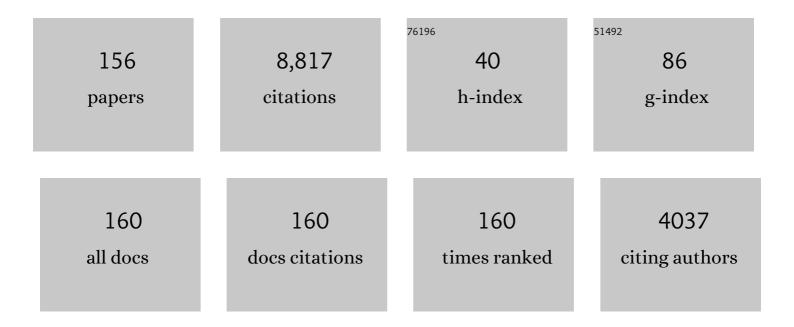
Timothy W Simpson

List of Publications by Year in descending order

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Version: 2024-02-01



#	Article	IF	CITATIONS
1	Rapid Response! Investigating the Effects of Problem Definition on the Characteristics of Additively Manufactured Solutions for COVID-19. Journal of Mechanical Design, Transactions of the ASME, 2022, 144, .	1.7	2
2	Mastering manufacturing: exploring the influence of engineering designers' prior experience when using design for additive manufacturing. Journal of Engineering Design, 2022, 33, 366-387.	1.1	7
3	Fresh in My Mind! Investigating the effects of the order of presenting opportunistic and restrictive design for additive manufacturing content on students' creativity. Journal of Engineering Design, 2021, 32, 187-212.	1.1	9
4	Value-driven design for product families: a new approach for estimating value and a novel industry case study. Structural and Multidisciplinary Optimization, 2021, 63, 2009-2033.	1.7	0
5	Six-Sigma Quality Management of Additive Manufacturing. Proceedings of the IEEE, 2021, 109, 347-376.	16.4	31
6	Maximizing design potential: investigating the effects of utilizing opportunistic and restrictive design for additive manufacturing in rapid response solutions. Rapid Prototyping Journal, 2021, 27, 1161-1171.	1.6	8
7	Design and manufacturability data on additively manufactured solutions for COVID-19. Data in Brief, 2021, 36, 107012.	0.5	4
8	Part filtering methods for additive manufacturing: A detailed review and a novel process-agnostic method. Additive Manufacturing, 2021, 47, 102115.	1.7	2
9	Ontology-based Process Map for Metal Additive Manufacturing. Journal of Materials Engineering and Performance, 2021, 30, 8784-8797.	1.2	17
10	Additive creativity: investigating the use of design for additive manufacturing to encourage creativity in the engineering design industry. International Journal of Design Creativity and Innovation, 2020, 8, 198-222.	0.8	18
11	Built to win? Exploring the role of competitive environments on students' creativity in design for additive manufacturing tasks. Journal of Engineering Design, 2020, 31, 574-604.	1.1	10
12	Mechanical properties of additively manufactured metal lattice structures: Data review and design interface. Additive Manufacturing, 2020, 35, 101301.	1.7	33
13	A sparsity preserving genetic algorithm for extracting diverse functional 3D designs from deep generative neural networks. Design Science, 2020, 6, .	1.1	3
14	Exploring the Effects of Additive Manufacturing Education on Students' Engineering Design Process and its Outcomes. Journal of Mechanical Design, Transactions of the ASME, 2020, 142, .	1.7	23
15	3D Design Using Generative Adversarial Networks and Physics-Based Validation. Journal of Mechanical Design, Transactions of the ASME, 2020, 142, .	1.7	49
16	Assessment of anisotropic mechanical properties of a 3D printed carbon whisker reinforced composite. Advanced Composite Materials, 2019, 28, 545-560.	1.0	12
17	Spatial Grammar-Based Recurrent Neural Network for Design Form and Behavior Optimization. Journal of Mechanical Design, Transactions of the ASME, 2019, 141, .	1.7	16
18	Full Field Strain Measurement of Material Extrusion Additive Manufacturing Parts with Solid and Sparse Infill Geometries. Jom, 2019, 71, 871-879.	0.9	5

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19	An Investigation of Surrogate Models for Efficient Performance-Based Decoding of 3D Point Clouds. Journal of Mechanical Design, Transactions of the ASME, 2019, 141, .	1.7	13
20	Achieving Functionally Graded Material Composition Through Bicontinuous Mesostructural Geometry in Material Extrusion Additive Manufacturing. Jom, 2018, 70, 413-418.	0.9	13
21	Design as a sequential decision process. Structural and Multidisciplinary Optimization, 2018, 57, 305-324.	1.7	15
22	Glasses-type wearable computer displays: usability considerations examined with a 3D glasses case study. Ergonomics, 2018, 61, 670-681.	1.1	10
23	Product Family Redesign Using Additive Manufacturing. , 2018, , .		1
24	A method to evaluate direct and indirect design dependencies between components in a product architecture. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2018, 29, 507-530.	1.2	6
25	A Model for Multi-Input Mechanical Advantage in Origami-Based Mechanisms. Journal of Mechanisms and Robotics, 2018, 10, .	1.5	19
26	Dissolvable Supports in Powder Bed Fusion-Printed Stainless Steel. 3D Printing and Additive Manufacturing, 2017, 4, 3-11.	1.4	59
27	Product Family and Product Platform Benchmarking With Commonality and Variety Indices. , 2017, , .		2
28	Value-Driven Design Using Discipline-Based Decomposition for a Family of Front-Loading Washing Machines. , 2017, , .		2
29	New modularity indices for modularity assessment and clustering of product architecture. Journal of Engineering Design, 2017, 28, 1-22.	1.1	45
30	Adding Value to Trade Space Exploration When Designing Complex Engineered Systems. Systems Engineering, 2017, 20, 131-146.	1.6	9
31	Problem Exploration With Many-Objective Visual Analytics. , 2016, , .		0
32	Global Views on Modular Design Research: Linking Alternative Methods to Support Modular Product Family Concept Development. Journal of Mechanical Design, Transactions of the ASME, 2016, 138, .	1.7	94
33	A Value-Driven Design Approach to Optimize a Family of Front-Loading Washing Machines. , 2016, , .		1
34	Quantifying tradeoffs to reduce the dimensionality of complex design optimization problems and expedite trade space exploration. Structural and Multidisciplinary Optimization, 2016, 54, 233-248.	1.7	8
35	Predicting Coherency Loss of \$\$ gamma^{primeprime} \$\$ Precipitates in IN718 Superalloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 3235-3247.	1.1	46
36	Multidisciplinary Analysis and Product Family Optimization of Front-Loading Washing Machines. , 2016, , .		0

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37	An integrated approach to product family redesign using commonality and variety metrics. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2016, 27, 391-412.	1.2	28
38	Dissolvable Metal Supports for 3D Direct Metal Printing. 3D Printing and Additive Manufacturing, 2016, 3, 90-97.	1.4	66
39	Design as a Sequential Decision Process: A Method for Reducing Design Set Space Using Models to Bound Objectives. , 2015, , .		12
40	An Integrated Approach to Product Family Redesign Using Commonality and Variety Metrics. , 2015, , .		1
41	Toward Metamodels for Composable and Reusable Additive Manufacturing Process Models. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2014, 136, .	1.3	54
42	Platform design variable identification for a product family using multi-objective particle swarm optimization. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2014, 25, 95-108.	1.2	49
43	Special Section on Multidisciplinary Design Optimization: Metamodeling in Multidisciplinary Design Optimization: How Far Have We Really Come?. AIAA Journal, 2014, 52, 670-690.	1.5	314
44	Effects of Over-the-Counter Medication Product Family Packaging Design on Knowledge Acquisition and Consumer Preferences. , 2014, , .		1
45	Visualization of System Decomposition in a Value-Based Framework. , 2014, , .		2
46	A Review of Recent Literature in Product Family Design and Platform-Based Product Development. , 2014, , 1-46.		39
47	Defining Modules for Platforms: An Overview of the Architecting Process. , 2014, , 323-341.		5
48	Product Family Commonality Selection Using Optimization and Interactive Visualization. , 2014, , 449-471.		0
49	Application of the Generational Variety Index: A Retrospective Study of iPhone Evolution. , 2014, , 737-751.		Ο
50	Solving the Joint Product Platform Selection and Product Family Design Problem: An Efficient Decomposed Multiobjective Genetic Algorithm with Generalized Commonality. , 2014, , 271-294.		0
51	Many objective visual analytics: rethinking the design of complex engineered systems. Structural and Multidisciplinary Optimization, 2013, 48, 201-219.	1.7	98
52	Linking 10 Years of Modular Design Research: Alternative Methods and Tool Chain Sequences to Support Product Platform Design. , 2013, , .		8
53	Preference Construction, Sequential Decision Making, and Trade Space Exploration. , 2013, , .		20
54	Diagnostic assessment of the borg MOEA for many-objective product family design problems. , 2012, , .		33

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55	Strategic Product Design for Multiple Global Markets. , 2012, , .		9
56	A New Method for Evaluating Design Dependencies in Product Architectures. , 2012, , .		10
57	From user requirements to commonality specifications: an integrated approach to product family design. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2012, 23, 141-153.	1.2	74
58	Multidisciplinary Design Optimization for Complex Engineered Systems: Report From a National Science Foundation Workshop. Journal of Mechanical Design, Transactions of the ASME, 2011, 133, .	1.7	111
59	Many-Objective Evolutionary Optimisation and Visual Analytics for Product Family Design. , 2011, , 137-159.		12
60	A Product Family Optimization Approach Using Multidimensional Data Visualization. , 2010, , .		3
61	Development of a Product Family Analysis Toolkit for Systematic Benchmarking. , 2010, , .		1
62	Validating the Generational Variety Index (GVI) Through Product Family Optimization: A Preliminary Study. , 2010, , .		2
63	A methodology for knowledge discovery to support product family design. Annals of Operations Research, 2010, 174, 201-218.	2.6	30
64	Using Visualization Tools to Create Kriging Models. , 2010, , .		0
65	Improving cost effectiveness in an existing product line using component product platforms. International Journal of Production Research, 2010, 48, 3299-3317.	4.9	29
66	Recommending a platform leveraging strategy based on the homogeneous or heterogeneous nature of a product line. Journal of Engineering Design, 2010, 21, 93-110.	1.1	15
67	From User Requirements to Commonality Specifications: An Integrated Approach to Product Family Design. , 2010, , .		Ο
68	A module-based service model for mass customization: service family design. IIE Transactions, 2010, 43, 153-163.	2.1	70
69	Evaluating the Use of Digital Product Repositories to Enhance Product Dissection Activities in the Classroom. Journal of Computing and Information Science in Engineering, 2009, 9, .	1.7	12
70	Visual Steering Commands for Trade Space Exploration: User-Guided Sampling With Example. Journal of Computing and Information Science in Engineering, 2009, 9, .	1.7	78
71	An agent-based recommender system for developing customized families of products. Journal of Intelligent Manufacturing, 2009, 20, 649-659.	4.4	35
72	An efficient decomposed multiobjective genetic algorithm for solving the joint product platform selection and product family design problem with generalized commonality. Structural and Multidisciplinary Optimization, 2009, 39, 187-201.	1.7	62

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73	Module-scale-based product platform planning. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2009, 20, 129-141.	1.2	20
74	Assessing and improving commonality and diversity within a product family. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2009, 20, 241-253.	1.2	38
75	New product development practice application to an early-stage firm: the case of the PaperPro® StackMasterâ"¢. Design Studies, 2009, 30, 561-587.	1.9	22
76	A market-driven approach to product family design. International Journal of Production Research, 2009, 47, 71-104.	4.9	143
77	Using product family evaluation graphs in product family design. International Journal of Production Research, 2009, 47, 3559-3585.	4.9	19
78	Service representation for capturing and reusing design knowledge in product and service families using object-oriented concepts and an ontology. Journal of Engineering Design, 2009, 20, 413-431.	1.1	38
79	A Product Dissection-Based Methodology to Benchmark Product Family Design Alternatives. Journal of Mechanical Design, Transactions of the ASME, 2009, 131, .	1.7	11
80	Towards a Knowledge Support System for Product Family Design. , 2009, , 297-318.		1
81	Market-Based Strategic Platform Design for a Product Family Using a Bayesian Game. , 2009, , 338-356.		0
82	Design and Analysis of Computer Experiments in Multidisciplinary Design Optimization: A Review of How Far We Have Come - Or Not. , 2008, , .		191
83	Visual Steering Commands and Test Problems to Support Research in Trade Space Exploration. , 2008, , .		31
84	A Dynamic Multiagent System Based on a Negotiation Mechanism for Product Family Design. IEEE Transactions on Automation Science and Engineering, 2008, 5, 234-244.	3.4	31
85	Toward an activity-based costing system for product families and product platforms in the early stages of development. International Journal of Production Research, 2008, 46, 99-130.	4.9	68
86	Improving Cost Effectiveness in an Existing Product Line Using Component Product Platforms. , 2008, ,		0
87	A Method to Improve Platform Leveraging in a Market Segmentation Grid for an Existing Product Line. Journal of Mechanical Design, Transactions of the ASME, 2008, 130, .	1.7	14
88	A comprehensive metric for evaluating component commonality in a product family. Journal of Engineering Design, 2007, 18, 577-598.	1.1	71
89	Strategic Module Sharing for Customized Service Family Design using a Bayesian Game. , 2007, , .		2
90	A Multiattribute Utility Theory-Based Method for Product Line Selection. Journal of Mechanical Design, Transactions of the ASME, 2007, 129, 1179-1184.	1.7	22

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91	An Index-based Method to Manage the Tradeoff between Diversity and Commonality during Product Family Design. Concurrent Engineering Research and Applications, 2007, 15, 127-139.	2.0	35
92	Product family design knowledge representation, aggregation, reuse, and analysis. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 2007, 21, 173-192.	0.7	43
93	A Method for Benchmarking Product Family Design Alternatives. , 2007, , 921.		1
94	Prototype implementation of a virtual product family through a web-based custom product specification system. International Journal of Mass Customisation, 2007, 2, 161.	1.2	1
95	A cost-based methodology for evaluating product platform commonality sourcing decisions with two examples. International Journal of Production Research, 2007, 45, 5285-5308.	4.9	39
96	A Decomposed Genetic Algorithm for Solving the Joint Product Family Optimization Problem. , 2007, , .		13
97	Guidelines to minimize variation when estimating product line commonality through product family dissection. Design Studies, 2007, 28, 175-194.	1.9	20
98	Impact of response delay and training on user performance with text-based and graphical user interfaces for engineering design. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2007, 18, 49-65.	1.2	19
99	Graphical and text-based design interfaces for parameter design of an I-beam, desk lamp, aircraft wing, and job shop manufacturing system. Engineering With Computers, 2007, 23, 93-107.	3.5	6
100	Product family design and platform-based product development: a state-of-the-art review. Journal of Intelligent Manufacturing, 2007, 18, 5-29.	4.4	651
101	Examination of platform and differentiating elements in product family design. Journal of Intelligent Manufacturing, 2007, 18, 77-96.	4.4	16
102	Building a better ice scraper—a case in product platforms for the entrepreneur. Journal of Intelligent Manufacturing, 2007, 18, 159-170.	4.4	11
103	Commonality indices for product family design: a detailed comparison. Journal of Engineering Design, 2006, 17, 99-119.	1.1	152
104	A Market-Driven Approach to the Design of Platform-Based Product Families. , 2006, , .		16
105	Optimal Design of Product Families Using Selection-Integrated Optimization (SIO) Methodology. , 2006, , .		17
106	Provide Relevant Knowledge to Specify Product Design Project Needs. , 2006, , .		0
107	A Multi-Attribute Utility Theory-Based Approach to Product Line Consolidation and Selection. , 2006, , 441.		8
108	A Comprehensive Metric for Evaluating Component Commonality in a Product Family. , 2006, , 823.		11

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109	A Method to Improve Platform Leveraging in a Market Segmentation Grid for an Existing Product Line. , 2006, , 863.		Ο
110	Update strategies for kriging models used in variable fidelity optimization. Structural and Multidisciplinary Optimization, 2006, 32, 287-298.	1.7	134
111	Applying the proximity compatibility and the control-display compatibility principles to engineering design interfaces. Human Factors and Ergonomics in Manufacturing, 2006, 16, 61-81.	1.4	13
112	Data Mining and Fuzzy Clustering to Support Product Family Design. , 2006, , 317.		29
113	Platform-Based Design and Development: Current Trends and Needs in Industry. , 2006, , 801.		35
114	A Methodology for Product Family Ontology Development Using Formal Concept Analysis and Web Ontology Language. Journal of Computing and Information Science in Engineering, 2006, 6, 103-113.	1.7	80
115	Redesigning Product Families using Heuristics and Shared Ontological Component Information. , 2006,		3
116	A Multi-Agent System for Modular Platform Design in a Dynamic Electronic Market Environment. , 2006, , .		10
117	A Methodology to Support Product Family Redesign Using Genetic Algorithm and Commonality Indices. , 2005, , 1009.		11
118	Using Product Dissection to Integrate Product Family Design Research Into the Classroom and Improve Students' Understanding of Platform Commonality. , 2005, , 375.		4
119	Toward a multi-agent information management infrastructure for product family planning and mass customisation. International Journal of Mass Customisation, 2005, 1, 134.	1.2	40
120	Integrating linear physical programming within collaborative optimization for multiobjective multidisciplinary design optimization. Structural and Multidisciplinary Optimization, 2005, 29, 178-189.	1.7	53
121	Metamodel-Driven Design Optimization Using Integrative Graphical Design Interfaces: Results From a Job-Shop Manufacturing Simulation Experiment. Journal of Computing and Information Science in Engineering, 2005, 5, 8-17.	1.7	16
122	Multi-Objective Design Optimization for Product Platform and Product Family Design Using Genetic Algorithms. , 2005, , 999.		27
123	Use of Kriging Models to Approximate Deterministic Computer Models. AIAA Journal, 2005, 43, 853-863.	1.5	695
124	Update Strategies for Kriging Models for Use in Variable Fidelity Optimization. , 2005, , .		16
125	Metamodel-Driven Interfaces for Engineering Design: Impact of Delay and Problem Size on User Performance. , 2005, , .		5
126	Assessing Variable Levels of Platform Commonality Within a Product Family Using a Multiobjective Genetic Algorithm. Concurrent Engineering Research and Applications, 2004, 12, 119-129.	2.0	123

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127	Approximation methods in multidisciplinary analysis and optimization: a panel discussion. Structural and Multidisciplinary Optimization, 2004, 27, 302.	1.7	296
128	A method for using legacy data for metamodel-based design of large-scale systems. Structural and Multidisciplinary Optimization, 2004, 28, 146.	1.7	19
129	Fuzzy clustering based hierarchical metamodeling for design space reduction and optimization. Engineering Optimization, 2004, 36, 313-335.	1.5	115
130	Product platform design and customization: Status and promise. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 2004, 18, 3-20.	0.7	436
131	Evaluation of a Graphical Design Interface for Design Space Visualization. , 2004, , .		15
132	A Monte Carlo Simulation of the Kriging Model. , 2004, , .		28
133	Robust Multiobjective Optimization Through Collaborative Optimization and Linear Physical Programming. , 2004, , .		17
134	The ARL Trade Space Visualizer: An Engineering Decision-Making Tool. , 2004, , .		60
135	A Comparison of Commonality Indices for Product Family Design. , 2004, , 169.		18
136	Graphical User Interfaces for Engineering Design: Impact of Response Delay and Training on User Performance. , 2004, , .		9
137	Product platform design to improve commonality in custom products. Journal of Intelligent Manufacturing, 2003, 14, 541-556.	4.4	78
138	Multidisciplinary Robust Design Optimization of an Internal Combustion Engine. Journal of Mechanical Design, Transactions of the ASME, 2003, 125, 124-130.	1.7	142
139	A genetic algorithm based method for product family design optimization. Engineering Optimization, 2003, 35, 1-18.	1.5	92
140	A Study on the Use of Kriging Models to Approximate Deterministic Computer Models. , 2003, , 567.		53
141	Assessing the Impact of Graphical Design Interfaces on Design Efficiency and Effectiveness. Journal of Computing and Information Science in Engineering, 2003, 3, 144-154.	1.7	24
142	Product Platform Design and Optimization: Status and Promise. , 2003, , 131.		42
143	Design Space Visualization and Its Application to a Design by Shopping Paradigm. , 2003, , 795.		47
144	A Variation-Based Method for Product Family Design. Engineering Optimization, 2002, 34, 65-81.	1.5	169

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145	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
146	Effective Product Family Design Using Physical Programming. Engineering Optimization, 2002, 34, 245-261.	1.5	118
147	Asessing Variable Levels of Platform Commonality Within a Product Family Using a Multiobjective Genetic Algorithm. , 2002, , .		23
148	Multidimensional Visualization and Its Application to a Design by Shopping Paradigm. , 2002, , .		62
149	Kriging Models for Global Approximation in Simulation-Based Multidisciplinary Design Optimization. AIAA Journal, 2001, 39, 2233-2241.	1.5	921
150	Product platform design: method and application. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 2001, 13, 2-22.	1.2	467
151	Efficient Pareto Frontier Exploration using Surrogate Approximations. Optimization and Engineering, 2001, 2, 31-50.	1.3	127
152	Balancing Commonality and Performance within the Concurrent Design of Multiple Products in a Product Family. Concurrent Engineering Research and Applications, 2001, 9, 177-190.	2.0	99
153	Robust Design of Families of Products With Production Modeling and Evaluation. Journal of Mechanical Design, Transactions of the ASME, 2001, 123, 183-190.	1.7	67
154	Metamodeling of Combined Discrete/Continuous Responses. AIAA Journal, 2001, 39, 1950-1959.	1.5	62
155	SATISFYING RANGED SETS OF DESIGN REQUIREMENTS USING DESIGN CAPABILITY INDICES AS METRICS. Engineering Optimization, 1999, 31, 615-619.	1.5	36
156	A Product Platform Concept Exploration Method for Product Family Design. , 1999, , .		61