Xiaodong Huang

List of Publications by Year
in descending order

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150 papers	7,309 citations	57719 44 h-index	66879 78 g-index
150 all docs	150 docs citations	150 times ranked	3319 citing authors

#	Article	IF	Citations
1	A cascadic multilevel optimization framework for the concurrent design of the fiber-reinforced composite structure through the NURBS surface. Engineering With Computers, 2023, 39, 2735-2756.	3.5	2
2	Inverse design of second-order photonic topological insulators in C3-symmetric lattices. Applied Mathematical Modelling, 2022, 102, 194-206.	2.2	11
3	Topological design of sandwich structures filling with poroelastic materials for sound insulation. Finite Elements in Analysis and Design, 2022, 199, 103650.	1.7	13
4	Stress-based topology optimization of continuum structures for the elastic contact problems with friction. Structural and Multidisciplinary Optimization, 2022, 65, 54.	1.7	6
5	Stress-based multi-material structural topology optimization considering graded interfaces. Computer Methods in Applied Mechanics and Engineering, 2022, 391, 114602.	3.4	17
6	Additively manufactured fiber-reinforced composites: A review of mechanical behavior and opportunities. Journal of Materials Science and Technology, 2022, 119, 219-244.	5.6	33
7	Topology optimization of multi-material structures with explicitly graded interfaces. Computer Methods in Applied Mechanics and Engineering, 2022, 398, 115166.	3.4	9
8	Observation of Emergent Dirac Physics at the Surfaces of Acoustic Higherâ€Order Topological Insulators. Advanced Science, 2022, 9, .	5.6	9
9	Acoustic hologram of the metasurface with phased arrays via optimality criteria. Mechanical Systems and Signal Processing, 2022, 180, 109420.	4.4	4
10	Creating acoustic topological insulators through topology optimization. Mechanical Systems and Signal Processing, 2021, 146, 107054.	4.4	57
11	On smooth or 0/1 designs of the fixed-mesh element-based topology optimization. Advances in Engineering Software, 2021, 151, 102942.	1.8	35
12	An ultrahigh sensitivity micro-cliff graphene wearable pressure sensor made by instant flash light exposure. Nanoscale, 2021, 13, 15380-15393.	2.8	9
13	Dual-Polarization Second-Order Photonic Topological Insulators. Physical Review Applied, 2021, 15, .	1.5	31
14	Optimizing Support Locations in the Roofâ€“Column Structural System. Applied Sciences (Switzerland), 2021, 11, 2775.	1.3	8
15	Hybrid anisotropic plasmonic metasurfaces with multiple resonances of focused light beams. Nano Letters, 2021, 21, 8917-8923.	4.5	76
16	Smooth topological design of structures with minimum length scale and chamfer/round controls. Computer Methods in Applied Mechanics and Engineering, 2021, 383, 113939.	3.4	10
17	Controlling the maximum stress in structural stiffness topology optimization of geometrical and material nonlinear structures. Structural and Multidisciplinary Optimization, 2021, 64, 3971-3998.	1.7	3
18	A new multi-material topology optimization algorithm and selection of candidate materials. Computer Methods in Applied Mechanics and Engineering, 2021, 386, 114114.	3.4	25

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19	Concurrent topology optimization of structures and orientation of anisotropic materials. Engineering Optimization, 2020, 52, 1598-1611.	1.5	17
20	Parametric studies and manufacturability experiments on smooth self-supporting topologies. Virtual and Physical Prototyping, 2020, 15, 22-34.	5.3	18
21	Topology optimization of structures considering local material uncertainties in additive manufacturing. Computer Methods in Applied Mechanics and Engineering, 2020, 360, 112786.	3.4	25
22	Concurrent optimization of macrostructures and material microstructures and orientations for maximizing natural frequency. Engineering Structures, 2020, 209, 109997.	2.6	8
23	Realization of multidimensional sound propagation in 3D acoustic higher-order topological insulator. Applied Physics Letters, 2020, 117, .	1.5	15
24	SEMDOT: Smooth-edged material distribution for optimizing topology algorithm. Advances in Engineering Software, 2020, 150, 102921.	1.8	33
25	Topology optimization of dynamic acousticâ€“mechanical structures using the ersatz material model. Computer Methods in Applied Mechanics and Engineering, 2020, 372, 113387.	3.4	22
26	Coding metalens with helical-structured units for acoustic focusing and splitting. Applied Physics Letters, 2020, 117, .	1.5	33
27	Vibration attenuation analysis of periodic underground barriers using complex band diagrams. Computers and Geotechnics, 2020, 128, 103821.	2.3	26
28	Smooth topological design of structures using the floating projection. Engineering Structures, 2020, 208, 110330.	2.6	47
29	Smooth topological design of 3D continuum structures using elemental volume fractions. Computers and Structures, 2020, 231, 106213.	2.4	19
30	Adhesive bond-electromagnetic rivet hybrid joining technique for CFRP/Al structure: Process, design and property. Composite Structures, 2020, 244, 112316.	3.1	30
31	Inverse design of higher-order photonic topological insulators. Physical Review Research, 2020, 2, .	1.3	42
32	Optimizing 3D Self-Supporting Topologies for Additive Manufacturing. , 2020, , .		0
33	Maximizing wave attenuation in viscoelastic phononic crystals by topology optimization. Ultrasonics, 2019, 94, 419-429.	2.1	35
34	Topological design of 3D chiral metamaterials based on couple-stress homogenization. Journal of the Mechanics and Physics of Solids, 2019, 131, 372-386.	2.3	66
35	Topological design of 3D phononic crystals for ultra-wide omnidirectional bandgaps. Structural and Multidisciplinary Optimization, 2019, 60, 2405-2415.	1.7	39
36	Design and experimental validation of self-supporting topologies for additive manufacturing. Virtual and Physical Prototyping, 2019, 14, 382-394.	5.3	43

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37	Experimental observations of the double shock deformation mode in density graded honeycombs. International Journal of Impact Engineering, 2019, 134, 103386.	2.4	32
38	Inverse Design of Photonic Topological Insulators with Extraâ€Wide Bandgaps. Physica Status Solidi - Rapid Research Letters, 2019, 13, 1900175.	1.2	28
39	Topology Optimization of Photonic and Phononic Crystals and Metamaterials: A Review. Advanced Theory and Simulations, 2019, 2, 1900017.	1.3	107
40	Concurrent topology design of structures and materials with optimal material orientation. Composite Structures, 2019, 220, 473-480.	3.1	25
41	Evolutionary topology optimization of continuum structures considering fatigue failure. Materials and Design, 2019, 166, 107586.	3.3	30
42	Stress optimization of smooth continuum structures based on the distortion strain energy density. Computer Methods in Applied Mechanics and Engineering, 2019, 343, 276-296.	3.4	26
43	Designing photonic materials with complete band gaps by topology optimization. Smart Materials and Structures, 2019, 28, 015025.	1.8	10
44	Topology optimization of photonic crystals with exotic properties resulting from Dirac-like cones. Acta Materialia, 2019, 164, 377-389.	3.8	35
45	Stress Minimization of Structures Based on Bidirectional Evolutionary Procedure. Journal of Structural Engineering, 2019, 145, 04018256.	1.7	12
46	Topology optimization of viscoelastic materials on damping and frequency of macrostructures. Computer Methods in Applied Mechanics and Engineering, 2018, 337, 305-323.	3.4	36
47	Evolutionary topology optimization of continuum structures with smooth boundary representation. Structural and Multidisciplinary Optimization, 2018, 57, 2143-2159.	1.7	85
48	Designing broad phononic band gaps for in-plane modes. Physics Letters, Section A: General, Atomic and Solid State Physics, 2018, 382, 679-684.	0.9	37
49	Influence of thickness of composite layers on failure behaviors of carbon fiber reinforced plastics/aluminum alloy electromagnetic riveted lap joints under high-speed loading. International Journal of Impact Engineering, 2018, 115, 1-9.	2.4	38
50	Optimization for twist chirality of structural materials induced by axial strain. Materials Today Communications, 2018, 15, 175-184.	0.9	28
51	Bi-directional Evolutionary Structural Optimization on Advanced Structures and Materials: A Comprehensive Review. Archives of Computational Methods in Engineering, 2018, 25, 437-478.	6.0	214
52	Optimal microstructures of elastoplastic cellular materials under various macroscopic strains. Mechanics of Materials, 2018, 118, 120-132.	1.7	16
53	Topological configuration analysis and design for foam filled multi-cell tubes. Engineering Structures, 2018, 155, 235-250.	2.6	103
54	Topologyâ€Optimized 3D Photonic Structures with Maximal Omnidirectional Bandgaps. Advanced Theory and Simulations, 2018, 1, 1800122.	1.3	10

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55	On-Demand Design of Tunable Complete Photonic Band Gaps based on Bloch Mode Analysis. Scientific Reports, 2018, 8, 14283.	1.6	21
56	Crashworthiness optimization of automotive parts with tailor rolled blank. Engineering Structures, 2018, 169, 201-215.	2.6	58
57	Multi-objective topology optimization of a vehicle door using multiple material tailor-welded blank (TWB) technology. Advances in Engineering Software, 2018, 124, 1-9.	1.8	35
58	Shell buckling: from morphogenesis of soft matter to prospective applications. Bioinspiration and Biomimetics, 2018, 13, 051001.	1.5	14
59	Topology Optimization of Viscoelastic Materials for Maximizing Damping and Natural Frequency of Macrostructures. , 2018, , 1738-1756.		0
60	Maximizing spatial decay of evanescent waves in phononic crystals by topology optimization. Computers and Structures, 2017, 182, 430-447.	2.4	50
61	Achieving Large Band Gaps in 2D Symmetric and Asymmetric Photonic Crystals. Journal of Lightwave Technology, 2017, 35, 1670-1676.	2.7	22
62	Topological design of structures under dynamic periodic loads. Engineering Structures, 2017, 142, 128-136.	2.6	24
63	Topological design of phononic crystals for unidirectional acoustic transmission. Journal of Sound and Vibration, 2017, 410, 103-123.	2.1	51
64	All-angle negative refraction flatlens with a broad bandwidth. Photonics and Nanostructures - Fundamentals and Applications, 2017, 27, 11-16.	1.0	3
65	To avoid unpractical optimal design without support. Structural and Multidisciplinary Optimization, 2017, 56, 1589-1595.	1.7	7
66	Microstructural design for 2D photonic crystals with large polarization-independent band gaps. Materials Letters, 2017, 207, 176-178.	1.3	9
67	Broadband All-angle Negative Refraction by Optimized Phononic Crystals. Scientific Reports, 2017, 7, 7445.	1.6	18
68	Topological design of phononic band gap crystals with sixfold symmetric hexagonal lattice. Computational Materials Science, 2017, 139, 97-105.	1.4	42
69	Reliable optimisation design of vehicle structure crashworthiness under multiple impact cases. International Journal of Crashworthiness, 2017, 22, 26-37.	1.1	12
70	Topological Design of Cellular Phononic Band Gap Crystals. Materials, 2016, 9, 186.	1.3	51
71	A finite-element approach to evaluating the size effects of complex nanostructures. Royal Society Open Science, 2016, 3, 160625.	1.1	6
72	Reliability-based multiobjective optimisation of vehicle bumper structure holes for the pedestrian flexible legform impact. International Journal of Crashworthiness, 2016, 21, 198-210.	1.1	13

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73	Concurrent topological design of composite thermoelastic macrostructure and microstructure with multi-phase material for maximum stiffness. Composite Structures, 2016, 150, 84-102.	3.1	42
74	Topology optimization of periodic structures using BESO based on unstructured design points. Structural and Multidisciplinary Optimization, 2016, 53, 271-275.	1.7	21
75	A Kirigami Approach to Forming a Synthetic Buckliball. Scientific Reports, 2016, 6, 33016.	1.6	9
76	On the shape transformation of cone scales. Soft Matter, 2016, 12, 9797-9802.	1.2	21
77	Topology optimization of photonic structures for all-angle negative refraction. Finite Elements in Analysis and Design, 2016, 117-118, 46-56.	1.7	20
78	Effects of electric field and pressure on the shrinkage behaviors of cylindrical pore in piezoelectric materials. International Journal of Damage Mechanics, 2016, 25, 491-505.	2.4	0
79	Concurrent topology optimization of macrostructures and material microstructures for natural frequency. Materials and Design, 2016, 106, 380-390.	3.3	42
80	Two-scale dynamic optimal design of composite structures in the time domain using equivalent static loads. Composite Structures, 2016, 142, 335-345.	3.1	23
81	Design of lattice structures with controlled anisotropy. Materials and Design, 2016, 93, 443-447.	3.3	212
82	Evolutionary topological design for phononic band gap crystals. Structural and Multidisciplinary Optimization, 2016, 54, 595-617.	1.7	93
83	A study on the critical wall thickness of the inner tube for magnetic pulse welding of tubular Alâ€“Fe parts. Journal of Materials Processing Technology, 2016, 227, 138-146.	3.1	32
84	Investigating size effects of complex nanostructures through Young-Laplace equation and finite element analysis. Journal of Applied Physics, 2015, 118, 204301.	1.1	3
85	Comparison of functionally-graded structures under multiple loading angles. Thin-Walled Structures, 2015, 94, 334-347.	2.7	75
86	Topology Optimization of an Automotive Tailor-Welded Blank Door. Journal of Mechanical Design, Transactions of the ASME, 2015, 137, .	1.7	26
87	Dynamical bending analysis and optimization design for functionally graded thickness (FGT) tube. International Journal of Impact Engineering, 2015, 78, 128-137.	2.4	73
88	Multiobjective robust optimization for crashworthiness design of foam filled thin-walled structures with random and interval uncertainties. Engineering Structures, 2015, 88, 111-124.	2.6	65
89	Numerical investigation of compressive behaviour of luffa-filled tubes. Composites Part B: Engineering, 2015, 73, 149-157.	5.9	21
90	Buckling-induced retraction of spherical shells: A study on the shape of aperture. Scientific Reports, 2015, 5, 11309.	1.6	10

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91	A method to evaluate the formability of high-strength steel in hot stamping. Materials & Design, 2015, 77, 95-109.	5.1	58
92	Bi-directional evolutionary optimization for photonic band gap structures. Journal of Computational Physics, 2015, 302, 393-404.	1.9	56
93	Topology optimization for microstructures of viscoelastic composite materials. Computer Methods in Applied Mechanics and Engineering, 2015, 283, 503-516.	3.4	79
94	Two-scale optimal design of structures with thermal insulation materials. Composite Structures, 2015, 120, 358-365.	3.1	55
95	Inertia Effect on Buckling-Induced Auxetic Metamaterials. International Journal of Protective Structures, 2015, 6, 311-322.	1.4	7
96	Design of fishnet metamaterials with broadband negative refractive index in the visible spectrum. Optics Letters, 2014, 39, 2415.	1.7	21
97	Towards ultra-stiff materials: Surface effects on nanoporous materials. Applied Physics Letters, 2014, 105, .	1.5	10
98	Evolutionary topology optimization of hinge-free compliant mechanisms. International Journal of Mechanical Sciences, 2014, 86, 69-75.	3.6	17
99	Concurrent topology optimization of structures and their composite microstructures. Computers and Structures, 2014, 133, 103-110.	2.4	121
100	Simple cubic three-dimensional auxetic metamaterials. Physica Status Solidi (B): Basic Research, 2014, 251, 1515-1522.	0.7	109
101	Crushing analysis and multiobjective optimization for functionally graded foam-filled tubes under multiple load cases. International Journal of Mechanical Sciences, 2014, 89, 439-452.	3.6	96
102	Topology optimization of compliant mechanisms with desired structural stiffness. Engineering Structures, 2014, 79, 13-21.	2.6	48
103	Designing orthotropic materials for negative or zero compressibility. International Journal of Solids and Structures, 2014, 51, 4038-4051.	1.3	71
104	Determination of mechanical properties of the weld line by combining micro-indentation with inverse modeling. Computational Materials Science, 2014, 85, 347-362.	1.4	42
105	Maximizing stiffness of functionally graded materials with prescribed variation of thermal conductivity. Computational Materials Science, 2014, 82, 457-463.	1.4	21
106	Water-responsive rapid recovery of natural cellular material. Journal of the Mechanical Behavior of Biomedical Materials, 2014, 34, 283-293.	1.5	28
107	Topological design of microstructures of multi-phase materials for maximum stiffness or thermal conductivity. Computational Materials Science, 2014, 91, 266-273.	1.4	44
108	Application of Topological Optimisation Technology to Bridge Design. Structural Engineering International: Journal of the International Association for Bridge and Structural Engineering (IABSE), 2014, 24, 185-191.	0.5	10

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109	Multiobjective optimization design for vehicle occupant restraint system under frontal impact. Structural and Multidisciplinary Optimization, 2013, 47, 465-477.	1.7	29
110	Topological optimization for the design of microstructures of isotropic cellular materials. Engineering Optimization, 2013, 45, 1331-1348.	1.5	88
111	Behaviour of luffa sponge material under dynamic loading. International Journal of Impact Engineering, 2013, 57, 17-26.	2.4	63
112	Fishnet metamaterial with double negative refractive index in blue region of visible spectrum. Proceedings of SPIE, 2013, , .	0.8	1
113	Multi-scale design of composite materials and structures for maximum natural frequencies. Materials & Design, 2013, 51, 1023-1034.	5.1	77
114	Comparing optimal material microstructures with optimal periodic structures. Computational Materials Science, 2013, 69, 137-147.	1.4	28
115	Identification of material parameters for aluminum foam at high strain rate. Computational Materials Science, 2013, 74, 65-74.	1.4	27
116	Design of 3D orthotropic materials with prescribed ratios for effective Youngâ€™s moduli. Computational Materials Science, 2013, 67, 229-237.	1.4	32
117	Topology optimization of microstructures of cellular materials and composites for macrostructures. Computational Materials Science, 2013, 67, 397-407.	1.4	146
118	Predicting the effective stiffness of cellular and composite materials with self-similar hierarchical microstructures. Journal of Mechanics of Materials and Structures, 2013, 8, 341-357.	0.4	10
119	A study of shape optimization on the metallic nanoparticles for thin-film solar cells. Nanoscale Research Letters, 2013, 8, 447.	3.1	7
120	Evolutionary Topology Optimization of Structures with Multiple Displacement and Frequency Constraints. Advances in Structural Engineering, 2012, 15, 359-372.	1.2	40
121	Mechanical properties of luffa sponge. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 15, 141-152.	1.5	121
122	Design and fabrication of biphasic cellular materials with transport properties â€“ A modified bidirectional evolutionary structural optimization procedure and MATLAB program. International Journal of Heat and Mass Transfer, 2012, 55, 8149-8162.	2.5	25
123	Convergence of topological patterns of optimal periodic structures under multiple scales. Structural and Multidisciplinary Optimization, 2012, 46, 41-50.	1.7	40
124	Topology Optimization of Composite Structure Using Bi-Directional Evolutionary Structural Optimization Method. Procedia Engineering, 2011, 14, 2980-2985.	1.2	17
125	Topological design of microstructures of cellular materials for maximum bulk or shear modulus. Computational Materials Science, 2011, 50, 1861-1870.	1.4	224
126	Evolutionary topology optimization of continuum structures including design-dependent self-weight loads. Finite Elements in Analysis and Design, 2011, 47, 942-948.	1.7	52

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127	Reinventing the Wheel. Journal of Mechanical Design, Transactions of the ASME, 2011, 133, .	1.7	15
128	Optimal Topological Design of Periodic Structures for Natural Frequencies. Journal of Structural Engineering, 2011, 137, 1229-1240.	1.7	28
129	Shape and Reinforcement Optimization of Underground Tunnels. Journal of Computational Science and Technology, 2010, 4, 51-63.	0.4	20
130	Natural frequency optimization of structures using a soft-kill BESO method. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012191.	0.3	3
131	Evolutionary topology optimization of continuum structures with an additional displacement constraint. Structural and Multidisciplinary Optimization, 2010, 40, 409-416.	1.7	95
132	A further review of ESO type methods for topology optimization. Structural and Multidisciplinary Optimization, 2010, 41, 671-683.	1.7	302
133	Evolutionary topological optimization of vibrating continuum structures for natural frequencies. Computers and Structures, 2010, 88, 357-364.	2.4	203
134	Shape optimization of metallic yielding devices for passive mitigation of seismic energy. Engineering Structures, 2010, 32, 2258-2267.	2.6	110
135	Recent developments in evolutionary structural optimization (ESO) for continuum structures. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012196.	0.3	12
136	AN IMPROVED BI-DIRECTIONAL EVOLUTIONARY TOPOLOGY OPTIMIZATION METHOD FOR FREQUENCIES. International Journal of Structural Stability and Dynamics, 2010, 10, 55-75.	1.5	20
137	Bi-directional evolutionary topology optimization of continuum structures with one or multiple materials. Computational Mechanics, 2009, 43, 393-401.	2.2	392
138	Combining genetic algorithms with BESO for topology optimization. Structural and Multidisciplinary Optimization, 2009, 38, 511-523.	1.7	40
139	Optimal design of periodic structures using evolutionary topology optimization. Structural and Multidisciplinary Optimization, 2008, 36, 597-606.	1.7	112
140	Topology optimization of nonlinear structures under displacement loading. Engineering Structures, 2008, 30, 2057-2068.	2.6	109
141	Bidirectional Evolutionary Topology Optimization for Structures with Geometrical and Material Nonlinearities. AIAA Journal, 2007, 45, 308-313.	1.5	44
142	Topology optimization of energy-absorbing structures. International Journal of Crashworthiness, 2007, 12, 663-675.	1.1	67
143	Advantages of Bi-Directional Evolutionary Structural Optimization (BESO) over Evolutionary Structural Optimization (ESO). Advances in Structural Engineering, 2007, 10, 727-737.	1.2	35
144	Convergent and mesh-independent solutions for the bi-directional evolutionary structural optimization method. Finite Elements in Analysis and Design, 2007, 43, 1039-1049.	1.7	573

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145	A New Algorithm for Bi-Directional Evolutionary Structural Optimization. JSME International Journal Series C-Mechanical Systems Machine Elements and Manufacturing, 2006, 49, 1091-1099.	0.3	49
146	Energy absorption of metallic structures involving ductile tearing. International Journal of Vehicle Design, 2005, 37, 224.	0.1	2
147	Bending hinge characteristic of thin-walled square tubes. International Journal of Crashworthiness, 2005, 10, 275-285.	1.1	17
148	Energy absorption in splitting square metal tubes. Thin-Walled Structures, 2002, 40, 153-165.	2.7	65
149	On the axial splitting and curling of circular metal tubes. International Journal of Mechanical Sciences, 2002, 44, 2369-2391.	3.6	102
150	Luffa Sponge as a Sustainable Engineering Material. Applied Mechanics and Materials, 0, 238, 3-8.	0.2	2