

Jonathan Cagan

List of Publications by Year in descending order

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Version: 2024-02-01

135
papers

4,108
citations

101384

36
h-index

138251

58
g-index

137
all docs

137
docs citations

137
times ranked

1605
citing authors

#	ARTICLE	IF	CITATIONS
1	Determinants of creative thinking: the effect of task characteristics in solving remote associate test problems. <i>Thinking and Reasoning</i> , 2022, 28, 163-192.	2.1	1
2	Human Versus Artificial Intelligence: A Data-Driven Approach to Real-Time Process Management During Complex Engineering Design. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2022, 144, .	1.7	16
3	When Faced With Increasing Complexity: The Effectiveness of Artificial Intelligence Assistance for Drone Design. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2022, 144, .	1.7	9
4	Human confidence in artificial intelligence and in themselves: The evolution and impact of confidence on adoption of AI advice. <i>Computers in Human Behavior</i> , 2022, 127, 107018.	5.1	58
5	Tracking of Scalpel Motions With an Inertial Measurement Unit System. <i>IEEE Sensors Journal</i> , 2022, 22, 4651-4660.	2.4	4
6	Data on the Human Versus artificial intelligence process management experiment. <i>Data in Brief</i> , 2022, 41, 107917.	0.5	3
7	Decoding the agility of artificial intelligence-assisted human design teams. <i>Design Studies</i> , 2022, 79, 101094.	1.9	15
8	An Adversarial Agent-Based Design Method Using Stochastic Stackelberg Game Conditions. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2021, 143, .	1.7	0
9	Only as Strong as the Strongest Link: The Relative Contribution of Individual Team Member Proficiency in Configuration Design. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2021, 143, .	1.7	8
10	Generating DNA Origami Nanostructures through Shape Annealing. <i>Applied Sciences (Switzerland)</i> , 2021, 11, 2950.	1.3	4
11	The Influence of Process Management: Uncovering the Impact of Real-Time Managerial Interventions via a Topic Modeling Approach. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2021, 143, .	1.7	4
12	A strategic decision-making architecture toward hybrid teams for dynamic competitive problems. <i>Decision Support Systems</i> , 2021, 144, 113490.	3.5	9
13	Data on the design and operation of drones by both individuals and teams. <i>Data in Brief</i> , 2021, 36, 107008.	0.5	8
14	Goal-Directed Design Agents: Integrating Visual Imitation With One-Step Lookahead Optimization for Generative Design. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2021, 143, .	1.7	10
15	COMMUNICATION IN AI-ASSISTED TEAMS DURING AN INTERDISCIPLINARY DRONE DESIGN PROBLEM. <i>Proceedings of the Design Society</i> , 2021, 1, 651-660.	0.5	4
16	A cautionary tale about the impact of AI on human design teams. <i>Design Studies</i> , 2021, 72, 100990.	1.9	29
17	Taking the Guess Work Out of the Initial Guess: A Solution Interval Method for Least-Squares Parameter Estimation in Nonlinear Models. <i>Journal of Computing and Information Science in Engineering</i> , 2021, 21, .	1.7	5
18	Data-Driven Heuristic Induction From Human Design Behavior. <i>Journal of Computing and Information Science in Engineering</i> , 2021, 21, .	1.7	6

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19	Decidual Vasculopathy Identification in Whole Slide Images Using Multiresolution Hierarchical Convolutional Neural Networks. <i>American Journal of Pathology</i> , 2020, 190, 2111-2122.	1.9	17
20	Written in Blood: Applying Shape Grammars to Retinal Vasculatures. <i>Translational Vision Science and Technology</i> , 2020, 9, 36.	1.1	3
21	Heuristic-Guided Solution Search Through a Two-Tiered Design Grammar. <i>Journal of Computing and Information Science in Engineering</i> , 2020, 20, .	1.7	6
22	Adaptive Inspirational Design Stimuli: Using Design Output to Computationally Search for Stimuli That Impact Concept Generation. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2020, 142, .	1.7	29
23	A neuroimaging investigation of design ideation with and without inspirational stimuli—understanding the meaning of near and far stimuli. <i>Design Studies</i> , 2019, 60, 1-38.	1.9	69
24	Transferring Design Strategies From Human to Computer and Across Design Problems. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2019, 141, .	1.7	19
25	Exploring the Application of Network Analytics in Characterizing a Conceptual Design Space. <i>Proceedings of the Design Society International Conference on Engineering Design</i> , 2019, 1, 1953-1962.	0.6	4
26	Crowdsourcing inspiration: Using crowd generated inspirational stimuli to support designer ideation. <i>Design Studies</i> , 2019, 61, 1-29.	1.9	71
27	An Exploration of the Effects of Managerial Intervention on Engineering Design Team Performance. , 2019, , 613-629.		0
28	Wisdom of Microcrowds in Evaluating Solutions to Esoteric Engineering Problems. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2019, 141, .	1.7	3
29	Are you better off alone? Mitigating the underperformance of engineering teams during conceptual design through adaptive process management. <i>Research in Engineering Design - Theory, Applications, and Concurrent Engineering</i> , 2019, 30, 85-102.	1.2	16
30	Learning to Design From Humans: Imitating Human Designers Through Deep Learning. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2019, 141, .	1.7	52
31	Unsuccessful External Search: Using Neuroimaging to Understand Fruitless Periods of Design Ideation Involving Inspirational Stimuli. , 2019, , 37-54.		0
32	Data on the design of truss structures by teams of engineering students. <i>Data in Brief</i> , 2018, 18, 160-163.	0.5	9
33	Design Strategy Transfer in Cognitively-Inspired Agents. , 2018, , .		7
34	A Two-Tiered Grammatical Approach for Agent-Based Computational Design. , 2018, , .		3
35	Should Teams Collaborate During Conceptual Engineering Design? An Experimental Study. , 2018, , .		4
36	Inspired Internal Search: Using Neuroimaging to Understand Design Ideation and Concept Generation With Inspirational Stimuli. , 2018, , .		4

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37	Efficient probabilistic grammar induction for design. <i>Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM</i> , 2018, 32, 177-188.	0.7	7
38	Silence is golden: The effect of verbalization on group performance.. <i>Journal of Experimental Psychology: General</i> , 2018, 147, 939-944.	1.5	5
39	Inside the Mind: Using Neuroimaging to Understand Moral Product Preference Judgments Involving Sustainability. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2017, 139, .	1.7	43
40	Optimizing Design Teams Based on Problem Properties: Computational Team Simulations and an Applied Empirical Test. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2017, 139, .	1.7	38
41	Interrupted: The roles of distributed effort and incubation in preventing fixation and generating problem solutions. <i>Memory and Cognition</i> , 2017, 45, 553-565.	0.9	14
42	Data on the configuration design of internet-connected home cooling systems by engineering students. <i>Data in Brief</i> , 2017, 14, 773-776.	0.5	5
43	Robust mechanobiological behavior emerges in heterogeneous myosin systems. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, E8147-E8154.	3.3	5
44	Capturing Human Sequence-Learning Abilities in Configuration Design Tasks Through Markov Chains. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2017, 139, .	1.7	39
45	Powerâ€“Velocity Process Design Charts for Powder Bed Additive Manufacturing. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2017, 139, .	1.7	32
46	Impossible by design? Fairness, strategy, and Arrowâ€™s impossibility theorem. <i>Design Science</i> , 2017, 3, .	1.1	7
47	Mining Process Heuristics From Designer Action Data via Hidden Markov Models. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2017, 139, .	1.7	40
48	Utilizing Markov Chains to Understand Operation Sequencing in Design Tasks. , 2017, , 401-418.		14
49	The facilitating role of task alternation on group idea generation.. <i>Journal of Applied Research in Memory and Cognition</i> , 2017, 6, 486-495.	0.7	2
50	Linking Properties of Design Problems to Optimal Team Characteristics. , 2016, , .		2
51	The Effect of Product Representation in Visual Conjoint Analysis. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2016, 138, .	1.7	14
52	A hybrid extended pattern search/genetic algorithm for multi-stage wind farm optimization. <i>Optimization and Engineering</i> , 2016, 17, 77-103.	1.3	13
53	An advanced modeling system for optimization of wind farm layout and wind turbine sizing using a multi-level extended pattern search algorithm. <i>Energy</i> , 2016, 106, 802-814.	4.5	65
54	Drawing Inspiration From Human Design Teams for Better Search and Optimization: The Heterogeneous Simulated Annealing Teams Algorithm. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2016, 138, .	1.7	14

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55	The D3 Methodology: Bridging Science and Design for Bio-Based Product Development. Journal of Mechanical Design, Transactions of the ASME, 2016, 138, .	1.7	10
56	Human and Computational Approaches for Design Problem-Solving. , 2016, , 187-205.		6
57	Improving human understanding and design of complex multi-level systems with animation and parametric relationship supports. Design Science, 2015, 1, .	1.1	9
58	Studying Human Design Teams via Computational Teams of Simulated Annealing Agents. , 2015, , .		1
59	Exploring the Role of Interaction Effects in Visual Conjoint Analysis. Journal of Mechanical Design, Transactions of the ASME, 2015, 137, .	1.7	7
60	Empirical Studies of Designer Thinking: Past, Present, and Future. Journal of Mechanical Design, Transactions of the ASME, 2015, 137, .	1.7	85
61	Rolling with the punches: An examination of team performance in a design task subject to drastic changes. Design Studies, 2015, 36, 99-121.	1.9	48
62	Emergent Systems Energy Laws for Predicting Myosin Ensemble Processivity. PLoS Computational Biology, 2015, 11, e1004177.	1.5	13
63	Lifting the Veil: Drawing insights about design teams from a cognitively-inspired computational model. Design Studies, 2015, 40, 119-142.	1.9	54
64	Fixation or inspiration? A meta-analytic review of the role of examples on design processes. Design Studies, 2015, 39, 70-99.	1.9	142
65	Synergistic human-agent methods for deriving effective search strategies: the case of nanoscale design. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2015, 26, 145-169.	1.2	16
66	The Impact of Sustainability on Consumer Preference Judgments of Product Attributes. Journal of Mechanical Design, Transactions of the ASME, 2015, 137, .	1.7	33
67	Cognitive-Based Search Strategies for Complex Bio-Nanotechnology Design Derived Through Symbiotic Human and Agent-Based Approaches. , 2014, , .		7
68	Experiential Conjoint Analysis: An Experience-Based Method for Eliciting, Capturing, and Modeling Consumer Preference. Journal of Mechanical Design, Transactions of the ASME, 2014, 136, .	1.7	24
69	Modeling Aggregate Choice for Form and Function Through Metaconjoint Analysis. Journal of Mechanical Design, Transactions of the ASME, 2014, 136, .	1.7	3
70	Design of Complex Biologically Based Nanoscale Systems Using Multi-Agent Simulations and Structure-â€Behavior-â€Function Representations. Journal of Mechanical Design, Transactions of the ASME, 2013, 135, .	1.7	11
71	Expert representation of design repository space: A comparison to and validation of algorithmic output. Design Studies, 2013, 34, 729-762.	1.9	15
72	Multi-Stage Optimization of Wind Farms With Limiting Factors. , 2013, , .		5

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73	Empirical Studies of Design Thinking: Past, Present, Future. , 2013, , .		11
74	The Meaning of "Near" and "Far": The Impact of Structuring Design Databases and the Effect of Distance of Analogy on Design Output. Journal of Mechanical Design, Transactions of the ASME, 2013, 135, .	1.7	177
75	Discovering Structure in Design Databases Through Functional and Surface Based Mapping. Journal of Mechanical Design, Transactions of the ASME, 2013, 135, .	1.7	76
76	Understanding Consumer Tradeoffs Between Form and Function Through Metaconjoint and Cognitive Neuroscience Analyses. Journal of Mechanical Design, Transactions of the ASME, 2013, 135, .	1.7	47
77	Testing the Basis for an Automated Design-by-Analogy Tool Through Comparison to Expert Thinking. , 2013, , .		2
78	Optimization of Wind Farm Layout and Wind Turbine Geometry Using a Multi-Level Extended Pattern Search Algorithm That Accounts for Variation in Wind Shear Profile Shape. , 2012, , .		11
79	The Meaning of "Near" and "Far": The Impact of Structuring Design Databases and the Effect of Distance of Analogy on Design Output. , 2012, , .		3
80	An Extended Pattern Search Approach to Wind Farm Layout Optimization. Journal of Mechanical Design, Transactions of the ASME, 2012, 134, .	1.7	55
81	Protocol-Based Multi-Agent Systems: Examining the Effect of Diversity, Dynamism, and Cooperation in Heuristic Optimization Approaches. Journal of Mechanical Design, Transactions of the ASME, 2011, 133, .	1.7	18
82	The effect of incidental hints when problems are suspended before, during, or after an impasse.. Journal of Experimental Psychology: Learning Memory and Cognition, 2011, 37, 140-148.	0.7	46
83	Search Strategies in Evolutionary Multi-Agent Systems: The Effect of Cooperation and Reward on Solution Quality. Journal of Mechanical Design, Transactions of the ASME, 2011, 133, .	1.7	4
84	Understanding Innovation: A Study of Perspectives and Perceptions in Engineering. , 2011, , .		1
85	Computer-Based Design Synthesis Research: An Overview. Journal of Computing and Information Science in Engineering, 2011, 11, .	1.7	159
86	On the Benefits and Pitfalls of Analogies for Innovative Design: Ideation Performance Based on Analogical Distance, Commonness, and Modality of Examples. Journal of Mechanical Design, Transactions of the ASME, 2011, 133, .	1.7	201
87	Discovering Structure in Design Databases Through Functional and Surface Based Mapping. , 2011, , .		2
88	Design Team Convergence: The Influence of Example Solution Quality. Journal of Mechanical Design, Transactions of the ASME, 2010, 132, .	1.7	62
89	Unlocking Organizational Potential: A Computational Platform for Investigating Structural Interdependence in Design. Journal of Mechanical Design, Transactions of the ASME, 2009, 131, .	1.7	12
90	Evolutionary Multi-Agent Systems: An Adaptive and Dynamic Approach to Optimization. Journal of Mechanical Design, Transactions of the ASME, 2009, 131, .	1.7	23

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91	Quantifying Aesthetic Form Preference in a Utility Function. Journal of Mechanical Design, Transactions of the ASME, 2009, 131, .	1.7	76
92	Multiagent Shape Grammar Implementation: Automatically Generating Form Concepts According to a Preference Function. Journal of Mechanical Design, Transactions of the ASME, 2009, 131, .	1.7	24
93	Design Team Convergence: The Influence of Example Solution Quality. , 2009, , .		0
94	A methodology for creating a statistically derived shape grammar composed of non-obvious shape chunks. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2008, 18, 181-196.	1.2	13
95	Identifying product shape relationships using principal component analysis. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2008, 18, 163-180.	1.2	31
96	The role of timing and analogical similarity in the stimulation of idea generation in design. Design Studies, 2008, 29, 203-221.	1.9	167
97	Automating the Creation of Shape Grammar Rules. , 2008, , 3-22.		9
98	Aligning Shape Rule Creation With Modular Design: Minimizing the Cost of Using Shape Grammars. , 2008, , .		2
99	A look at the emerging science of innovation. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 2007, 21, 13-14.	0.7	1
100	Objective Function Effect Based Pattern Searchâ€”Theoretical Framework Inspired by 3D Component Layout. Journal of Mechanical Design, Transactions of the ASME, 2007, 129, 243-254.	1.7	31
101	The influence of open goals on the acquisition of problem-relevant information.. Journal of Experimental Psychology: Learning Memory and Cognition, 2007, 33, 876-891.	0.7	59
102	The Cognition of Engineering Designâ€”An Opportunity of Impact. Cognitive Science, 2007, 31, 193-195.	0.8	0
103	Curve-Based Shape Matching: Supporting Designers' Hierarchies through Parametric Shape Recognition of Arbitrary Geometry. Environment and Planning B: Planning and Design, 2006, 33, 523-540.	1.7	17
104	The Role of Functionality in the Mental Representations of Engineering Students: Some Differences in the Early Stages of Expertise. Cognitive Science, 2006, 30, 65-93.	0.8	32
105	Creating cross-over vehicles: Defining and combining vehicle classes using shape grammars. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 2006, 20, 217-246.	0.7	53
106	Interagent ties in team-based computational configuration design. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 2004, 18, 135-152.	0.7	8
107	Learning from design experience in an agent-based design system. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2004, 15, 77.	1.2	20
108	Speaking the Buick language: capturing, understanding, and exploring brand identity with shape grammars. Design Studies, 2004, 25, 1-29.	1.9	192

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109	Exploring the Effectiveness of Various Patterns in an Extended Pattern Search Layout Algorithm. Journal of Mechanical Design, Transactions of the ASME, 2004, 126, 22-28.	1.7	7
110	Layout Optimization of Shapeable Components With Extended Pattern Search Applied to Transmission Design. Journal of Mechanical Design, Transactions of the ASME, 2004, 126, 188-191.	1.7	9
111	The A-Design approach to managing automated design synthesis. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2003, 14, 12-24.	1.2	35
112	Designing inner hood panels through a shape grammar based framework. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 2002, 16, 273-290.	0.7	25
113	Supporting Designers' Hierarchies through Parametric Shape Recognition. Environment and Planning B: Planning and Design, 2002, 29, 913-931.	1.7	24
114	Capturing a rebel: modeling the Harley-Davidson brand through a motorcycle shape grammar. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2002, 13, 139-156.	1.2	121
115	Agent-Based Synthesis of Electromechanical Design Configurations. Journal of Mechanical Design, Transactions of the ASME, 2000, 122, 61-69.	1.7	81
116	A Micro Language: Generating MEMS Resonators by Using a Coupled Form "Function Shape Grammar. Environment and Planning B: Planning and Design, 2000, 27, 615-626.	1.7	31
117	On the use of shape grammars as expert systems for geometry-based engineering design. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 2000, 14, 431-439.	0.7	19
118	An Extended Pattern Search Algorithm for Three-Dimensional Component Layout. Journal of Mechanical Design, Transactions of the ASME, 2000, 122, 102-108.	1.7	66
119	Influencing generative design through continuous evaluation: Associating costs with the coffeemaker shape grammar. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 1999, 13, 253-275.	0.7	29
120	Languages and semantics of grammatical discrete structures. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 1999, 13, 241-251.	0.7	48
121	The design of novel roof trusses with shape annealing: assessing the ability of a computational method in aiding structural designers with varying design intent. Design Studies, 1999, 20, 3-23.	1.9	58
122	A-Design: An Agent-Based Approach to Conceptual Design in a Dynamic Environment. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 1999, 11, 172-192.	1.2	118
123	Sampling uncertainty in coordinate measurement data analysis. Precision Engineering, 1998, 22, 153-163.	1.8	49
124	Innovative dome design: Applying geodesic patterns with shape annealing. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 1997, 11, 379-394.	0.7	68
125	Simulated Annealing and the Generation of the Objective Function: A Model of Learning During Problem Solving. Computational Intelligence, 1997, 13, 534-581.	2.1	27
126	GGREADA: A graph grammar-based machine design algorithm. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 1997, 9, 195-213.	1.2	65

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127	A conceptual framework for combining artificial intelligence and optimization in engineering design. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 1997, 9, 20-34.	1.2	19
128	ACTIVITY ANALYSIS: SIMPLIFYING OPTIMAL DESIGN PROBLEMS THROUGH QUALITATIVE PARTITIONING. Engineering Optimization, 1996, 27, 109-137.	1.5	9
129	Recursive annealing: A computational model for machine design. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 1995, 7, 102-125.	1.2	61
130	Shape annealing solution to the constrained geometric knapsack problem. CAD Computer Aided Design, 1994, 26, 763-770.	1.4	21
131	Input Variable Expansion: An algorithmic design generation technique. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 1992, 4, 101-113.	1.2	8
132	Dimensional Variable Expansion: A formal approach to innovative design. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 1991, 3, 75-85.	1.2	16
133	Inducing constraint activity in innovative design. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 1991, 5, 47-61.	0.7	10
134	Innovative design of mechanical structures from first principles. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 1987, 1, 169-189.	0.7	40
135	PLASHTRAN: An expert consultant on two-dimensional finite element modeling techniques. Engineering With Computers, 1987, 2, 199-208.	3.5	39