Nicholas Zabaras

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/8686540/publications.pdf

Version: 2024-02-01

78	4,685	136740	98622
papers	citations	32 h-index	67 g-index

81	81	81	2696
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Physics-constrained deep learning for high-dimensional surrogate modeling and uncertainty quantification without labeled data. Journal of Computational Physics, 2019, 394, 56-81.	1.9	510
2	Bayesian deep convolutional encoderâ€“decoder networks for surrogate modeling and uncertainty quantification. Journal of Computational Physics, 2018, 366, 415-447.	1.9	397
3	An adaptive hierarchical sparse grid collocation algorithm for the solution of stochastic differential equations. Journal of Computational Physics, 2009, 228, 3084-3113.	1.9	381
4	Sparse grid collocation schemes for stochastic natural convection problems. Journal of Computational Physics, 2007, 225, 652-685.	1.9	349
5	A Bayesian inference approach to the inverse heat conduction problem. International Journal of Heat and Mass Transfer, 2004, 47, 3927-3941.	2.5	202
6	Deep Convolutional Encoderâ€Decoder Networks for Uncertainty Quantification of Dynamic Multiphase Flow in Heterogeneous Media. Water Resources Research, 2019, 55, 703-728.	1.7	201
7	An inverse method for determining elastic material properties and a material interface. International Journal for Numerical Methods in Engineering, 1992, 33, 2039-2057.	1.5	185
8	An adaptive high-dimensional stochastic model representation technique for the solution of stochastic partial differential equations. Journal of Computational Physics, 2010, 229, 3884-3915.	1.9	180
9	Deep Autoregressive Neural Networks for Highâ€Dimensional Inverse Problems in Groundwater Contaminant Source Identification. Water Resources Research, 2019, 55, 3856-3881.	1.7	157
10	Modeling the dynamics of PDE systems with physics-constrained deep auto-regressive networks. Journal of Computational Physics, 2020, 403, 109056.	1.9	140
11	Multi-output separable Gaussian process: Towards an efficient, fully Bayesian paradigm for uncertainty quantification. Journal of Computational Physics, 2013, 241, 212-239.	1.9	124
12	Multi-output local Gaussian process regression: Applications to uncertainty quantification. Journal of Computational Physics, 2012, 231, 5718-5746.	1.9	115
13	An efficient Bayesian inference approach to inverse problems based on an adaptive sparse grid collocation method. Inverse Problems, 2009, 25, 035013.	1.0	111
14	Quantifying model form uncertainty in Reynolds-averaged turbulence models with Bayesian deep neural networks. Journal of Computational Physics, 2019, 383, 125-147.	1.9	78
15	Kernel principal component analysis for stochastic input model generation. Journal of Computational Physics, 2011, 230, 7311-7331.	1.9	74
16	Integration of Adversarial Autoencoders With Residual Dense Convolutional Networks for Estimation of Nonâ€Gaussian Hydraulic Conductivities. Water Resources Research, 2020, 56, e2019WR026082.	1.7	67
17	Stochastic inverse heat conduction using a spectral approach. International Journal for Numerical Methods in Engineering, 2004, 60, 1569-1593.	1.5	61
18	DESIGN OF TWO-DIMENSIONAL STEFAN PROCESSES WITH DESIRED FREEZING FRONT MOTIONS. Numerical Heat Transfer, Part B: Fundamentals, 1992, 21, 307-325.	0.6	53

#	Article	IF	Citations
19	A non-linear dimension reduction methodology for generating data-driven stochastic input models. Journal of Computational Physics, 2008, 227, 6612-6637.	1.9	50
20	A maximum entropy approach for property prediction of random microstructures. Acta Materialia, 2006, 54, 2265-2276.	3.8	46
21	A stochastic mixed finite element heterogeneous multiscale method for flow in porous media. Journal of Computational Physics, 2011, 230, 4696-4722.	1.9	45
22	Control of the freezing interface motion in two-dimensional solidification processes using the adjoint method. International Journal for Numerical Methods in Engineering, 1995, 38, 63-80.	1.5	44
23	A Bayesian approach to multiscale inverse problems with on-the-fly scale determination. Journal of Computational Physics, 2016, 326, 115-140.	1.9	42
24	An adjoint method for the inverse design of solidification processes with natural convection. International Journal for Numerical Methods in Engineering, 1998, 42, 1121-1144.	1.5	41
25	A computational model for the finite element analysis of thermoplasticity coupled with ductile damage at finite strains. International Journal for Numerical Methods in Engineering, 1999, 45, 1569-1605.	1.5	40
26	A stabilized volume-averaging finite element method for flow in porous media and binary alloy solidification processes. International Journal for Numerical Methods in Engineering, 2004, 60, 1103-1138.	1.5	40
27	A stochastic optimization approach to coarse-graining using a relative-entropy framework. Journal of Chemical Physics, 2013, 138, 044313.	1.2	39
28	Uncertainty propagation using infinite mixture of Gaussian processes and variational Bayesian inference. Journal of Computational Physics, 2015, 284, 291-333.	1.9	39
29	Transformers for modeling physical systems. Neural Networks, 2022, 146, 272-289.	3.3	39
30	Computing property variability of polycrystals induced by grain size and orientation uncertainties. Acta Materialia, 2007, 55, 2279-2290.	3.8	38
31	The effect of multiple sources of uncertainty on the convex hull of material properties of polycrystals. Computational Materials Science, 2009, 47, 342-352.	1.4	34
32	On the solution of an ill-posed design solidification problem using minimization techniques in finite- and infinite-dimensional function spaces. International Journal for Numerical Methods in Engineering, 1993, 36, 3973-3990.	1.5	33
33	Microstructure model reduction and uncertainty quantification in multiscale deformation processes. Computational Materials Science, 2010, 48, 213-227.	1.4	33
34	An object oriented implementation of a front tracking finite element method for directional solidification processes. International Journal for Numerical Methods in Engineering, 1999, 44, 1227-1265.	1.5	32
35	A statistical learning approach for the design of polycrystalline materials. Statistical Analysis and Data Mining, 2009, 1, 306-321.	1.4	29
36	Development of an exchangeâ€“correlation functional with uncertainty quantification capabilities for density functional theory. Journal of Computational Physics, 2016, 311, 173-195.	1.9	29

#	Article	IF	Citations
37	Predictive coarse-graining. Journal of Computational Physics, 2017, 333, 49-77.	1.9	29
38	Structured Bayesian Gaussian process latent variable model: Applications to data-driven dimensionality reduction and high-dimensional inversion. Journal of Computational Physics, 2019, 383, 166-195.	1.9	29
39	A continuum Lagrangian sensitivity analysis for metal forming processes with applications to die design problems. International Journal for Numerical Methods in Engineering, 2000, 48, 679-720.	1.5	28
40	A continuum sensitivity method for finite thermo-inelastic deformations with applications to the design of hot forming processes. International Journal for Numerical Methods in Engineering, 2002, 55, 1391-1437.	1.5	28
41	A Bayesian approach to multiscale inverse problems using the sequential Monte Carlo method. Inverse Problems, 2011, 27, 105004.	1.0	28
42	Control of the freezing interface morphology in solidification processes in the presence of natural convection. International Journal for Numerical Methods in Engineering, 1995, 38, 1555-1578.	1.5	27
43	DYNAMIC PROGRAMMING APPROACH TO THE INVERSE STEFAN DESIGN PROBLEM. Numerical Heat Transfer, Part B: Fundamentals, 1994, 26, 97-104.	0.6	25
44	Predictive collective variable discovery with deep Bayesian models. Journal of Chemical Physics, 2019, 150, 024109.	1.2	25
45	A least-squares front-tracking finite element method analysis of phase change with natural convection. International Journal for Numerical Methods in Engineering, 1994, 37, 2755-2777.	1.5	24
46	Solving inverse problems using conditional invertible neural networks. Journal of Computational Physics, 2021, 433, 110194.	1.9	24
47	An object-oriented programming approach to the Lagrangian FEM analysis of large inelastic deformations and metal-forming processes. International Journal for Numerical Methods in Engineering, 1999, 45, 399-445.	1.5	23
48	A virtual environment for the interrogation of 3D polycrystalline microstructures including grain size effects. Computational Materials Science, 2009, 44, 1163-1177.	1.4	23
49	Transient dynamic and damping analysis of laminated anisotropic plates using a refined plate theory. International Journal for Numerical Methods in Engineering, 1992, 33, 1059-1080.	1.5	21
50	Multidimensional Adaptive Relevance Vector Machines for Uncertainty Quantification. SIAM Journal of Scientific Computing, 2012, 34, B881-B908.	1.3	21
51	A concurrent model reduction approach on spatial and random domains for the solution of stochastic PDEs. International Journal for Numerical Methods in Engineering, 2006, 66, 1934-1954.	1.5	19
52	Multi-fidelity generative deep learning turbulent flows. , 2020, 2, 391-428.		19
53	An object-oriented framework for the implementation of adjoint techniques in the design and control of complex continuum systems. International Journal for Numerical Methods in Engineering, 2000, 48, 239-266.	1.5	18
54	An updated Lagrangian finite element sensitivity analysis of large deformations using quadrilateral elements. International Journal for Numerical Methods in Engineering, 2001, 52, 1131-1163.	1.5	17

#	Article	IF	Citations
55	Quantifying uncertainties in first-principles alloy thermodynamics using cluster expansions. Journal of Computational Physics, 2016, 323, 17-44.	1.9	17
56	A probabilistic graphical model approach to stochastic multiscale partial differential equations. Journal of Computational Physics, 2013, 250, 477-510.	1.9	16
57	On the performance of two tangent operators for finite element analysis of large deformation inelastic problems. International Journal for Numerical Methods in Engineering, 1992, 35, 369-389.	1.5	15
58	Computing mechanical response variability of polycrystalline microstructures through dimensionality reduction techniques. Computational Materials Science, 2010, 49, 568-581.	1.4	15
59	A multiscale approach for model reduction of random microstructures. Computational Materials Science, 2012, 63, 269-285.	1.4	12
60	Bayesian multiscale deep generative model for the solution of high-dimensional inverse problems. Journal of Computational Physics, 2022, 455, 111008.	1.9	11
61	Inverse design of directional solidification processes in the presence of a strong external magnetic field. International Journal for Numerical Methods in Engineering, 2001, 50, 2489-2520.	1.5	10
62	Modelling convection in solidification processes using stabilized finite element techniques. International Journal for Numerical Methods in Engineering, 2005, 64, 1769-1799.	1.5	10
63	Relative entropy as model selection tool in cluster expansions. Physical Review B, 2013, 87, .	1.1	10
64	Computationally Efficient Variational Approximations for Bayesian Inverse Problems. Journal of Verification, Validation and Uncertainty Quantification, 2016, 1, .	0.3	10
65	Uncertainty quantification for multiscale disk forging of polycrystal materials using probabilistic graphical model techniques. Computational Materials Science, 2014, 84, 278-292.	1.4	7
66	Efficient data-driven reduced-order models for high-dimensional multiscale dynamical systems. Computer Physics Communications, 2018, 230, 70-88.	3.0	6
67	Inverse Problems in Heat Transfer. , 0, , 523-557.		5
68	Bayesian Uncertainty Propagation Using Gaussian Processes. , 2017, , 555-599.		5
69	Thermal Response Variability of Random Polycrystalline Microstructures. Communications in Computational Physics, 2011, 10, 607-634.	0.7	4
70	A nonparametric belief propagation method for uncertainty quantification with applications to flow in random porous media. Journal of Computational Physics, 2013, 250, 616-643.	1.9	4
71	Pro-ML IDeAS: A Probabilistic Framework for Explicit Inverse Design using Invertible Neural Network. , 2021, , .		4
72	Representation and Classification of Microstructures using Statistical Learning Techniques. AIP Conference Proceedings, 2004, , .	0.3	3

#	Article	IF	Citations
73	Adaptive Locally Weighted Projection Regression Method for Uncertainty Quantification. Communications in Computational Physics, 2013, 14, 851-878.	0.7	3
74	A Bayesian multiscale deep learning framework for flows in random media. , 2021, 3, 251.		3
75	A continuum Lagrangian sensitivity analysis for metal forming processes with applications to die design problems. International Journal for Numerical Methods in Engineering, 2000, 48, 679-720.	1.5	2
76	A gradient optimization method for efficient design of three-dimensional deformation processes. AIP Conference Proceedings, 2004, , .	0.3	1
77	Multi-length scale design of deformation processes for control of orientation (texture) dependent properties. AIP Conference Proceedings, 2004, , .	0.3	1
78	Parallel probabilistic graphical model approach for nonparametric Bayesian inference. Journal of Computational Physics, 2018, 372, 546-563.	1.9	1