

# James L Beck

## List of Publications by Year in descending order

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109  
papers

8,892  
citations

61984

43  
h-index

42399

92  
g-index

111  
all docs

111  
docs citations

111  
times ranked

3992  
citing authors

#	ARTICLE	IF	CITATIONS
1	Robust sparse Bayesian learning for broad learning with application to high-speed railway track monitoring. <i>Structural Health Monitoring</i> , 2023, 22, 1256-1272.	7.5	3
2	Sparse Bayesian learning for damage identification using nonlinear models: Application to weld fractures of steel-frame buildings. <i>Structural Control and Health Monitoring</i> , 2022, 29, e2870.	4.0	6
3	Demonstrating the power of extended Masing models for hysteresis through model equivalencies and numerical investigation. <i>Nonlinear Dynamics</i> , 2022, 108, 827-856.	5.2	2
4	Sequential sparse Bayesian learning with applications to system identification for damage assessment and recursive reconstruction of image sequences. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2021, 373, 113545.	6.6	7
5	OptiSens-Convex optimization of sensor and actuator placement for ultrasonic guided-wave based structural health monitoring. <i>SoftwareX</i> , 2021, 13, 100643.	2.6	1
6	Connecting mem-models with classical theories. <i>Nonlinear Dynamics</i> , 2021, 103, 1321-1344.	5.2	3
7	Structural damage detection of space frame structures with semi-rigid connections. <i>Engineering Structures</i> , 2021, 235, 112029.	5.3	21
8	Sparse Bayesian factor analysis for structural damage detection under unknown environmental conditions. <i>Mechanical Systems and Signal Processing</i> , 2021, 154, 107563.	8.0	21
9	Novel sparseness-inducing dual Kalman filter and its application to tracking time-varying spatially-sparse structural stiffness changes and inputs. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2020, 372, 113411.	6.6	15
10	Optimal sensor and actuator placement for structural health monitoring via an efficient convex cost-benefit optimization. <i>Mechanical Systems and Signal Processing</i> , 2020, 144, 106901.	8.0	30
11	Multitask Sparse Bayesian Learning with Applications in Structural Health Monitoring. <i>Computer-Aided Civil and Infrastructure Engineering</i> , 2019, 34, 732-754.	9.8	51
12	Hierarchical Stochastic Model in Bayesian Inference for Engineering Applications: Theoretical Implications and Efficient Approximation. <i>ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering</i> , 2019, 5, .	1.1	13
13	Bayes-Mode-ID: A Bayesian modal-component-sampling method for operational modal analysis. <i>Engineering Structures</i> , 2019, 189, 222-240.	5.3	17
14	Bayesian operational modal analysis and assessment of a full-scale coupled structural system using the Bayes-Mode-ID method. <i>Engineering Structures</i> , 2019, 186, 183-202.	5.3	14
15	On choosing state variables for piecewise-smooth dynamical system simulations. <i>Nonlinear Dynamics</i> , 2019, 95, 1165-1188.	5.2	8
16	State-of-the-art review on Bayesian inference in structural system identification and damage assessment. <i>Advances in Structural Engineering</i> , 2019, 22, 1329-1351.	2.4	100
17	Bayesian inference with reliability methods without knowing the maximum of the likelihood function. <i>Probabilistic Engineering Mechanics</i> , 2018, 53, 14-22.	2.7	13
18	Using Approximate Bayesian Computation by Subset Simulation for Efficient Posterior Assessment of Dynamic State-Space Model Classes. <i>SIAM Journal of Scientific Computing</i> , 2018, 40, B168-B195.	2.8	7

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19	Robust-to-Uncertainties Optimal Design of Seismic Metamaterials. Journal of Engineering Mechanics - ASCE, 2018, 144, .	2.9	23
20	A Bayesian Learning Method for Structural Damage Assessment of Phase I IASC-ASCE Benchmark Problem. KSCE Journal of Civil Engineering, 2018, 22, 987-992.	1.9	11
21	Full Gibbs Sampling Procedure for Bayesian System Identification Incorporating Sparse Bayesian Learning with Automatic Relevance Determination. Computer-Aided Civil and Infrastructure Engineering, 2018, 33, 712-730.	9.8	38
22	Bayesian inference with Subset Simulation: Strategies and improvements. Computer Methods in Applied Mechanics and Engineering, 2018, 331, 72-93.	6.6	56
23	Approximate Bayesian Computation by Subset Simulation using hierarchical state-space models. Mechanical Systems and Signal Processing, 2017, 84, 2-20.	8.0	29
24	A New Adaptive Rejection Sampling Method Using Kernel Density Approximations and Its Application to Subset Simulation. ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering, 2017, 3, .	1.7	16
25	Bayesian system identification based on hierarchical sparse Bayesian learning and Gibbs sampling with application to structural damage assessment. Computer Methods in Applied Mechanics and Engineering, 2017, 318, 382-411.	6.6	91
26	Bayesian System Identification using auxiliary stochastic dynamical systems. International Journal of Non-Linear Mechanics, 2017, 94, 72-83.	2.6	6
27	Approximate Bayesian Computation by Subset Simulation for model selection in dynamical systems. Procedia Engineering, 2017, 199, 1056-1061.	1.2	2
28	Hierarchical sparse Bayesian learning for structural damage detection: Theory, computation and application. Structural Safety, 2017, 64, 37-53.	5.3	68
29	Rare-Event Simulation. , 2017, , 1075-1100.		7
30	Identifiability of Geotechnical Site-Specific Trend Functions. ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering, 2017, 3, .	1.7	22
31	Bayesian compressive sensing for approximately sparse signals and application to structural health monitoring signals for data loss recovery. Probabilistic Engineering Mechanics, 2016, 46, 62-79.	2.7	70
32	Virtual Inspector and its application to immediate pre-event and post-event earthquake loss and safety assessment of buildings. Natural Hazards, 2016, 81, 1861-1878.	3.4	24
33	An Engineering Application of Earthquake Early Warning: ePAD-Based Decision Framework for Elevator Control. Journal of Structural Engineering, 2016, 142, 04015092.	3.4	7
34	Approximate Bayesian Computation by Subset Simulation for Parameter Inference of Dynamical Models. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 37-50.	0.5	0
35	Rare-Event Simulation. , 2015, , 1-26.		6
36	HIERARCHICAL SPARSE BAYESIAN LEARNING FOR STRUCUTRAL HEALTH MONITORING WITH INCOMPLETE MODAL DATA. , 2015, 5, 139-169.		58

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37	General network reliability problem and its efficient solution by Subset Simulation. Probabilistic Engineering Mechanics, 2015, 40, 25-35.	2.7	41
38	Non-parametric stochastic subset optimization for design problems with reliability constraints. Structural and Multidisciplinary Optimization, 2015, 52, 1185-1204.	3.5	10
39	Approximate Bayesian Computation by Subset Simulation. SIAM Journal of Scientific Computing, 2014, 36, A1339-A1358.	2.8	71
40	Robust Bayesian Compressive Sensing for Signals in Structural Health Monitoring. Computer-Aided Civil and Infrastructure Engineering, 2014, 29, 160-179.	9.8	103
41	Predicting fatigue damage in composites: A Bayesian framework. Structural Safety, 2014, 51, 57-68.	5.3	33
42	Accounting for prediction uncertainty when inferring subsurface fault slip. Geophysical Journal International, 2014, 197, 464-482.	2.4	128
43	Earthquake early warning application to buildings. Engineering Structures, 2014, 60, 155-164.	5.3	22
44	ePAD: Earthquake Probability-Based Automated Decision-Making Framework for Earthquake Early Warning. Computer-Aided Civil and Infrastructure Engineering, 2013, 28, 737-752.	9.8	19
45	Global optimization using the asymptotically independent Markov sampling method. Computers and Structures, 2013, 126, 107-119.	4.4	18
46	Novel Sparse Bayesian Learning for Structural Health Monitoring Using Incomplete Modal Data. , 2013, , .		6
47	PRIOR AND POSTERIOR ROBUST STOCHASTIC PREDICTIONS FOR DYNAMICAL SYSTEMS USING PROBABILITY LOGIC. , 2013, 3, 271-288.		55
48	ASYMPTOTICALLY INDEPENDENT MARKOV SAMPLING: A NEW MARKOV CHAIN MONTE CARLO SCHEME FOR BAYESIAN INFERENCE. , 2013, 3, 445-474.		35
49	Stochastic optimization using automatic relevance determination prior model for Bayesian compressive sensing. , 2012, , .		3
50	Synergistic combination of systems for structural health monitoring and earthquake early warning for structural health prognosis and diagnosis. Proceedings of SPIE, 2012, , .	0.8	6
51	Bayesian post-processor and other enhancements of Subset Simulation for estimating failure probabilities in high dimensions. Computers and Structures, 2012, 92-93, 283-296.	4.4	148
52	Robust diagnostics for Bayesian compressive sensing with applications to structural health monitoring. Proceedings of SPIE, 2011, , .	0.8	3
53	Robust Stochastic Design of Linear Controlled Systems for Performance Optimization. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2010, 132, .	1.6	6
54	Bayesian model selection for ARX models and its application to structural health monitoring. Earthquake Engineering and Structural Dynamics, 2010, 39, 1737-1759.	4.4	40

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55	Bayesian system identification based on probability logic. Structural Control and Health Monitoring, 2010, 17, 825-847.	4.0	470
56	Calculation of Posterior Probabilities for Bayesian Model Class Assessment and Averaging from Posterior Samples Based on Dynamic System Data. Computer-Aided Civil and Infrastructure Engineering, 2010, 25, 304-321.	9.8	130
57	Reliability-Based Design Using Two-Stage Stochastic Optimization with a Treatment of Model Prediction Errors. Journal of Engineering Mechanics - ASCE, 2010, 136, 1460-1473.	2.9	26
58	Stochastic Subset Optimization for reliability optimization and sensitivity analysis in system design. Computers and Structures, 2009, 87, 318-331.	4.4	59
59	Life-cycle cost optimal design of passive dissipative devices. Structural Safety, 2009, 31, 508-522.	5.3	87
60	Propagating uncertainties for loss estimation in performance-based earthquake engineering using moment matching. Structure and Infrastructure Engineering, 2009, 5, 245-262.	3.7	16
61	Bayesian Model Updating Using Hybrid Monte Carlo Simulation with Application to Structural Dynamic Models with Many Uncertain Parameters. Journal of Engineering Mechanics - ASCE, 2009, 135, 243-255.	2.9	246
62	Probabilistically robust nonlinear design of control systems for base-isolated structures. Structural Control and Health Monitoring, 2008, 15, 697-719.	4.0	35
63	An efficient framework for optimal robust stochastic system design using stochastic simulation. Computer Methods in Applied Mechanics and Engineering, 2008, 198, 88-101.	6.6	113
64	Reliability-Based Performance Objectives and Probabilistic Robustness in Structural Control Applications. Journal of Engineering Mechanics - ASCE, 2008, 134, 291-301.	2.9	53
65	Bayesian Updating and Model Class Selection for Hysteretic Structural Models Using Stochastic Simulation. JVC/Journal of Vibration and Control, 2008, 14, 7-34.	2.6	230
66	Bayesian Learning Using Automatic Relevance Determination Prior with an Application to Earthquake Early Warning. Journal of Engineering Mechanics - ASCE, 2008, 134, 1013-1020.	2.9	32
67	System Identification of Constructed Facilities: Challenges and Opportunities across Hazards. , 2008, , .		3
68	Evaluation of the seismic performance of a code-conforming reinforced-concrete frame building from seismic hazard to collapse safety and economic losses. Earthquake Engineering and Structural Dynamics, 2007, 36, 1973-1997.	4.4	317
69	Structural protection using MR dampers with clipped robust reliability-based control. Structural and Multidisciplinary Optimization, 2007, 34, 431-443.	3.5	39
70	Robust reliability-based design of liquid column mass dampers under earthquake excitation using an analytical reliability approximation. Engineering Structures, 2007, 29, 3525-3537.	5.3	54
71	Seismic Early Warning Systems: Procedure for Automated Decision Making. , 2007, , 179-209.		7
72	Bayesian State Estimation Method for Nonlinear Systems and Its Application to Recorded Seismic Response. Journal of Engineering Mechanics - ASCE, 2006, 132, 396-410.	2.9	69

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73	Cost-Effectiveness of Stronger Woodframe Buildings. Earthquake Spectra, 2006, 22, 239-266.	3.1	40
74	Efficient model updating and health monitoring methodology using incomplete modal data without mode matching. Structural Control and Health Monitoring, 2006, 13, 91-107.	4.0	161
75	Near-real-time loss estimation for instrumented buildings. Structural Design of Tall and Special Buildings, 2006, 15, 3-20.	1.9	25
76	Structural Health Monitoring via Measured Ritz Vectors Utilizing Artificial Neural Networks. Computer-Aided Civil and Infrastructure Engineering, 2006, 21, 232-241.	9.8	108
77	Structural Model Updating and Health Monitoring with Incomplete Modal Data Using Gibbs Sampler. Computer-Aided Civil and Infrastructure Engineering, 2006, 21, 242-257.	9.8	123
78	Bayesian state and parameter estimation of uncertain dynamical systems. Probabilistic Engineering Mechanics, 2006, 21, 81-96.	2.7	195
79	Unified Probabilistic Approach for Model Updating and Damage Detection. Journal of Applied Mechanics, Transactions ASME, 2006, 73, 555-564.	2.2	59
80	Effect of Seismic Risk on Lifetime Property Value. Earthquake Spectra, 2004, 20, 1211-1237.	3.1	37
81	Two-Stage Structural Health Monitoring Approach for Phase I Benchmark Studies. Journal of Engineering Mechanics - ASCE, 2004, 130, 16-33.	2.9	109
82	Structural damage detection and assessment by adaptive Markov chain Monte Carlo simulation. Structural Control and Health Monitoring, 2004, 11, 327-347.	4.0	60
83	New Bayesian Model Updating Algorithm Applied to a Structural Health Monitoring Benchmark. Structural Health Monitoring, 2004, 3, 313-332.	7.5	76
84	Model Selection Using Response Measurements: Bayesian Probabilistic Approach. Journal of Engineering Mechanics - ASCE, 2004, 130, 192-203.	2.9	490
85	Simplified Estimation of Economic Seismic Risk for Buildings. Earthquake Spectra, 2004, 20, 1239-1263.	3.1	44
86	Reliability-based robust control for uncertain dynamical systems using feedback of incomplete noisy response measurements. Earthquake Engineering and Structural Dynamics, 2003, 32, 751-770.	4.4	39
87	Updating Properties of Nonlinear Dynamical Systems with Uncertain Input. Journal of Engineering Mechanics - ASCE, 2003, 129, 9-20.	2.9	56
88	Updating Nonlinear Dynamical Models Using Response Measurements Only. , 2003, , 1593.		0
89	Simplified Estimation of Seismic Life-Cycle Costs. , 2003, , 229.		9
90	Sensitivity of Building Loss Estimates to Major Uncertain Variables. Earthquake Spectra, 2002, 18, 719-743.	3.1	210

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91	Bayesian Updating of Structural Models and Reliability using Markov Chain Monte Carlo Simulation. Journal of Engineering Mechanics - ASCE, 2002, 128, 380-391.	2.9	645
92	Probabilistic approach for modal identification using non-stationary noisy response measurements only. Earthquake Engineering and Structural Dynamics, 2002, 31, 1007-1023.	4.4	58
93	Spectral density estimation of stochastic vector processes. Probabilistic Engineering Mechanics, 2002, 17, 265-272.	2.7	71
94	Stochastic Approach to Control and Identification of Smart Structures. , 2002, , 457-464.		0
95	Estimation of small failure probabilities in high dimensions by subset simulation. Probabilistic Engineering Mechanics, 2001, 16, 263-277.	2.7	1,722
96	Monitoring Structural Health Using a Probabilistic Measure. Computer-Aided Civil and Infrastructure Engineering, 2001, 16, 1-11.	9.8	114
97	A new stationary PDF approximation for non-linear oscillators. International Journal of Non-Linear Mechanics, 2000, 35, 657-673.	2.6	12
98	Entropy-Based Optimal Sensor Location for Structural Model Updating. JVC/Journal of Vibration and Control, 2000, 6, 781-800.	2.6	276
99	New Approximations for Reliability Integrals. Journal of Engineering Mechanics - ASCE, 1999, 125, 466-475.	2.9	35
100	Multi-criteria optimal structural design under uncertainty. Earthquake Engineering and Structural Dynamics, 1999, 28, 741-761.	4.4	53
101	Probabilistic control for the Active Mass Driver benchmark structural model. Earthquake Engineering and Structural Dynamics, 1998, 27, 1331-1346.	4.4	35
102	<title>Entropy-based optimal sensor location for structural damage detection</title>. , 1998, 3325, 161.		6
103	Probabilistic control for the Active Mass Driver benchmark structural model. Earthquake Engineering and Structural Dynamics, 1998, 27, 1331-1346.	4.4	1
104	Approximate solutions for non-linear random vibration problems. Probabilistic Engineering Mechanics, 1996, 11, 179-185.	2.7	21
105	Linear system response by DFT: Analysis of A recent modified method. Earthquake Engineering and Structural Dynamics, 1993, 22, 599-615.	4.4	14
106	Structural damage in Mexico City. Geophysical Research Letters, 1986, 13, 589-592.	4.0	17
107	Factors contributing to the catastrophe in Mexico City during the earthquake of September 19, 1985. Geophysical Research Letters, 1986, 13, 593-596.	4.0	71
108	Structural identification using linear models and earthquake records. Earthquake Engineering and Structural Dynamics, 1980, 8, 145-160.	4.4	178

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109	Combining Multiple Earthquake Models in Real Time for Earthquake Early Warning. Bulletin of the Seismological Society of America, 0, , .	2.3	8