Shiva Rudraraju

List of Publications by Year
in descending order

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40 papers	2,383 citations	279487 23 h-index	315357 38 g-index
43 all docs	43 docs citations	43 times ranked	1878 citing authors

#	Article	IF	Citations
1	Variational system identification of the partial differential equations governing microstructure evolution in materials: Inference over sparse and spatially unrelated data. Computer Methods in Applied Mechanics and Engineering, 2021, 377, 113706.	3.4	21
2	Influence of Tool Runout on Force Measurement During Internal Void Monitoring for Friction Stir Welding of 6061-T6 Aluminum. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2021, 143, .	1.3	0
3	Biomembranes undergo complex, non-axisymmetric deformations governed by Kirchhoffâ€“Love kinematicsand revealed by a three-dimensional computational framework. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, 20210246.	1.0	4
4	DFT-FE â€“ A massively parallel adaptive finite-element code for large-scale density functional theory calculations. Computer Physics Communications, 2020, 246, 106853.	3.0	119
5	A mechanical model reveals that non-axisymmetric buckling lowers the energy barrier associated with membrane neck constriction. Soft Matter, 2020, 16, 784-797.	1.2	29
6	Scale bridging materials physics: Active learning workflows and integrable deep neural networks for free energy function representations in alloys. Computer Methods in Applied Mechanics and Engineering, 2020, 371, 113281.	3.4	17
7	PRISMS-PF: A general framework for phase-field modeling with a matrix-free finite element method. Npj Computational Materials, 2020, 6, .	3.5	33
8	A computational framework for the morpho-elastic development of molluskan shells by surface and volume growth. PLoS Computational Biology, 2019, 15, e1007213.	1.5	10
9	Variational system identification of the partial differential equations governing the physics of pattern-formation: Inference under varying fidelity and noise. Computer Methods in Applied Mechanics and Engineering, 2019, 356, 44-74.	3.4	45
10	PRISMS-Plasticity: An open-source crystal plasticity finite element software. Computational Materials Science, 2019, 169, 109078.	1.4	86
11	Machine learning materials physics: Integrable deep neural networks enable scale bridging by learning free energy functions. Computer Methods in Applied Mechanics and Engineering, 2019, 353, 201-216.	3.4	68
12	A graph theoretic framework for representation, exploration and analysis on computed states of physical systems. Computer Methods in Applied Mechanics and Engineering, 2019, 351, 501-530.	3.4	10
13	A Diffuse Interface Framework for Modeling the Evolution of Multi-cell Aggregates as a Soft Packing Problem Driven by the Growth and Division of Cells. Bulletin of Mathematical Biology, 2019, 81, 3282-3300.	0.9	16
14	A computational study of the mechanisms of growth-driven folding patterns on shells, with application to the developing brain. Extreme Mechanics Letters, 2018, 18, 58-69.	2.0	19
15	PRISMS: An Integrated, Open-Source Framework for Accelerating Predictive Structural Materials Science. Jom, 2018, 70, 2298-2314.	0.9	30
16	Unconditionally stable, second-order schemes for gradient-regularized, non-convex, finite-strain elasticity modeling martensitic phase transformations. Computer Methods in Applied Mechanics and Engineering, 2018, 338, 597-617.	3.4	4
17	A variational treatment of material configurations with application to interface motion and microstructural evolution. Journal of the Mechanics and Physics of Solids, 2017, 99, 338-356.	2.3	5
18	A comparison of Redlich-Kister polynomial and cubic spline representations of the chemical potential in phase field computations. Computational Materials Science, 2017, 128, 127-139.	1.4	17

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19	Misfit-driven Î²â€²â€² precipitate composition and morphology in Mg-Nd alloys. Acta Materialia, 2017, 136, 378-389.	3.8	36
20	Unconditionally stable, second-order accurate schemes for solid state phase transformations driven by mechano-chemical spinodal decomposition. Computer Methods in Applied Mechanics and Engineering, 2016, 311, 556-575.	3.4	11
21	Coordination of signaling and tissue mechanics during morphogenesis of murine intestinal villi: a role for mitotic cell rounding. Integrative Biology (United Kingdom), 2016, 8, 918-928.	0.6	37
22	Multiphysics Simulations of Lithiation-Induced Stress in Li_{1+x}Ti₂O₄ Electrode Particles. Journal of Physical Chemistry C, 2016, 120, 27871-27881.	1.5	8
23	Mechanochemical spinodal decomposition: a phenomenological theory of phase transformations in multi-component, crystalline solids. Npj Computational Materials, 2016, 2, .	3.5	52
24	A three dimensional field formulation, and isogeometric solutions to point and line defects using Toupin's theory of gradient elasticity at finite strains. Journal of the Mechanics and Physics of Solids, 2016, 94, 336-361.	2.3	13
25	Three-dimensional isogeometric solutions to general boundary value problems of Toupinâ€™s gradient elasticity theory at finite strains. Computer Methods in Applied Mechanics and Engineering, 2014, 278, 705-728.	3.4	63
26	Elastic Free Energy Drives the Shape of Prevascular Solid Tumors. PLoS ONE, 2014, 9, e103245.	1.1	27
27	Experimental observations and numerical simulations of curved crack propagation in laminated fiber composites. Composites Science and Technology, 2012, 72, 1064-1074.	3.8	14
28	Predictions of crack propagation using a variational multiscale approach and its application to fracture in laminated fiber reinforced composites. Composite Structures, 2012, 94, 3336-3346.	3.1	30
29	Perspectives on biological growth and remodeling. Journal of the Mechanics and Physics of Solids, 2011, 59, 863-883.	2.3	371
30	In-plane fracture of laminated fiber reinforced composites with varying fracture resistance: Experimental observations and numerical crack propagation simulations. International Journal of Solids and Structures, 2010, 47, 901-911.	1.3	44
31	In silicoestimates of the free energy rates in growing tumor spheroids. Journal of Physics Condensed Matter, 2010, 22, 194122.	0.7	24
32	The Kinematics of Biological Growth. Applied Mechanics Reviews, 2009, 62, .	4.5	71
33	Biological remodelling: Stationary energy, configurational change, internal variables and dissipation. Journal of the Mechanics and Physics of Solids, 2006, 54, 1493-1515.	2.3	43
34	The continuum elastic and atomistic viewpoints on the formation volume and strain energy of a point defect. Journal of the Mechanics and Physics of Solids, 2006, 54, 1929-1951.	2.3	25
35	A continuum treatment of growth in biological tissue: the coupling of mass transport and mechanics. Journal of the Mechanics and Physics of Solids, 2004, 52, 1595-1625.	2.3	199
36	Variational multiscale methods to embed the macromechanical continuum formulation with fine-scale strain gradient theories. International Journal for Numerical Methods in Engineering, 2003, 57, 1283-1298.	1.5	17

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37	Continuous/discontinuous finite element approximations of fourth-order elliptic problems in structural and continuum mechanics with applications to thin beams and plates, and strain gradient elasticity. Computer Methods in Applied Mechanics and Engineering, 2002, 191, 3669-3750.	3.4	365
38	A variational multiscale approach to strain localization â€“ formulation for multidimensional problems. Computer Methods in Applied Mechanics and Engineering, 2000, 188, 39-60.	3.4	85
39	An analysis of strong discontinuities in multiplicative finite strain plasticity and their relation with the numerical simulation of strain localization in solids. International Journal of Solids and Structures, 1996, 33, 2863-2885.	1.3	302
40	Novel correlations between process forces and void morphology for effective detection and minimization of voids during friction stir welding. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 0, , 1-14.	1.3	1