernel function, and hyper-parameters. Structural and Multidisciplinary Optimization, 2018, 57, 1093-1114.	1.7	37
2	Market Suitability and Performance Tradeoffs Offered by Commercial Wind Turbines across Differing Wind Regimes. Energies, 2016, 9, 352.	1.6	8
3	Adaptive Model Refinement in Surrogate-based Multiobjective Optimization. , 2016, , .		2
4	New Modular Product-Platform-Planning Approach to Design Macroscale Reconfigurable Unmanned Aerial Vehicles. Journal of Aircraft, 2016, 53, 309-322.	1.7	20
5	High fidelity multidisciplinary design optimization of a wing using the interaction of low and high fidelity models. Optimization and Engineering, 2016, 17, 503-532.	1.3	10
6	A multi-objective mixed-discrete particle swarm optimization with multi-domain diversity preservation. Structural and Multidisciplinary Optimization, 2016, 53, 471-488.	1.7	15
7	Predictive quantification of surrogate model fidelity based on modal variations with sample density. Structural and Multidisciplinary Optimization, 2015, 52, 353-373.	1.7	44
8	Sensitivity of Wind Farm Output to Wind Conditions, Land Configuration, and Installed Capacity, Under Different Wake Models. Journal of Mechanical Design, Transactions of the ASME, 2015, 137, .	1.7	9
9	Multi-Objective WindFarm Optimization Simultaneously Optimizing COE and Land Footprint of Wind Farms under Different Land Plot Availability. , 2015, , .		3
10	Modeling the Influence of Land-Shape on the Energy Production Potential of a Wind Farm Site. Journal of Energy Resources Technology, Transactions of the ASME, 2014, 136, .	1.4	15
11	Characterizing Uncertainty Attributable to Surrogate Models. Journal of Mechanical Design, Transactions of the ASME, 2014, 136, .	1.7	10
12	A New Multi-Objective Mixed-Discrete Particle Swarm Optimization Algorithm. , 2014, , .		3
13	Adaptive optimal design of active thermoelectric windows using surrogate modeling. Optimization and Engineering, 2014, 15, 469-483.	1.3	7
14	A hybrid measure-correlate-predict method for long-term wind condition assessment. Energy Conversion and Management, 2014, 87, 697-710.	4.4	20
15	A Novel Approach to Simultaneous Selection of Surrogate Models, Constitutive Kernels, and Hyper-parameter Values. , 2014, , .		6
16	A comprehensive measure of the energy resource: Wind power potential (WPP). Energy Conversion and Management, 2014, 86, 388-398.	4.4	10
17	Managing Variable Fidelity Models in Population-based Optimization using Adaptive Model Switching. , 2014, , .		2
18	A Consolidated Visualization of Wind Farm Energy Production Potential and Optimal Land Shapes under Different Land Area and Nameplate Capacity Decisions. , 2014, , .		2

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19	A Visually-Informed Decision-Making Platform for Model-based Design of Wind Farms. , 2014, , .		1
20	Investigating the commonality attributes for scaling product families using comprehensive product platform planning (CP3). Structural and Multidisciplinary Optimization, 2013, 48, 1089-1107.	1.7	9
21	A mixed-discrete Particle Swarm Optimization algorithm with explicit diversity-preservation. Structural and Multidisciplinary Optimization, 2013, 47, 367-388.	1.7	94
22	A Multivariate and Multimodal Wind Distribution model. Renewable Energy, 2013, 51, 436-447.	4.3	81
23	Optimizing the arrangement and the selection of turbines for wind farms subject to varying wind conditions. Renewable Energy, 2013, 52, 273-282.	4.3	186
24	Adaptive Hybrid Surrogate Modeling for Complex Systems. AIAA Journal, 2013, 51, 643-656.	1.5	25
25	Quantifying Regional Error in Surrogates by Modeling its Relationship with Sample Density. , 2013, , .		4
26	Sensitivity of Array-Like and Optimized Wind Farm Output to Key Factors and Choice of Wake Models. , 2013, , .		2
27	Assessing Long-Term Wind Conditions by Combining Different Measure-Correlate-Predict Algorithms. , 2013, , .		6
28	Domain Segmentation based on Uncertainty in the Surrogate (DSUS). , 2012, , .		3
29	Surrogate-Based Design Optimization with Adaptive Sequential Sampling. , 2012, , .		9
30	Characterizing and mitigating the wind resource-based uncertainty in farm performance. Journal of Turbulence, 2012, 13, N13.	0.5	22
31	Avoiding Premature Convergence in a Mixed-Discrete Particle Swarm Optimization (MDPSO) Algorithm. , 2012, , .		7
32	Comprehensive Product Platform Planning (CP3) Using Mixed-Discrete Particle Swarm Optimization and a New Commonality Index. , 2012, , .		3
33	Uncertainty Quantification in Surrogate Models Based on Pattern Classification of Cross-validation Errors. , 2012, , .		4
34	Impact of Different Wake Models On the Estimation of Wind Farm Power Generation. , 2012, , .		14
35	Improving the Accuracy of Surrogate Models Using Inverse Transform Sampling. , 2012, , .		3
36	Exploring the Best Performing Commercial Wind Turbines for Different Wind Regimes in a Target Market. , 2012, , .		1

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37	Optimal Scheduling of Preventive Maintenance for Offshore Wind Farms. , 2012, , .		19
38	An adaptive hybrid surrogate model. Structural and Multidisciplinary Optimization, 2012, 46, 223-238.	1.7	112
39	A Response Surface-Based Cost Model for Wind Farm Design. Energy Policy, 2012, 42, 538-550.	4.2	37
40	Unrestricted wind farm layout optimization (UWFLO): Investigating key factors influencing the maximum power generation. Renewable Energy, 2012, 38, 16-30.	4.3	278
41	Exploring the 'Cost - Capacity Factor' Tradeoffs Offered by the Best Performing Commercial Wind Turbines. , 2012, , .		0
42	A New Robust Surrogate Model: Reliability Based Hybrid Functions. , 2011, , .		2
43	Surrogate Modeling of Complex Systems Using Adaptive Hybrid Functions. , 2011, , .		5
44	Comprehensive Product Platform Planning (CP3) Framework. Journal of Mechanical Design, Transactions of the ASME, 2011, 133, .	1.7	29
45	Response Surface Based Cost Model for Onshore Wind Farms Using Extended Radial Basis Functions. , 2010, , .		18
46	Economic Evaluation of Wind Farms Based on Cost of Energy Optimization. , 2010, , .		9
47	Designerâ€™s preferences regarding equality constraints in robust design optimization. Structural and Multidisciplinary Optimization, 2010, 41, 17-38.	1.7	3
48	Developing a Non-gradient Based Mixed-Discrete Optimization Approach for Comprehensive Product Platform Planning (CP3). , 2010, , .		10
49	Optimizing the Unrestricted Placement of Turbines of Differing Rotor Diameters in a Wind Farm for Maximum Power Generation. , 2010, , .		31
50	Adaptive Optimal Design of Active Thermally Insulated Windows Using Surrogate Modeling. , 2010, , .		4
51	Comparison of Surrogate Models Used for Adaptive Optimal Control of Active Thermoelectric Windows. , 2010, , .		4
52	Multidisciplinary Design Optimization of Energy Efficient Side-Channel Windows. , 2009, , .		3
53	A computationally efficient metamodeling approach for expensive multiobjective optimization. Optimization and Engineering, 2008, 9, 37-67.	1.3	43
54	Case Studies in Pareto Set Identification Using Pseudo Response Surfaces. , 2008, , .		0

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55	Selection-Integrated Optimization (SIO) Methodology for Optimal Design of Adaptive Systems. Journal of Mechanical Design, Transactions of the ASME, 2008, 130, .	1.7	17
56	MULTIOBJECTIVE OPTIMIZATION: CONCEPTS AND METHODS. , 2007, , 121-147.		6
57	Decision Making and Constraint Tradeoff Visualization for Design Under Uncertainty. , 2007, , .		1
58	Decision Making in Product Family Optimization Under Uncertainty. , 2007, , .		1
59	Pareto Frontier Exploration of Adaptive Systems Using the Selection-Integrated Optimization (SIO) Methodology. , 2007, , .		0
60	The challenge of equality constraints in robust design optimization: examination and new approach. Structural and Multidisciplinary Optimization, 2007, 34, 381-401.	1.7	24
61	Uncertainty Visualization in Multiobjective Robust Design Optimization. , 2006, , .		6
62	Towards a Better Understanding of the Equality Constraints in Robust Design Optimization. , 2006, , .		1
63	Impact of Weather Uncertainties on Active Building Envelopes (ABE): An Emerging Thermal Control Technology. , 2006, , .		1
64	Metamodeling using extended radial basis functions: a comparative approach. Engineering With Computers, 2006, 21, 203-217.	3.5	136
65	Consolidating a warehouse network:. International Journal of Production Economics, 2005, 97, 1-17.	5.1	49
66	Pareto Frontier Based Concept Selection Under Uncertainty, with Visualization. Optimization and Engineering, 2005, 6, 85-115.	1.3	164
67	Multiobjective optimization strategies for linear gradient chromatography. AICHE Journal, 2005, 51, 511-525.	1.8	26
68	Extended Radial Basis Functions: More Flexible and Effective Metamodeling. AIAA Journal, 2005, 43, 1306-1315.	1.5	168
69	Equality Constraints in Multiobjective Robust Design Optimization: Implications and Tradeoffs. , 2005, , 275.		4
70	The Challenge of Equality Constraints in Robust Design Optimization: Examination and New Approach. , 2005, , .		5
71	Normal Constraint Method with Guarantee of Even Representation of Complete Pareto Frontier. AIAA Journal, 2004, 42, 2101-2111.	1.5	198
72	Normal Constraint Method with Guarantee of Even Representation of Complete Pareto Frontier. , 2004, , .		114

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73	Pseudo Response Surface (PRS) Methodology: Collapsing Computational Requirements. , 2004, , .		3
74	Robust Multiobjective Optimization Through Collaborative Optimization and Linear Physical Programming. , 2004, , .		17
75	Smart Pareto filter: obtaining a minimal representation of multiobjective design space. Engineering Optimization, 2004, 36, 721-740.	1.5	180
76	Concept Selection Using s-Pareto Frontiers. AIAA Journal, 2003, 41, 1190-1198.	1.5	116
77	Feasibility of Rigidified Inflatable Structures for Housing. Journal of Architectural Engineering, 2003, 9, 1-10.	0.8	5
78	Linear physical programming for production planning optimization. Engineering Optimization, 2003, 35, 19-37.	1.5	18
79	Feasibility and Optimization of Rigidified Inflatable Structures for Housing. Journal of Structural Engineering, 2003, 129, 1494-1502.	1.7	4
80	System Design Through Subsystem Selection Using Physical Programming. AIAA Journal, 2003, 41, 1089-1096.	1.5	9
81	Production planning optimization with physical programming. Engineering Optimization, 2002, 34, 323-340.	1.5	8
82	Introduction of a Product Family Penalty Function Using Physical Programming. Journal of Mechanical Design, Transactions of the ASME, 2002, 124, 164-172.	1.7	114
83	A Non-Deterministic Approach to Concept Selection Using S-Pareto Frontiers. , 2002, , 859.		14
84	Effective Product Family Design Using Physical Programming. Engineering Optimization, 2002, 34, 245-261.	1.5	118
85	Development of a Pareto-based Concept Selection Method. , 2002, , .		12
86	Effective Generation of the Pareto Frontier: The Normalized Normal Constraint Method. , 2002, , .		9
87	Minimal Representation of Multiobjective Design Space Using a Smart Pareto Filter. , 2002, , .		20
88	Generating Well-Distributed Sets of Pareto Points for Engineering Design Using Physical Programming. Optimization and Engineering, 2002, 3, 431-450.	1.3	180
89	Physical programming - Effective and friendly optimization for engineering and business applications. , 2001, , .		2
90	Required Relationship Between Objective Function and Pareto Frontier Orders: Practical Implications. AIAA Journal, 2001, 39, 2168-2174.	1.5	54

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91	Manufacturability-Based Optimization of Aircraft Structures Using Physical Programming. AIAA Journal, 2001, 39, 517-525.	1.5	74
92	Mathematical and Pragmatic Perspectives of Physical Programming. AIAA Journal, 2001, 39, 885-893.	1.5	99
93	Required relationship between objective function and Pareto frontier orders - Practical implications. , 2001, , .		2
94	Physical programming for production planning. , 2001, , .		0
95	Manufacturability based optimization of aircraft structures using physical programming. , 2000, , .		3
96	Introduction of a product family penalty function using physical programming. , 2000, , .		3
97	Title is missing!. Optimization and Engineering, 2000, 1, 171-188.	1.3	79
98	From Dubious Construction of Objective Functions to the Application of Physical Programming. AIAA Journal, 2000, 38, 155-163.	1.5	74
99	Ability of Objective Functions to Generate Points on Nonconvex Pareto Frontiers. AIAA Journal, 2000, 38, 1084-1091.	1.5	121
100	Exploration of the Effectiveness of Physical Programming in Robust Design. Journal of Mechanical Design, Transactions of the ASME, 2000, 122, 155-163.	1.7	112
101	A robust design approach using Physical Programming. , 2000, , .		9
102	Physical programming - A mathematical perspective. , 2000, , .		8
103	Interactive Physical Programming: Tradeoff Analysis and Decision Making in Multicriteria Optimization. AIAA Journal, 2000, 38, 917-926.	1.5	65
104	VISUALIZING THE OPTIMIZATION PROCESS IN REAL-TIME USING PHYSICAL PROGRAMMING. Engineering Optimization, 2000, 32, 721-747.	1.5	48
105	From dubious construction of objective functions to the application of physical programming. AIAA Journal, 2000, 38, 155-163.	1.5	7
106	Ability of objective functions to generate points on nonconvex Pareto frontiers. AIAA Journal, 2000, 38, 1084-1091.	1.5	10
107	Physical programming's ability to generate a well-distributed set of Pareto points. , 2000, , .		14
108	The ability of objective functions to generate non-convex Pareto frontiers. , 1999, , .		10

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109	Physical programming for robust design. , 1999, , .		11
110	Optimal Design of a Vibration Isolation Mount Using Physical Programming. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 1999, 121, 171-178.	0.9	8
111	Interactive physical programming - Tradeoff analysis and decision making in multicriteria optimization. , 1999, , .		3
112	Control-Structure Integrated Design with Closed-Form Design Metrics Using Physical Programming. AIAA Journal, 1998, 36, 855-864.	1.5	50
113	Visualizing the optimization process in real-time using physical programming. , 1998, , .		4
114	Physical Programming for Computational Control. AIAA Journal, 1998, 36, 219-226.	1.5	58
115	A new family of convex splines for data interpolation. Computer Aided Geometric Design, 1997, 15, 39-59.	0.5	6
116	Physical programming - Effective optimization for computational design. , 1996, , .		6
117	From the dubious art of constructing objective functions to the application of physical programming. , 1996, , .		7
118	Physical programming - Effective optimization for computational design. AIAA Journal, 1996, 34, 149-158.	1.5	436
119	Physical programming design optimization for High Speed Civil Transport. Journal of Aircraft, 1996, 33, 446-449.	1.7	36
120	Computational control design of a benchmark problem using physical programming. , 1996, , .		2
121	High Speed Civil Transport (HSCT) plane design using physical programming. , 1995, , .		11
122	Control-structure integrated design. AIAA Journal, 1992, 30, 2124-2131.	1.5	33