Matthew R W Brake

List of Publications by Year
in descending order

101 papers	1,395 citations	430874 18 h-index	395702 33 g-index
122 all docs	122 docs citations	122 times ranked	635 citing authors

#	Article	IF	Citations
1	An analytical elastic-perfectly plastic contact model. International Journal of Solids and Structures, 2012, 49, 3129-3141.	2.7	186
2	Nonlinear modeling of structures with bolted joints: A comparison of two approaches based on a time-domain and frequency-domain solver. Mechanical Systems and Signal Processing, 2019, 114, 413-438.	8.0	110
3	An analytical elastic plastic contact model with strain hardening and frictional effects for normal and oblique impacts. International Journal of Solids and Structures, 2015, 62, 104-123.	2.7	86
4	Interface reduction for Hurty/Craig-Bampton substructured models: Review and improvements. Mechanical Systems and Signal Processing, 2019, 114, 579-603.	8.0	67
5	The impact of fretting wear on structural dynamics: Experiment and Simulation. Tribology International, 2019, 138, 111-124.	5.9	65
6	A reduced Iwan model that includes pinning for bolted joint mechanics. Nonlinear Dynamics, 2017, 87, 1335-1349.	5.2	56
7	A Review of Damping Models for Structures With Mechanical Joints1. Applied Mechanics Reviews, 2020, 72, .	10.1	54
8	Observations of variability and repeatability in jointed structures. Mechanical Systems and Signal Processing, 2019, 129, 282-307.	8.0	47
9	Traction-based multi-scale nonlinear dynamic modeling of bolted joints: Formulation, application, and trends in micro-scale interface evolution. Mechanical Systems and Signal Processing, 2020, 139, 106615.	8.0	37
10	Comparison of nonlinear system identification methods for free decay measurements with application to jointed structures. Journal of Sound and Vibration, 2019, 453, 268-293.	3.9	31
11	The effect of the contact model on the impact-vibration response of continuous and discrete systems. Journal of Sound and Vibration, 2013, 332, 3849-3878.	3.9	30
12	Modeling and Measurement of a Bistable Beam in a Microelectromechanical System. Journal of Microelectromechanical Systems, 2010, 19, 1503-1514.	2.5	26
13	Measurement of slip and separation in jointed structures with non-flat interfaces. Mechanical Systems and Signal Processing, 2019, 134, 106325.	8.0	24
14	Variability and Repeatability of Jointed Structures with Frictional Interfaces. Conference Proceedings of the Society for Experimental Mechanics, 2014, , 245-252.	0.5	24
15	Frictional vibration transmission from a laterally moving surface to a traveling beam. Journal of Sound and Vibration, 2008, 310, 663-675.	3.9	23
16	The surrogate system hypothesis for joint mechanics. Mechanical Systems and Signal Processing, 2019, 126, 42-64.	8.0	22
17	Measurement and identification of the nonlinear dynamics of a jointed structure using full-field data, Part I: Measurement of nonlinear dynamics. Mechanical Systems and Signal Processing, 2022, 166, 108401.	8.0	20
18	An inverse shock response spectrum. Mechanical Systems and Signal Processing, 2011, 25, 2654-2672.	8.0	19

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19	Experimental Assessment of the Influence of Interface Geometries on Structural Dynamic Response. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 255-261.	0.5	18
20	Modal analysis of a continuous gyroscopic second-order system with nonlinear constraints. Journal of Sound and Vibration, 2010, 329, 893-911.	3.9	17
21	A quasi-static non-linear modal analysis procedure extending Rayleigh quotient stationarity for non-conservative dynamical systems. Computers and Structures, 2020, 230, 106184.	4.4	17
22	Measurement and identification of the nonlinear dynamics of a jointed structure using full-field data; Part II - Nonlinear system identification. Mechanical Systems and Signal Processing, 2022, 166, 108402.	8.0	17
23	On the origin of computational model sensitivity, error, and uncertainty in threaded fasteners. Computers and Structures, 2017, 186, 1-10.	4.4	16
24	Strain Hardening From Elasticâ€“Perfectly Plastic to Perfectly Elastic Flattening Single Asperity Contact. Journal of Tribology, 2019, 141, .	1.9	16
25	Nonlinear Model Reduction of von KÃ¡rmÃ¡n Plates Under Quasi-Steady Fluid Flow. AIAA Journal, 2010, 48, 2339-2347.	2.6	15
26	The Effects of Boundary Conditions, Measurement Techniques, and Excitation Type on Measurements of the Properties of Mechanical Joints. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 415-431.	0.5	15
27	The role of epistemic uncertainty of contact models in the design and optimization of mechanical systems with aleatoric uncertainty. Nonlinear Dynamics, 2014, 77, 899-922.	5.2	14
28	Identification of Instantaneous Frequency and Damping From Transient Decay Data. Journal of Vibration and Acoustics, Transactions of the ASME, 2020, 142, .	1.6	14
29	Optimizing Vibration Isolation of Flex Circuits in Hard Disk Drives. Journal of Vibration and Acoustics, Transactions of the ASME, 2005, 127, 165-172.	1.6	13
30	A hybrid approach for the modal analysis of continuous systems with discrete piecewise-linear constraints. Journal of Sound and Vibration, 2011, 330, 3196-3221.	3.9	12
31	A stable Galerkin reduced order model for coupled fluidâ€“structure interaction problems. International Journal for Numerical Methods in Engineering, 2013, 95, 121-144.	2.8	12
32	Experimental assessment of polynomial nonlinear state-space and nonlinear-mode models for near-resonant vibrations. Mechanical Systems and Signal Processing, 2020, 143, 106796.	8.0	12
33	Evaluating Convergence of Reduced Order Models Using Nonlinear Normal Modes. Conference Proceedings of the Society for Experimental Mechanics, 2014, , 287-300.	0.5	12
34	Modelling localized nonlinearities in continuous systems via the method of augmentation by non-smooth basis functions. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2013, 469, 20130260.	2.1	11
35	On the Characterization of Nonlinearities in Assembled Structures. Journal of Vibration and Acoustics, Transactions of the ASME, 2020, 142, .	1.6	11
36	Strain Hardening From Elastic-Perfectly Plastic to Perfectly Elastic Indentation Single Asperity Contact. Frontiers in Mechanical Engineering, 2020, 6, .	1.8	10

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37	Tilted guides with friction in web conveyance systems. International Journal of Solids and Structures, 2010, 47, 2952-2957.	2.7	9
38	Predicting a contact's sensitivity to initial conditions using metrics of frictional coupling. Tribology International, 2017, 108, 95-110.	5.9	9
39	In Situ Measurements of Interfacial Contact Pressure During Impact Hammer Tests. Conference Proceedings of the Society for Experimental Mechanics, 2019, , 225-236.	0.5	9
40	Parameterized reduced order models from a single mesh using hyper-dual numbers. Journal of Sound and Vibration, 2016, 371, 370-392.	3.9	8
41	A Comprehensive Set of Impact Data for Common Aerospace Metals. Journal of Computational and Nonlinear Dynamics, 2017, 12, .	1.2	8
42	A Numerical Round Robin for the Prediction of the Dynamics of Jointed Structures. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 195-211.	0.5	8
43	Experimental Determination of Frictional Interface Models. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 473-490.	0.5	8
44	Effects of Experimental Methods on the Measurements of a Nonlinear Structure. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 491-500.	0.5	8
45	In Situ Measurements of Contact Pressure for Jointed Interfaces During Dynamic Loading Experiments. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 133-141.	0.5	8
46	Nonlinear Model Reduction of von KÃ¡rmÃ¡n Plates Under Linearized Compressible Fluid Flow. AIAA Journal, 2012, 50, 1047-1059.	2.6	7
47	Reduced order modeling for the dynamics of jointed structures through hyper-reduced interface representation. Mechanical Systems and Signal Processing, 2021, 149, 107249.	8.0	7
48	Experimental Investigation of Local Dynamics in a Bolted Lap Joint Using Digital Image Correlation. Journal of Vibration and Acoustics, Transactions of the ASME, 2020, 142, .	1.6	7
49	Fully Parameterized Reduced Order Models Using Hyper-Dual Numbers and Component Mode Synthesis. , 2015, , .		6
50	The failure mechanisms of fasteners under multi-axial loading. Engineering Failure Analysis, 2019, 105, 708-726.	4.0	6
51	Testing Summary for the Box Assembly with Removable Component Structure. Conference Proceedings of the Society for Experimental Mechanics, 2020, , 167-177.	0.5	6
52	A quantitative assessment of the model form error of friction models across different interface representations for jointed structures. Mechanical Systems and Signal Processing, 2022, 163, 108163.	8.0	6
53	Effect of Far-Field Structure on Joint Properties. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 63-77.	0.5	6
54	Lateral Vibration and Read/Write Head Servo Dynamics in Magnetic Tape Transport. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2010, 132, .	1.6	5

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55	Comparison of Nonlinear System Identification Methods for Free Decay Measurements with Application to MEMS Devices. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 29-46.	0.5	5
56	Designing energy dissipation properties via thermal spray coatings. Surface and Coatings Technology, 2017, 310, 70-78.	4.8	5
57	A Comparison of Reduced Order Modeling Techniques Used in Dynamic Substructuring. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 511-528.	0.5	5
58	Epistemic and Aleatoric Uncertainty in Modeling. , 2013, , .		4
59	Gerrymandering for Interfaces: Modeling the Mechanics of Jointed Structures. Conference Proceedings of the Society for Experimental Mechanics, 2020, , 81-85.	0.5	4
60	Estimation of impact forces during multi-point collisions involving small deformations. Multibody System Dynamics, 2021, 51, 45-90.	2.7	4
61	Determination of the limits of quasi-static/rigid and dynamic solutions for problems with frictional interfaces. Tribology International, 2014, 76, 45-56.	5.9	3
62	An Overview of Constitutive Models. , 2018, , 207-221.		3
63	Introduction to Research on the Mechanics of Jointed Structures. , 2018, , 3-10.		3
64	Modeling and Measurement of a Tunable Acoustoelastic System. Sound and Vibration, 2018, 52, 1-6.	0.3	3
65	Structural Design with Joints for Maximum Dissipation. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 179-187.	0.5	2
66	Reduced Order Modeling of Nonlinear Structures with Frictional Interfaces. , 2018, , 427-450.		2
67	Numerical Assessment of Polynomial Nonlinear State-Space and Nonlinear-Mode Models for Near-Resonant Vibrations. Vibration, 2020, 3, 320-342.	1.9	2
68	Sensing and Rating of Vehicleâ€“Railroad Bridge Collision. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 227-234.	0.5	2
69	Characterizing the Fatigue Behavior of Wrought Feâ€“Coâ€“2V Using Experimental Techniques. Journal of Engineering Materials and Technology, Transactions of the ASME, 2022, 144, .	1.4	2
70	Quantifying Epistemic and Aleatoric Uncertainty in the Ampair 600 Wind Turbine. Conference Proceedings of the Society for Experimental Mechanics, 2015, , 125-138.	0.5	1
71	Round Robin Systems. , 2018, , 45-58.		1
72	System Identification of Jointed Structures: Nonlinear Modal Testing Vs. State-Space Model Identification. Conference Proceedings of the Society for Experimental Mechanics, 2019, , 159-161.	0.5	1

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73	The Effect of Non-Flat Interfaces On System Dynamics. Conference Proceedings of the Society for Experimental Mechanics, 2019, , 187-197.	0.5	1
74	A New Approach to Modeling Discrete Nonlinear Constraints in Continuous Systems: The Method of Discontinuous Basis Functions. , 2011, , .		1
75	Quantifying Epistemic and Aleatoric Uncertainty in the Ampair 600 Wind Turbine. , 2018, , 651-672.		1
76	Nonlinear System Identification of a Jointed Structure Using Full-Field Data: Part II Analysis. Conference Proceedings of the Society for Experimental Mechanics, 2021, , 185-188.	0.5	1
77	The Effect of the Contact Model on the Design of Mechanical Systems. , 2012, , .		0
78	The Effect of the Impact Model on Vibration Response of Discrete and Continuous Systems. , 2012, , .		0
79	The Role of Epistemic Uncertainty of Contact Models in the Design of Mechanical Systems. , 2013, , .		0
80	A Standard Practice for Modeling Bolted Joints in a Finite Element Package. , 2018, , 415-426.		0
81	Constitutive Modeling of Contact for Elasticâ€“Plastic Materials Engaged in Micro/Macroslip. , 2018, , 279-329.		0
82	On the Modal Surrogacy of Joint Parameter Estimates in Bolted Joints. Conference Proceedings of the Society for Experimental Mechanics, 2020, , 137-140.	0.5	0
83	A Priori Methods to Assess the Strength of Nonlinearities for Design Applications. Conference Proceedings of the Society for Experimental Mechanics, 2020, , 243-246.	0.5	0
84	Optimizing Vibration Isolation of Flex Circuits in Hard Disk Drives. , 2003, , .		0
85	Frictional Vibration Transmission From a Laterally Moving Surface to a Traveling Beam. , 2007, , .		0
86	Modal Analysis of a Gyroscopic System With Nonlinear Constraints. , 2009, , .		0
87	A Hybrid Approach for the Modal Analysis of Continuous Systems With Localized Nonlinear Constraints. , 2010, , .		0
88	Parameterized Reduced Order Models Constructed Using Hyper Dual Numbers. Conference Proceedings of the Society for Experimental Mechanics, 2014, , 179-192.	0.5	0
89	Efficient Stochastic Finite Element Modeling Using Parameterized Reduced Order Models. Conference Proceedings of the Society for Experimental Mechanics, 2014, , 193-201.	0.5	0
90	A Reduced Iwan Model that Includes Pinning for Bolted Joint Mechanics. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 231-240.	0.5	0

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91	The Reduced Iwan Plus Pinning Joint Model. , 2018, , 231-253.		0
92	A Comparison of Reduced Order Modeling Techniques Used in Dynamic Substructuring. , 2018, , 465-489.		0
93	Numerical Methods for Assessing Response Metrics. , 2018, , 539-560.		0
94	Parameter Estimation via Instantaneous Frequency and Damping from Transient Ring-Down Data. , 2018, , 381-393.		0
95	Considerations for Measurements of Jointed Structures. , 2018, , 109-133.		0
96	Epistemic and Aleatoric Uncertainty in Modeling. , 2018, , 593-603.		0
97	Historical Perspective on Numerical Techniques for Modeling Joints. , 2018, , 397-413.		0
98	Predicting the Shakedown Limits of Joints Subject to Fretting and High Cycle Fatigue. , 2018, , 561-582.		0
99	A Primer for Uncertainty Modeling in Jointed Structures. , 2018, , 585-592.		0
100	A Practical Application of a Maximum Entropy, Non-parametric Approach to Account for Epistemic Uncertainty Using Random Matrices. , 2018, , 605-626.		0
101	An Assessment of the Applicability and Epistemic Uncertainties Inherent to Different Classes of Friction Models for Modeling Bolted Interfaces. Conference Proceedings of the Society for Experimental Mechanics, 2021, , 291-294.	0.5	0