

Billie Spencer

List of Publications by Year in descending order

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131
papers

5,203
citations

94269

37
h-index

102304

66
g-index

134
all docs

134
docs citations

134
times ranked

3238
citing authors

#	ARTICLE	IF	CITATIONS
1	Advances in Computer Vision-Based Civil Infrastructure Inspection and Monitoring. Engineering, 2019, 5, 199-222.	3.2	575
2	Smart sensing technology: opportunities and challenges. Structural Control and Health Monitoring, 2004, 11, 349-368.	1.9	445
3	Dynamic Modeling of Large-Scale Magnetorheological Damper Systems for Civil Engineering Applications. Journal of Engineering Mechanics - ASCE, 2004, 130, 1107-1114.	1.6	192
4	Structural Displacement Measurement Using an Unmanned Aerial System. Computer-Aided Civil and Infrastructure Engineering, 2018, 33, 183-192.	6.3	159
5	Numerical and experimental investigation of a highly effective single-sided vibro-impact non-linear energy sink for shock mitigation. International Journal of Non-Linear Mechanics, 2013, 52, 96-109.	1.4	133
6	Detection and localization of rebar in concrete by deep learning using ground penetrating radar. Automation in Construction, 2020, 118, 103279.	4.8	91
7	Bridge Seismic Retrofit Program Planning to Maximize Postearthquake Transportation Network Capacity. Journal of Infrastructure Systems, 2012, 18, 75-88.	1.0	90
8	Passive damping enhancement of a two-degree-of-freedom system through a strongly nonlinear two-degree-of-freedom attachment. Journal of Sound and Vibration, 2012, 331, 5393-5407.	2.1	89
9	Toward data anomaly detection for automated structural health monitoring: Exploiting generative adversarial nets and autoencoders. Structural Health Monitoring, 2021, 20, 1609-1626.	4.3	88
10	Distributed computing strategy for structural health monitoring. Structural Control and Health Monitoring, 2006, 13, 488-507.	1.9	87
11	Inertial mass damper for mitigating cable vibration. Structural Control and Health Monitoring, 2017, 24, e1986.	1.9	87
12	Large-scale experimental evaluation and numerical simulation of a system of nonlinear energy sinks for seismic mitigation. Engineering Structures, 2014, 77, 34-48.	2.6	83
13	Experimental study of track nonlinear energy sinks for dynamic response reduction. Engineering Structures, 2015, 94, 9-15.	2.6	79
14	Experimental Study on Passive Negative Stiffness Damper for Cable Vibration Mitigation. Journal of Engineering Mechanics - ASCE, 2017, 143, .	1.6	78
15	Model-Based Feedforward-Feedback Actuator Control for Real-Time Hybrid Simulation. Journal of Structural Engineering, 2013, 139, 1205-1214.	1.7	75
16	Development of a High-Sensitivity Wireless Accelerometer for Structural Health Monitoring. Sensors, 2018, 18, 262.	2.1	75
17	Recent advances in wireless smart sensors for multi-scale monitoring and control of civil infrastructure. Journal of Civil Structural Health Monitoring, 2016, 6, 17-41.	2.0	74
18	Response attenuation in a large-scale structure subjected to blast excitation utilizing a system of essentially nonlinear vibration absorbers. Journal of Sound and Vibration, 2017, 389, 52-72.	2.1	68

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19	Vision-based automated bridge component recognition with high-level scene consistency. Computer-Aided Civil and Infrastructure Engineering, 2020, 35, 465-482.	6.3	67
20	Cross-Correlation-Based Structural System Identification Using Unmanned Aerial Vehicles. Sensors, 2017, 17, 2075.	2.1	61
21	Track Nonlinear Energy Sink for Rapid Response Reduction in Building Structures. Journal of Engineering Mechanics - ASCE, 2015, 141, .	1.6	60
22	Railroad bridge monitoring using wireless smart sensors. Structural Control and Health Monitoring, 2017, 24, e1863.	1.9	60
23	MaDnet: multi-task semantic segmentation of multiple types of structural materials and damage in images of civil infrastructure. Journal of Civil Structural Health Monitoring, 2020, 10, 757-773.	2.0	60
24	TinyOS-based real-time wireless data acquisition framework for structural health monitoring and control. Structural Control and Health Monitoring, 2013, 20, 1007-1020.	1.9	59
25	Feasibility of displacement monitoring using low-cost GPS receivers. Structural Control and Health Monitoring, 2013, 20, 1240-1254.	1.9	59
26	Shake Table Tests of Tall-Pier Bridges to Evaluate Seismic Performance. Journal of Bridge Engineering, 2018, 23, .	1.4	59
27	Optimization of Structures Subject to Stochastic Dynamic Loading. Computer-Aided Civil and Infrastructure Engineering, 2017, 32, 657-673.	6.3	58
28	Model-based multi-metric control of uniaxial shake tables. Earthquake Engineering and Structural Dynamics, 2014, 43, 681-699.	2.5	57
29	Fuzzy Analytic Hierarchy Process Synthetic Evaluation Models for the Health Monitoring of Shield Tunnels. Computer-Aided Civil and Infrastructure Engineering, 2014, 29, 676-688.	6.3	57
30	Homography-based structural displacement measurement for large structures using unmanned aerial vehicles. Computer-Aided Civil and Infrastructure Engineering, 2021, 36, 1114-1128.	6.3	52
31	Optimization of damped outrigger systems subject to stochastic excitation. Engineering Structures, 2019, 191, 280-291.	2.6	50
32	Damage detection in ambient vibration using proportional flexibility matrix with incomplete measured DOFs. Structural Control and Health Monitoring, 2007, 14, 186-196.	1.9	49
33	Numerical and experimental study of the performance of a single-sided vibro-impact track nonlinear energy sink. Earthquake Engineering and Structural Dynamics, 2016, 45, 635-652.	2.5	48
34	Enabling framework for structural health monitoring using smart sensors. Structural Control and Health Monitoring, 2011, 18, 574-587.	1.9	47
35	Model-Based Multiactuator Control for Real-Time Hybrid Simulation. Journal of Engineering Mechanics - ASCE, 2013, 139, 219-228.	1.6	47
36	Automated decentralized modal analysis using smart sensors. Structural Control and Health Monitoring, 2010, 17, 872-894.	1.9	46

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37	Model-based framework for multi-axial real-time hybrid simulation testing. <i>Earthquake Engineering and Engineering Vibration</i> , 2017, 16, 671-691.	1.1	43
38	Post-Earthquake Building Evaluation Using UAVs: A BIM-Based Digital Twin Framework. <i>Sensors</i> , 2022, 22, 873.	2.1	41
39	Real-time hybrid testing of semiactive control strategies for vibration reduction in a structure with MR damper. <i>Structural Control and Health Monitoring</i> , 2009, 17, n/a-n/a.	1.9	39
40	Topology optimization framework for structures subjected to stationary stochastic dynamic loads. <i>Structural and Multidisciplinary Optimization</i> , 2019, 59, 813-833.	1.7	38
41	Active base isolation of buildings subjected to seismic excitations. <i>Earthquake Engineering and Structural Dynamics</i> , 2010, 39, 1493-1512.	2.5	37
42	Simultaneous Estimation of Rebar Diameter and Cover Thickness by a GPR-EMI Dual Sensor. <i>Sensors</i> , 2018, 18, 2969.	2.1	37
43	Reference-free structural dynamic displacement estimation method. <i>Structural Control and Health Monitoring</i> , 2018, 25, e2209.	1.9	36
44	Hybrid Polarimetric GPR Calibration and Elongated Object Orientation Estimation. <i>IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing</i> , 2019, 12, 2080-2087.	2.3	36
45	Corrosion Estimation of a Historic Truss Bridge Using Model Updating. <i>Journal of Bridge Engineering</i> , 2013, 18, 678-689.	1.4	34
46	Design, simulation, and large-scale testing of an innovative vibration mitigation device employing essentially nonlinear elastomeric springs. <i>Earthquake Engineering and Structural Dynamics</i> , 2014, 43, 1829-1851.	2.5	34
47	A novel distribution regression approach for data loss compensation in structural health monitoring. <i>Structural Health Monitoring</i> , 2018, 17, 1473-1490.	4.3	34
48	Sensor fault management techniques for wireless smart sensor networks in structural health monitoring. <i>Structural Control and Health Monitoring</i> , 2019, 26, e2362.	1.9	34
49	Sudden Event Monitoring of Civil Infrastructure Using Demand-Based Wireless Smart Sensors. <i>Sensors</i> , 2018, 18, 4480.	2.1	32
50	Development and full-scale validation of high-fidelity data acquisition on a next-generation wireless smart sensor platform. <i>Advances in Structural Engineering</i> , 2019, 22, 3512-3533.	1.2	32
51	SENSOR DEVELOPMENT USING BERKELEY MOTE PLATFORM. <i>Journal of Earthquake Engineering</i> , 2006, 10, 289-309.	1.4	31
52	Adaptive model-based tracking control for real-time hybrid simulation. <i>Bulletin of Earthquake Engineering</i> , 2015, 13, 1633-1653.	2.3	31
53	Overview and Applications of Maeviz-Hazturk 2007. <i>Journal of Earthquake Engineering</i> , 2008, 12, 100-108.	1.4	30
54	Bayesian Updating of Fragility Functions Using Hybrid Simulation. <i>Journal of Structural Engineering</i> , 2013, 139, 1160-1171.	1.7	30

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55	System identification of a historic swing truss bridge using a wireless sensor network employing orientation correction. <i>Structural Control and Health Monitoring</i> , 2015, 22, 255-272.	1.9	30
56	Multi-level damage identification of a bridge structure: a combined numerical and experimental investigation. <i>Engineering Structures</i> , 2018, 156, 53-67.	2.6	30
57	Direct performance-based design with 200kN MR dampers using multi-objective cost effective optimization for steel MRFs. <i>Engineering Structures</i> , 2014, 71, 60-72.	2.6	29
58	Performance-based optimization of nonlinear structures subject to stochastic dynamic loading. <i>Engineering Structures</i> , 2017, 134, 334-345.	2.6	29
59	Dynamic analysis of track nonlinear energy sinks subjected to simple and stochastic excitations. <i>Earthquake Engineering and Structural Dynamics</i> , 2020, 49, 863-883.	2.5	29
60	Control of Wind-Induced Nonlinear Oscillations in Suspended Cables. <i>Nonlinear Dynamics</i> , 2004, 37, 341-355.	2.7	28
61	Multi-objective design and performance investigation of a high-rise building with track nonlinear energy sinks. <i>Structural Design of Tall and Special Buildings</i> , 2020, 29, e1692.	0.9	28
62	Java-powered virtual laboratories for earthquake engineering education. <i>Computer Applications in Engineering Education</i> , 2005, 13, 200-212.	2.2	27
63	Physics-Based Graphics Models in 3D Synthetic Environments as Autonomous Vision-Based Inspection Testbeds. <i>Sensors</i> , 2022, 22, 532.	2.1	27
64	Semiactive Backstepping Control for Vibration Reduction in a Structure with Magnetorheological Damper Subject to Seismic Motions. <i>Journal of Intelligent Material Systems and Structures</i> , 2009, 20, 2037-2053.	1.4	24
65	Automated damage detection in miter gates of navigation locks. <i>Structural Control and Health Monitoring</i> , 2018, 25, e2053.	1.9	24
66	Efficient development of vision-based dense three-dimensional displacement measurement algorithms using physics-based graphics models. <i>Structural Health Monitoring</i> , 2021, 20, 1841-1863.	4.3	24
67	Damper placement for seismic control of super-long-span suspension bridges based on the first-order optimization method. <i>Science China Technological Sciences</i> , 2010, 53, 2008-2014.	2.0	23
68	Development of Synchronized High-Sensitivity Wireless Accelerometer for Structural Health Monitoring. <i>Sensors</i> , 2020, 20, 4169.	2.1	22
69	Hybrid seismic protection of cable-stayed bridges. <i>Earthquake Engineering and Structural Dynamics</i> , 2004, 33, 795-820.	2.5	21
70	Autonomous decentralized structural health monitoring using smart sensors. <i>Structural Control and Health Monitoring</i> , 2009, 16, n/a-n/a.	1.9	21
71	Wireless SmartVision system for synchronized displacement monitoring of railroad bridges. <i>Computer-Aided Civil and Infrastructure Engineering</i> , 2022, 37, 1070-1088.	6.3	20
72	Consequence-based management of railroad bridge networks. <i>Structure and Infrastructure Engineering</i> , 2017, 13, 273-286.	2.0	19

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73	New Stochastic Approach of Vehicle Energy Dissipation on Nondeformable Rough Pavements. Journal of Engineering Mechanics - ASCE, 2017, 143, .	1.6	19
74	Optimal design of nonlinear energy sinks for mitigation of seismic response on structural systems. Engineering Structures, 2021, 232, 111756.	2.6	19
75	Viscous inertial mass damper (VIMD) for seismic responses control of the coupled adjacent buildings. Engineering Structures, 2021, 233, 111876.	2.6	19
76	Modified model-based control of shake tables for online acceleration tracking. Earthquake Engineering and Structural Dynamics, 2020, 49, 1721-1737.	2.5	18
77	Stochastic sensitivity analysis of energy-dissipating structures with nonlinear viscous dampers by efficient equivalent linearization technique based on explicit time-domain method. Probabilistic Engineering Mechanics, 2020, 61, 103080.	1.3	18
78	Efficient and high-precision time synchronization for wireless monitoring of civil infrastructure subjected to sudden events. Structural Control and Health Monitoring, 2021, 28, .	1.9	18
79	Deep Bayesian neural networks for damage quantification in miter gates of navigation locks. Structural Health Monitoring, 2020, 19, 1391-1420.	4.3	17
80	Stochastic optimisation of buckling restrained braced frames under seismic loading. Structure and Infrastructure Engineering, 2018, 14, 1386-1401.	2.0	16
81	Topology optimization of buildings subjected to stochastic base excitation. Engineering Structures, 2020, 223, 111111.	2.6	16
82	A two-step identification technique for semiactive control systems. Structural Control and Health Monitoring, 2004, 11, 273-289.	1.9	15
83	Virtual laboratory for experimental structural dynamics. Computer Applications in Engineering Education, 2009, 17, 80-88.	2.2	15
84	Stochastic Analysis of Energy Dissipation of a Half-Car Model on Nondeformable Rough Pavement. Journal of Transportation Engineering Part B: Pavements, 2017, 143, .	0.8	15
85	Autonomous end-to-end wireless monitoring system for railroad bridges. Advances in Bridge Engineering, 2020, 1, .	0.8	14
86	Topology optimization of buildings subjected to stochastic wind loads. Probabilistic Engineering Mechanics, 2021, 64, 103127.	1.3	14
87	Nature of seismic control force in acceleration feedback. Structural Control and Health Monitoring, 2013, 20, 789-803.	1.9	13
88	Design criteria for dissipative devices in coupled oscillators under seismic excitation. Structural Control and Health Monitoring, 2018, 25, e2167.	1.9	13
89	Stochastic Analysis of Rolling Resistance Energy Dissipation for a Tractor-Trailer Model. Transportation Research Record, 2019, 2673, 593-603.	1.0	13
90	Experimental Investigation of Beam-Column Joints with Cast Steel Stiffeners for Progressive Collapse Prevention. Journal of Structural Engineering, 2019, 145, .	1.7	13

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91	Full-Scale Experimental Validation of High-Fidelity Wireless Measurement on a Historic Truss Bridge. <i>Advances in Structural Engineering</i> , 2011, 14, 93-101.	1.2	12
92	Multiple Degrees of Freedom Positioning Correction for Hybrid Simulation. <i>Journal of Earthquake Engineering</i> , 2015, 19, 277-296.	1.4	12
93	ANFIS based quadrotor drone altitude control implementation on Raspberry Pi platform. <i>Analog Integrated Circuits and Signal Processing</i> , 2018, 95, 435-445.	0.9	12
94	Multiscale Random Fields-Based Damage Modeling and Analysis of Concrete Structures. <i>Journal of Engineering Mechanics - ASCE</i> , 2019, 145, .	1.6	11
95	Analysis of the Seismic Vulnerability of Buildings in the Lushan M _s 7.0 Earthquake in the Sichuan Province of China. <i>Journal of Earthquake Engineering</i> , 2022, 26, 764-792.	1.4	10
96	Mapping temperature contours for a long-span steel truss arch bridge based on field monitoring data. <i>Journal of Civil Structural Health Monitoring</i> , 2021, 11, 725-743.	2.0	10
97	Bayesian inference of dense structural response using vision-based measurements. <i>Engineering Structures</i> , 2022, 256, 113970.	2.6	10
98	RATIONAL POLYNOMIAL APPROXIMATION MODELLING FOR ANALYSIS OF STRUCTURES WITH VE DAMPERS. <i>Journal of Earthquake Engineering</i> , 2006, 10, 97-125.	1.4	9
99	Sensitivity-Based External Calibration of Multiaxial Loading System. <i>Journal of Engineering Mechanics - ASCE</i> , 2010, 136, 189-198.	1.6	9
100	Parametric time-domain identification of multiple-input systems using decoupled output signals. <i>Earthquake Engineering and Structural Dynamics</i> , 2014, 43, 1307-1324.	2.5	9
101	Multiaxial active isolation for seismic protection of buildings. <i>Structural Control and Health Monitoring</i> , 2014, 21, 484-502.	1.9	9
102	Adaptive position tracking control of electro-hydraulic six-degree-of-freedom driving simulator subject to perturbation. <i>Simulation</i> , 2015, 91, 265-275.	1.1	9
103	Decoupled model-based real-time hybrid simulation with multi-axial load and boundary condition boxes. <i>Engineering Structures</i> , 2020, 219, 110868.	2.6	9
104	Maintaining Bridge Alignment during Seismic Events: Shear Key Design and Implementation Guidelines. <i>Journal of Bridge Engineering</i> , 2020, 25, .	1.4	9
105	Real-time hybrid testing for efficiency assessment of magnetorheological dampers to mitigate train-induced vibrations in bridges. <i>International Journal of Rail Transportation</i> , 2022, 10, 436-455.	1.8	9
106	A novel approach to assess the seismic performance of deteriorated bridge structures by employing UAV-based damage detection. <i>Structural Control and Health Monitoring</i> , 2022, 29, .	1.9	9
107	Mapping of Temperature-Induced Response Increments for Monitoring Long-Span Steel Truss Arch Bridges Based on Machine Learning. <i>Journal of Structural Engineering</i> , 2022, 148, .	1.7	9
108	Investigation on the mapping for temperature-induced responses of a long-span steel truss arch bridge. <i>Structure and Infrastructure Engineering</i> , 2024, 20, 232-249.	2.0	9

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109	Simultaneous optimization of topology and supplemental damping distribution for buildings subjected to stochastic excitation. <i>Structural Control and Health Monitoring</i> , 2021, 28, e2737.	1.9	7
110	A phased approach to enable hybrid simulation of complex structures. <i>Earthquake Engineering and Engineering Vibration</i> , 2014, 13, 63-77.	1.1	6
111	Vision-Based Monitoring of Post-Tensioned Diagonals on Miter Lock Gate. <i>Journal of Structural Engineering</i> , 2020, 146, .	1.7	6
112	Fatigue life evaluation model for high-strength steel wire considering different levels of corrosion. <i>Structure and Infrastructure Engineering</i> , 2023, 19, 409-419.	2.0	6
113	Continuous random field representation of stochastic moving loads. <i>Probabilistic Engineering Mechanics</i> , 2022, 68, 103230.	1.3	6
114	Automated damping identification of long-span bridge using long-term wireless monitoring data with multiple sensor faults. <i>Journal of Civil Structural Health Monitoring</i> , 2022, 12, 465-479.	2.0	6
115	Development and Validation of a Framework for Smart Wireless Strain and Acceleration Sensing. <i>Sensors</i> , 2022, 22, 1998.	2.1	6
116	Hybrid system identification for high-performance structural control. <i>Engineering Structures</i> , 2013, 56, 443-456.	2.6	5
117	Probabilistic Assessment of High-Throughput Wireless Sensor Networks. <i>Sensors</i> , 2016, 16, 792.	2.1	5
118	Detection of uneven hoisting of a Tainter lock gate: a case study for The Dalles Lock and Dam. <i>Journal of Civil Structural Health Monitoring</i> , 2020, 10, 557-571.	2.0	5
119	Multiaxial Real-Time Hybrid Simulation for Substructuring with Multiple Boundary Points. <i>Journal of Structural Engineering</i> , 2021, 147, .	1.7	5
120	Out-of-plane modal property extraction based on multi-level image pyramid reconstruction using stereophotogrammetry. <i>Mechanical Systems and Signal Processing</i> , 2022, 169, 108786.	4.4	5
121	Monitoring of chloride-induced corrosion in steel rebars. <i>Corrosion Engineering Science and Technology</i> , 2018, 53, 601-610.	0.7	4
122	A Roadmap for Sustainable Smart Track—Wireless Continuous Monitoring of Railway Track Condition. <i>Sustainability</i> , 2021, 13, 7456.	1.6	4
123	A mixed H ₂ /H _∞ -based semiactive control for vibration mitigation in flexible structures. , 2009, , .		3
124	Estimating Azimuth of Subsurface Linear Targets By Polarimetric GPR. , 2018, , .		3
125	Shock isolation using "smart" damping. <i>Structural Control and Health Monitoring</i> , 2002, 9, 135-152.	0.4	2
126	MAEviz: Bridging the Time-from-Discovery Gap between Seismic Research and Decision Making. , 2008, , .		2

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127	Simulating offset blast loads experimentally using shake-table-generated ground motions: Method development and validation. Structural Control and Health Monitoring, 2020, 27, e2480.	1.9	2
128	Predictive model for fatigue life in parallel-wire stay cables considering corrosion variability. Structure and Infrastructure Engineering, 2023, 19, 964-977.	2.0	2
129	Fatigue life updating of embedded miter gate anchorages of navigation locks using full-scale laboratory testing. Structure and Infrastructure Engineering, 2023, 19, 1299-1315.	2.0	2
130	Improving Situational Awareness of the As-Is Building Conditions through Multi-Modal Sensing and Analytics Using Thermal Camera-Equipped Smartphones. , 2016, , .		1
131	Monitoring Post-tensioned Miter Gate Diagonals Using Vision-based Vibration Measurements. , 0, , .		1