Ellen Kuhl

List of Publications by Citations

279 papers	10,944 citations	59 h-index	88 g-index
317 ext. papers	13,218 ext. citations	4 avg, IF	7.07 L-index

#	Paper	IF	Citations
279	Mechanical properties of gray and white matter brain tissue by indentation. *Journal of the Mechanical Behavior of Biomedical Materials*, **2015**, 46, 318-30	4.1	334
278	Perspectives on biological growth and remodeling. *Journal of the Mechanics and Physics of Solids*, **2011**, 59, 863-883	5	307
277	Mechanical characterization of human brain tissue. *Acta Biomaterialia*, **2017**, 48, 319-340	10.8	268
276	Mechanics of the brain: perspectives, challenges, and opportunities. *Biomechanics and Modeling in Mechanobiology*, **2015**, 14, 931-65	3.8	217
275	A finite element method for the computational modelling of cohesive cracks. *International Journal for Numerical Methods in Engineering*, **2005**, 63, 276-289	2.4	188
274	The Living Heart Project: A robust and integrative simulator for human heart function. *European Journal of Mechanics, A/Solids*, **2014**, 48, 38-47	3.7	175
273	A multiscale model for eccentric and concentric cardiac growth through sarcomerogenesis. *Journal of Theoretical Biology*, **2010**, 265, 433-42	2.3	160
272	Frontiers in growth and remodeling. *Mechanics Research Communications*, **2012**, 42, 1-14	2.2	154
271	Remodeling of biological tissue: Mechanically induced reorientation of a transversely isotropic chain network. *Journal of the Mechanics and Physics of Solids*, **2005**, 53, 1552-1573	5	149
270	The role of mechanics during brain development. *Journal of the Mechanics and Physics of Solids*, **2014**, 72, 75-92	5	148
269	Outbreak dynamics of COVID-19 in Europe and the effect of travel restrictions. *Computer Methods in Biomechanics and Biomedical Engineering*, **2020**, 23, 710-717	2.1	144
268	Electromechanics of the heart: a unified approach to the strongly coupled excitation–contraction problem. *Computational Mechanics*, **2010**, 45, 227-243	4	139
267	Physical biology of human brain development. *Frontiers in Cellular Neuroscience*, **2015**, 9, 257	6.1	138
266	A discontinuous Galerkin method for the Cahn–Hilliard equation. *Journal of Computational Physics*, **2006**, 218, 860-877	4.1	138
265	Brain stiffness increases with myelin content. *Acta Biomaterialia*, **2016**, 42, 265-272	10.8	130
264	A mechanical model predicts morphological abnormalities in the developing human brain. *Scientific Reports*, **2014**, 4, 5644	4.9	129
263	Integrating machine learning and multiscale modeling-perspectives, challenges, and opportunities in the biological, biomedical, and behavioral sciences. *Npj Digital Medicine*, **2019**, 2, 115	15.7	127

262	Computational modeling of arterial wall growth. Attempts towards patient-specific simulations based on computer tomography. *Biomechanics and Modeling in Mechanobiology*, **2007**, 6, 321-31	3.8	120
261	Multiphysics and multiscale modelling, data-model fusion and integration of organ physiology in the clinic: ventricular cardiac mechanics. *Interface Focus*, **2016**, 6, 20150083	3.9	118
260	A generic approach towards finite growth with examples of athlete's heart, cardiac dilation, and cardiac wall thickening. *Journal of the Mechanics and Physics of Solids*, **2010**, 58, 1661-1680	5	108
259	Using 3D Printing to Create Personalized Brain Models for Neurosurgical Training and Preoperative Planning. *World Neurosurgery*, **2016**, 90, 668-674	2.1	104
258	Computational modeling of passive myocardium. *International Journal for Numerical Methods in Biomedical Engineering*, **2011**, 27, 1-12	2.6	98
257	An anisotropic gradient damage model for quasi-brittle materials. *Computer Methods in Applied Mechanics and Engineering*, **2000**, 183, 87-103	5.7	98
256	Segmental aortic stiffening contributes to experimental abdominal aortic aneurysm development. *Circulation*, **2015**, 131, 1783-95	16.7	90
255	Computational modeling of growth. *Computational Mechanics*, **2003**, 32, 71-88	4	89
254	Growing skin: A computational model for skin expansion in reconstructive surgery. *Journal of the Mechanics and Physics of Solids*, **2011**, 59, 2177-2190	5	88
253	Outbreak dynamics of COVID-19 in China and the United States. *Biomechanics and Modeling in Mechanobiology*, **2020**, 19, 2179-2193	3.8	84
252	A family of hyperelastic models for human brain tissue. *Journal of the Mechanics and Physics of Solids*, **2017**, 106, 60-79	5	83
251	Pattern selection in growing tubular tissues. *Physical Review Letters*, **2014**, 113, 248101	7.4	83
250	A continuum model for remodeling in living structures. *Journal of Materials Science*, **2007**, 42, 8811-8823	4.3	83
249	Use it or lose it: multiscale skeletal muscle adaptation to mechanical stimuli. *Biomechanics and Modeling in Mechanobiology*, **2015**, 14, 195-215	3.8	80
248	Period-doubling and period-tripling in growing bilayered systems. *Philosophical Magazine*, **2015**, 95, 3208-3224	1.8	79
247	Generating fibre orientation maps in human heart models using Poisson interpolation. *Computer Methods in Biomechanics and Biomedical Engineering*, **2014**, 17, 1217-26	2.1	78
246	Viscoelastic parameter identification of human brain tissue. *Journal of the Mechanical Behavior of Biomedical Materials*, **2017**, 74, 463-476	4.1	78
245	Multiscale computational models for optogenetic control of cardiac function. *Biophysical Journal*, **2011**, 101, 1326-34	2.9	77

244	A hybrid discontinuous Galerkin/interface method for the computational modelling of failure. *Communications in Numerical Methods in Engineering*, **2004**, 20, 511-519		77
243	Fifty Shades of Brain: A Review on the Mechanical Testing and Modeling of Brain Tissue. *Archives of Computational Methods in Engineering*, **2020**, 27, 1187-1230	7.8	76
242	On the biomechanics and mechanobiology of growing skin. *Journal of Theoretical Biology*, **2012**, 297, 166-75	2.3	75
241	On the effect of prestrain and residual stress in thin biological membranes. *Journal of the Mechanics and Physics of Solids*, **2013**, 61, 1955-1969	5	75
240	Passive Stretch Induces Structural and Functional Maturation of Engineered Heart Muscle as Predicted by Computational Modeling. *Stem Cells*, **2018**, 36, 265-277	5.8	74
239	Rheological characterization of human brain tissue. *Acta Biomaterialia*, **2017**, 60, 315-329	10.8	71
238	Computational modeling of growth: systemic and pulmonary hypertension in the heart. *Biomechanics and Modeling in Mechanobiology*, **2011**, 10, 799-811	3.8	71
237	The reproduction number of COVID-19 and its correlation with public health interventions. *Computational Mechanics*, **2020**, 66, 1-16	4	71
236	Growth and remodelling of living tissues: perspectives, challenges and opportunities. *Journal of the Royal Society Interface*, **2019**, 16, 20190233	4.1	70
235	Growth on demand: reviewing the mechanobiology of stretched skin. *Journal of the Mechanical Behavior of Biomedical Materials*, **2013**, 28, 495-509	4.1	70
234	Stress concentrations in fractured compact bone simulated with a special class of anisotropic gradient elasticity. *International Journal of Solids and Structures*, **2010**, 47, 1099-1107	3.1	70
233	An arbitrary Lagrangian Eulerian finite-element approach for fluid–structure interaction phenomena. *International Journal for Numerical Methods in Engineering*, **2003**, 57, 117-142	2.4	70
232	Material properties of the ovine mitral valve anterior leaflet in vivo from inverse finite element analysis. *American Journal of Physiology - Heart and Circulatory Physiology*, **2008**, 295, H1141-H1149	5.2	68
231	Stretching skeletal muscle: chronic muscle lengthening through sarcomerogenesis. *PLoS ONE*, **2012**, 7, e45661	3.7	68
230	Constitutive Modeling of Brain Tissue: Current Perspectives. *Applied Mechanics Reviews*, **2016**, 68,	8.6	66
229	Modeling three-dimensional crack propagation—A comparison of crack path tracking strategies. *International Journal for Numerical Methods in Engineering*, **2008**, 76, 1328-1352	2.4	66
228	Computational modeling of cardiac electrophysiology: A novel finite element approach. *International Journal for Numerical Methods in Engineering*, **2009**, 79, 156-178	2.4	65
227	Isogeometric Kirchhoff-Love shell formulations for biological membranes. *Computer Methods in Applied Mechanics and Engineering*, **2015**, 293, 328-347	5.7	63

226	Physics-Informed Neural Networks for Cardiac Activation Mapping. *Frontiers in Physics*, **2020**, 8,	3.9	61
225	Characterization of indentation response and stiffness reduction of bone using a continuum damage model. *Journal of the Mechanical Behavior of Biomedical Materials*, **2010**, 3, 189-202	4.1	60
224	Emerging Brain Morphologies from Axonal Elongation. *Annals of Biomedical Engineering*, **2015**, 43, 1640-53	4.7	59
223	Mechanics of the mitral valve: a critical review, an in vivo parameter identification, and the effect of prestrain. *Biomechanics and Modeling in Mechanobiology*, **2013**, 12, 1053-71	3.8	59
222	Mass and volume specific views on thermodynamics for open systems. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2003**, 459, 2547-2568	2.4	59
221	Heterogeneous growth-induced prestrain in the heart. *Journal of Biomechanics*, **2015**, 48, 2080-9	2.9	58
220	Stress-strain behavior of mitral valve leaflets in the beating ovine heart. *Journal of Biomechanics*, **2009**, 42, 1909-16	2.9	58
219	Modeling Pathologies of Diastolic and Systolic Heart Failure. *Annals of Biomedical Engineering*, **2016**, 44, 112-27	4.7	57
218	Stretching skin: The physiological limit and beyond. *International Journal of Non-Linear Mechanics*, **2012**, 47, 938-949	2.8	57
217	A novel method for quantifying the in-vivo mechanical effect of material injected into a myocardial infarction. *Annals of Thoracic Surgery*, **2011**, 92, 935-41	2.7	57
216	Mitral valve annuloplasty: a quantitative clinical and mechanical comparison of different annuloplasty devices. *Annals of Biomedical Engineering*, **2012**, 40, 750-61	4.7	56
215	A fully implicit finite element method for bidomain models of cardiac electromechanics. *Computer Methods in Applied Mechanics and Engineering*, **2013**, 253, 323-336	5.7	56
214	In vivo dynamic strains of the ovine anterior mitral valve leaflet. *Journal of Biomechanics*, **2011**, 44, 1149-57	2.9	54
213	An ALE formulation based on spatial and material settings of continuum mechanics. Part 1: Generic hyperelastic formulation. *Computer Methods in Applied Mechanics and Engineering*, **2004**, 193, 4207-4222	5.7	54
212	Generating Purkinje networks in the human heart. *Journal of Biomechanics*, **2016**, 49, 2455-65	2.9	53
211	Characterization of mitral valve annular dynamics in the beating heart. *Annals of Biomedical Engineering*, **2011**, 39, 1690-702	4.7	53
210	Instabilities of soft films on compliant substrates. *Journal of the Mechanics and Physics of Solids*, **2017**, 98, 350-365	5	50
209	Systems-based approaches toward wound healing. *Pediatric Research*, **2013**, 73, 553-63	3.2	50

208	Brain stiffens post mortem. *Journal of the Mechanical Behavior of Biomedical Materials*, **2018**, 84, 88-98	4.1	50
207	Machine learning in drug development: Characterizing the effect of 30 drugs on the QT interval using Gaussian process regression, sensitivity analysis, and uncertainty quantification. *Computer Methods in Applied Mechanics and Engineering*, **2019**, 348, 313-333	5.7	48
206	Theory and numerics of geometrically non-linear open system mechanics. *International Journal for Numerical Methods in Engineering*, **2003**, 58, 1593-1615	2.4	48
205	Growth and remodeling of the left ventricle: A case study of myocardial infarction and surgical ventricular restoration. *Mechanics Research Communications*, **2012**, 42, 134-141	2.2	47
204	On the mechanics of continua with boundary energies and growing surfaces. *Journal of the Mechanics and Physics of Solids*, **2013**, 61, 1446-1463	5	47
203	Neuromechanics. *Advances in Applied Mechanics*, **2015**, 79-139	10	47
202	Multiscale modeling meets machine learning: What can we learn?. *Archives of Computational Methods in Engineering*, **2021**, 28, 1017-1037	7.8	47
201	A physics-based model explains the prion-like features of neurodegeneration in Alzheimer's disease, Parkinson's disease, and amyotrophic lateral sclerosis. *Journal of the Mechanics and Physics of Solids*, **2019**, 124, 264-281	5	45
200	A thermodynamically consistent approach to microplane theory. Part II. Dissipation and inelastic constitutive modeling. *International Journal of Solids and Structures*, **2001**, 38, 2933-2952	3.1	44
199	The Shrinking Brain: Cerebral Atrophy Following Traumatic Brain Injury. *Annals of Biomedical Engineering*, **2019**, 47, 1941-1959	4.7	44
198	Growing skin: tissue expansion in pediatric forehead reconstruction. *Biomechanics and Modeling in Mechanobiology*, **2012**, 11, 855-67	3.8	43
197	Rigid, complete annuloplasty rings increase anterior mitral leaflet strains in the normal beating ovine heart. *Circulation*, **2011**, 124, S81-96	16.7	43
196	Parameter identification of gradient enhanced damage models with the finite element method. *European Journal of Mechanics, A/Solids*, **1999**, 18, 819-835	3.7	43
195	Multiphysics of Prionlike Diseases: Progression and Atrophy. *Physical Review Letters*, **2018**, 121, 158101	7.4	43
194	Modeling and Simulation of Viscous Electro-Active Polymers. *European Journal of Mechanics, A/Solids*, **2014**, 48, 112-128	3.7	42
193	An ALE formulation based on spatial and material settings of continuum mechanics. Part 2: Classification and applications. *Computer Methods in Applied Mechanics and Engineering*, **2004**, 193, 4223-4245	5.7	42
192	The importance of mechano-electrical feedback and inertia in cardiac electromechanics. *Computer Methods in Applied Mechanics and Engineering*, **2017**, 320, 352-368	5.7	41
191	Active stiffening of mitral valve leaflets in the beating heart. *American Journal of Physiology - Heart and Circulatory Physiology*, **2009**, 296, H1766-73	5.2	41

190	Computational aspects of growth-induced instabilities through eigenvalue analysis. *Computational Mechanics*, **2015**, 56, 405-420	4	40
189	Is it safe to lift COVID-19 travel bans? The Newfoundland story. *Computational Mechanics*, **2020**, 66, 1-12	4	40
188	The mechanical importance of myelination in the central nervous system. *Journal of the Mechanical Behavior of Biomedical Materials*, **2017**, 76, 119-124	4.1	38
187	Size and curvature regulate pattern selection in the mammalian brain. *Extreme Mechanics Letters*, **2015**, 4, 193-198	3.9	38
186	On deformational and configurational mechanics of micromorphic hyperelasticity Theory and computation. *Computer Methods in Applied Mechanics and Engineering*, **2007**, 196, 4027-4044	5.7	38
185	On spatial and material settings of thermo-hyperelastodynamics for open systems. *Acta Mechanica*, **2003**, 160, 179-217	2.1	38
184	Tri-layer wrinkling as a mechanism for anchoring center initiation in the developing cerebellum. *Soft Matter*, **2016**, 12, 5613-20	3.6	38
183	Evidence of adaptive mitral leaflet growth. *Journal of the Mechanical Behavior of Biomedical Materials*, **2012**, 15, 208-17	4.1	37
182	Computational modeling of electrochemical coupling: A novel finite element approach towards ionic models for cardiac electrophysiology. *Computer Methods in Applied Mechanics and Engineering*, **2011**, 200, 3139-3158	5.7	37
181	The Generalized Hill Model: A Kinematic Approach Towards Active Muscle Contraction. *Journal of the Mechanics and Physics of Solids*, **2014**, 72, 20-39	5	36
180	Atrial and ventricular fibrillation: computational simulation of spiral waves in cardiac tissue. *Archive of Applied Mechanics*, **2010**, 80, 569-580	2.2	36
179	Human Cardiac Function Simulator for the Optimal Design of a Novel Annuloplasty Ring with a Sub-valvular Element for Correction of Ischemic Mitral Regurgitation. *Cardiovascular Engineering and Technology*, **2015**, 6, 105-16	2.2	35
178	On the Role of Mechanics in Chronic Lung Disease. *Materials*, **2013**, 6, 5639-5658	3.5	35
177	Natural element analysis of the CahnHilliard phase-field model. *Computational Mechanics*, **2010**, 46, 471-493	4	35
176	Towards the algorithmic treatment of 3D strong discontinuities. *Communications in Numerical Methods in Engineering*, **2006**, 23, 97-108		35
175	Using machine learning to characterize heart failure across the scales. *Biomechanics and Modeling in Mechanobiology*, **2019**, 18, 1987-2001	3.8	34
174	The emergence of extracellular matrix mechanics and cell traction forces as important regulators of cellular self-organization. *Biomechanics and Modeling in Mechanobiology*, **2015**, 14, 1-13	3.8	34
173	A three-constituent damage model for arterial clamping in computer-assisted surgery. *Biomechanics and Modeling in Mechanobiology*, **2013**, 12, 123-36	3.8	34

172	Morphoelastic control of gastro-intestinal organogenesis: Theoretical predictions and numerical insights. *Journal of the Mechanics and Physics of Solids*, **2015**, 78, 493-510	5	34
171	Computational modeling of hypertensive growth in the human carotid artery. *Computational Mechanics*, **2014**, 53, 1183-1196	4	34
170	Computational modeling of muscular thin films for cardiac repair. *Computational Mechanics*, **2009**, 43, 535-544	4	34
169	Time-dependent fibre reorientation of transversely isotropic continua Finite element formulation and consistent linearization. *International Journal for Numerical Methods in Engineering*, **2008**, 73, 1413-1433	2.4	34
168	On skin microrelief and the emergence of expression micro-wrinkles. *Soft Matter*, **2018**, 14, 1292-1300	3.6	33
167	Magnetic resonance elastography of the brain: A comparison between pigs and humans. *Journal of the Mechanical Behavior of Biomedical Materials*, **2018**, 77, 702-710	4.1	33
166	Prion-like spreading of Alzheimer's disease within the brain's connectome. *Journal of the Royal Society Interface*, **2019**, 16, 20190356	4.1	33
165	A computational model that predicts reverse growth in response to mechanical unloading. *Biomechanics and Modeling in Mechanobiology*, **2015**, 14, 217-29	3.8	32
164	Regional stiffening of the mitral valve anterior leaflet in the beating ovine heart. *Journal of Biomechanics*, **2009**, 42, 2697-701	2.9	32
163	Secondary instabilities modulate cortical complexity in the mammalian brain. *Philosophical Magazine*, **2015**, 95, 3244-3256	1.6	31
162	Wrinkling instabilities in soft bilayered systems. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2017**, 375,	3	30
161	Characterization of living skin using multi-view stereo and isogeometric analysis. *Acta Biomaterialia*, **2014**, 10, 4822-4831	10.8	30
160	Computational Optogenetics: A Novel Continuum Framework for the Photoelectrochemistry of Living Systems. *Journal of the Mechanics and Physics of Solids*, **2012**, 60, 1158-1178	5	30
159	Are college campuses superspreaders? A data-driven modeling study. *Computer Methods in Biomechanics and Biomedical Engineering*, **2021**, 24, 1136-1145	2.1	30
158	Patient-Specific Airway Wall Remodeling in Chronic Lung Disease. *Annals of Biomedical Engineering*, **2015**, 43, 2538-51	4.7	29
157	Simulation of strain localization with gradient enhanced damage models. *Computational Materials Science*, **1999**, 16, 176-185	3.2	29
156	Visualizing the invisible: The effect of asymptomatic transmission on the outbreak dynamics of COVID-19. *Computer Methods in Applied Mechanics and Engineering*, **2020**, 372, 113410	5.7	29
155	A virtual sizing tool for mitral valve annuloplasty. *International Journal for Numerical Methods in Biomedical Engineering*, **2017**, 33, e02788	2.6	28

154	Computational modeling of chemo-bio-mechanical coupling: a systems-biology approach toward wound healing. *Computer Methods in Biomechanics and Biomedical Engineering*, **2016**, 19, 13-30	2.1	28
153	The mechanics of decompressive craniectomy: Personalized simulations. *Computer Methods in Applied Mechanics and Engineering*, **2017**, 314, 180-195	5.7	28
152	Computational modelling of electrocardiograms: repolarisation and T-wave polarity in the human heart. *Computer Methods in Biomechanics and Biomedical Engineering*, **2014**, 17, 986-96	2.1	28
151	Diamond elements: a finite element/discrete-mechanics approximation scheme with guaranteed optimal convergence in incompressible elasticity. *International Journal for Numerical Methods in Engineering*, **2007**, 72, 253-294	2.4	28
150	On high heels and short muscles: a multiscale model for sarcomere loss in the gastrocnemius muscle. *Journal of Theoretical Biology*, **2015**, 365, 301-10	2.3	27
149	A fully implicit finite element method for bidomain models of cardiac electrophysiology. *Computer Methods in Biomechanics and Biomedical Engineering*, **2012**, 15, 645-56	2.1	27
148	The phenomenon of twisted growth: humeral torsion in dominant arms of high performance tennis players. *Computer Methods in Biomechanics and Biomedical Engineering*, **2009**, 12, 83-93	2.1	27
147	Aspects of non-associated single crystal plasticity: Influence of non-schmid effects and localization analysis. *International Journal of Solids and Structures*, **1998**, 35, 4437-4456	3.1	27
146	Material forces in open system mechanics. *Computer Methods in Applied Mechanics and Engineering*, **2004**, 193, 2357-2381	5.7	27
145	The reproduction number of COVID-19 and its correlation with public health interventions **2020**,		27
144	A comparison of discrete granular material models with continuous microplane formulations. *Granular Matter*, **2000**, 2, 113-121	2.6	26
143	Elastosis during airway wall remodeling explains multiple co-existing instability patterns. *Journal of Theoretical Biology*, **2016**, 403, 209-218	2.3	26
142	Precision medicine in human heart modeling : Perspectives, challenges, and opportunities. *Biomechanics and Modeling in Mechanobiology*, **2021**, 20, 803-831	3.8	26
141	Microtubule Polymerization and Cross-Link Dynamics Explain Axonal Stiffness and Damage. *Biophysical Journal*, **2018**, 114, 201-212	2.9	25
140	Computational modeling of skin: Using stress profiles as predictor for tissue necrosis in reconstructive surgery. *Computers and Structures*, **2014**, 143, 32-39	4.5	25
139	On the mechanics of growing thin biological membranes. *Journal of the Mechanics and Physics of Solids*, **2014**, 63, 128-140	5	25
138	Systems biology and mechanics of growth. *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*, **2015**, 7, 401-12	6.6	25
137	How do annuloplasty rings affect mitral annular strains in the normal beating ovine heart?. *Circulation*, **2012**, 126, S231-8	16.7	25

136	Symmetry Breaking in Wrinkling Patterns: Gyri Are Universally Thicker than Sulci. *Physical Review Letters*, **2018**, 121, 228002	7.4	25
135	Global and local mobility as a barometer for COVID-19 dynamics. *Biomechanics and Modeling in Mechanobiology*, **2021**, 20, 651-669	3.8	24
134	Predicting drug-induced arrhythmias by multiscale modeling. *International Journal for Numerical Methods in Biomedical Engineering*, **2018**, 34, e2964	2.6	23
133	On the mechanics of thin films and growing surfaces. *Mathematics and Mechanics of Solids*, **2013**, 18, 561-575	2.3	23
132	Active contraction of cardiac muscle: in vivo characterization of mechanical activation sequences in the beating heart. *Journal of the Mechanical Behavior of Biomedical Materials*, **2011**, 4, 1167-76	4.1	23
131	Anterior mitral leaflet curvature during the cardiac cycle in the normal ovine heart. *Circulation*, **2010**, 122, 1683-9	16.7	23
130	On the convexity of transversely isotropic chain network models View all notes. *Philosophical Magazine*, **2006**, 86, 3241-3258	1.6	23
129	Data-driven modeling of COVID-19-Lessons learned. *Extreme Mechanics Letters*, **2020**, 40, 100921	3.9	23
128	On the implementation of finite deformation gradient-enhanced damage models. *Computational Mechanics*, **2019**, 64, 847-877	4	23
127	Multiscale characterization of heart failure. *Acta Biomaterialia*, **2019**, 86, 66-76	10.8	22
126	A note on the generation of periodic granular microstructures based on grain size distributions. *International Journal for Numerical and Analytical Methods in Geomechanics*, **2008**, 32, 509-522	4	22
125	Application of finite element modeling to optimize flap design with tissue expansion. *Plastic and Reconstructive Surgery*, **2014**, 134, 785-792	2.7	21
124	Kinematics of cardiac growth: in vivo characterization of growth tensors and strains. *Journal of the Mechanical Behavior of Biomedical Materials*, **2012**, 8, 165-77	4.1	21
123	Tau-ism: The Yin and Yang of Microtubule Sliding, Detachment, and Rupture. *Biophysical Journal*, **2015**, 109, 2215-7	2.9	21
122	Consistent formulation of the growth process at the kinematic and constitutive level for soft tissues composed of multiple constituents. *Computer Methods in Biomechanics and Biomedical Engineering*, **2012**, 15, 547-61	2.1	21
121	Anterior mitral leaflet curvature in the beating ovine heart: a case study using videofluoroscopic markers and subdivision surfaces. *Biomechanics and Modeling in Mechanobiology*, **2010**, 9, 281-93	3.8	21
120	Stress Singularities in Swelling Soft Solids. *Physical Review Letters*, **2016**, 117, 138001	7.4	21
119	Multi-fidelity classification using Gaussian processes: Accelerating the prediction of large-scale computational models. *Computer Methods in Applied Mechanics and Engineering*, **2019**, 357, 112602	5.7	20

118	Anisotropic density growth of bone—A computational micro-sphere approach. *International Journal of Solids and Structures*, **2012**, 49, 1928-1946	3.1	20
117	Mechanics of the mitral annulus in chronic ischemic cardiomyopathy. *Annals of Biomedical Engineering*, **2013**, 41, 2171-80	4.7	20
116	Bulging brains. *Journal of Elasticity*, **2017**, 129, 197-212	1.5	20
115	Multi-view stereo analysis reveals anisotropy of prestrain, deformation, and growth in living skin. *Biomechanics and Modeling in Mechanobiology*, **2015**, 14, 1007-19	3.8	20
114	A novel strategy to identify the critical conditions for growth-induced instabilities. *Journal of the Mechanical Behavior of Biomedical Materials*, **2014**, 29, 20-32	4.1	20
113	Computational modeling of chemo-electro-mechanical coupling: a novel implicit monolithic finite element approach. *International Journal for Numerical Methods in Biomedical Engineering*, **2013**, 29, 1104-33	2.6	20
112	On the linearization of the microplane model. *International Journal for Numerical and Analytical Methods in Geomechanics*, **1998**, 3, 343-364		20
111	Computational Modeling of Mineral Unmixing and Growth. *Computational Mechanics*, **2007**, 39, 439-451	4	20
110	On local tracking algorithms for the simulation of three-dimensional discontinuities. *Computational Mechanics*, **2008**, 42, 395-406	4	20
109	Spatially-extended nucleation-aggregation-fragmentation models for the dynamics of prion-like neurodegenerative protein-spreading in the brain and its connectome. *Journal of Theoretical Biology*, **2020**, 486, 110102	2.3	20
108	Dimensional, Geometrical, and Physical Constraints in Skull Growth. *Physical Review Letters*, **2017**, 118, 248101	7.4	19
107	Application of the material force method to thermo-hyperelasticity. *Computer Methods in Applied Mechanics and Engineering*, **2004**, 193, 3303-3325	5.7	19
106	Towards microstructure-informed material models for human brain tissue. *Acta Biomaterialia*, **2020**, 104, 53-65	10.8	19
105	Revisiting the wrinkling of elastic bilayers I: linear analysis. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2019**, 377, 20180076	3	18
104	Understanding the mechanical link between oriented cell division and cerebellar morphogenesis. *Soft Matter*, **2019**, 15, 2204-2215	3.6	18
103	Predicting the cardiac toxicity of drugs using a novel multiscale exposure-response simulator. *Computer Methods in Biomechanics and Biomedical Engineering*, **2018**, 21, 232-246	2.1	18
102	Mathematical modeling of collagen turnover in biological tissue. *Journal of Mathematical Biology*, **2013**, 67, 1765-93	2	18
101	Brittle fracture during folding of rocks: A finite element study. *Philosophical Magazine*, **2008**, 88, 3245-3263		18

100	Visualizing the invisible: The effect of asymptomatic transmission on the outbreak dynamics of COVID-19 **2020**,		18
99	Modeling molecular mechanisms in the axon. *Computational Mechanics*, **2017**, 59, 523-537	4	17
98	A physical multifield model predicts the development of volume and structure in the human brain. *Journal of the Mechanics and Physics of Solids*, **2018**, 112, 563-576	5	17
97	Computational modeling of acute myocardial infarction. *Computer Methods in Biomechanics and Biomedical Engineering*, **2016**, 19, 1107-15	2.1	17
96	The interplay of biochemical and biomechanical degeneration in Alzheimer's disease. *Computer Methods in Applied Mechanics and Engineering*, **2019**, 352, 369-388	5.7	16
95	A new sparse matrix vector multiplication graphics processing unit algorithm designed for finite element problems. *International Journal for Numerical Methods in Engineering*, **2015**, 102, 1784-1814	2.4	16
94	Partial LVAD restores ventricular outputs and normalizes LV but not RV stress distributions in the acutely failing heart in silico. *International Journal of Artificial Organs*, **2016**, 39, 421-430	1.9	16
93	The Incompatibility of Living Systems: Characterizing Growth-Induced Incompatibilities in Expanded Skin. *Annals of Biomedical Engineering*, **2016**, 44, 1734-52	4.7	15
92	Physical Biology of Axonal Damage. *Frontiers in Cellular Neuroscience*, **2018**, 12, 144	6.1	15
91	Computational modelling of thermal impact welded PEEK/steel single lap tensile specimens. *Computational Materials Science*, **2008**, 41, 287-296	3.2	15
90	Improving tissue expansion protocols through computational modeling. *Journal of the Mechanical Behavior of Biomedical Materials*, **2018**, 82, 224-234	4.1	14
89	Outbreak dynamics of COVID-19 in China and the United States		14
88	Protein-protein interactions in neurodegenerative diseases: A conspiracy theory. *PLoS Computational Biology*, **2020**, 16, e1008267	5	14
87	Modeling the Axon as an Active Partner with the Growth Cone in Axonal Elongation. *Biophysical Journal*, **2018**, 115, 1783-1795	2.9	14
86	Classifying Drugs by their Arrhythmogenic Risk Using Machine Learning. *Biophysical Journal*, **2020**, 118, 1165-1176	2.9	13
85	Growth and remodeling play opposing roles during postnatal human heart valve development. *Scientific Reports*, **2018**, 8, 1235	4.9	13
84	A Finite Element Model for Mixed Porohyperelasticity with Transport, Swelling, and Growth. *PLoS ONE*, **2016**, 11, e0152806	3.7	13
83	Molecular mechanisms of chronic traumatic encephalopathy. *Current Opinion in Biomedical Engineering*, **2017**, 1, 23-30	4.4	12

82	Computational modeling of bone density profiles in response to gait: a subject-specific approach. *Biomechanics and Modeling in Mechanobiology*, **2012**, 11, 379-90	3.8	12
81	Towards the treatment of boundary conditions for global crack path tracking in three-dimensional brittle fracture. *Computational Mechanics*, **2009**, 45, 91-107	4	12
80	Computational modeling of healing: an application of the material force method. *Biomechanics and Modeling in Mechanobiology*, **2004**, 2, 187-203	3.8	12
79	Global and local mobility as a barometer for COVID-19 dynamics **2020**,		12
78	Interpreting Activation Mapping of Atrial Fibrillation: A Hybrid Computational/Physiological Study. *Annals of Biomedical Engineering*, **2018**, 46, 257-269	4.7	12
77	Pilot Findings of Brain Displacements and Deformations during Roller Coaster Rides. *Journal of Neurotrauma*, **2017**, 34, 3198-3205	5.4	11
76	Structural optimization by simultaneous equilibration of spatial and material forces. *Communications in Numerical Methods in Engineering*, **2005**, 21, 433-442		11
75	Outbreak dynamics of COVID-19 in Europe and the effect of travel restrictions		11
74	Human pluripotent stem cell tools for cardiac optogenetics. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2014**, 2014, 6171-4	0.9	10
73	The phenomenon of twisted growth: humeral torsion in dominant arms of high performance tennis players. *Computer Methods in Biomechanics and Biomedical Engineering*, **2009**, 12, 83-93	2.1	10
72	Failure analysis of elasto-plastic material models on different levels of observation. *International Journal of Solids and Structures*, **2000**, 37, 7259-7280	3.1	10
71	IN VITRO/IN SILICO CHARACTERIZATION OF ACTIVE AND PASSIVE STRESSES IN CARDIAC MUSCLE. *International Journal for Multiscale Computational Engineering*, **2012**, 10, 171-188	2.4	10
70	COVID-19 dynamics across the US: A deep learning study of human mobility and social behavior. *Computer Methods in Applied Mechanics and Engineering*, **2021**, 382, 113891	5.7	10
69	Characterisation of electrophysiological conduction in cardiomyocyte co-cultures using co-occurrence analysis. *Computer Methods in Biomechanics and Biomedical Engineering*, **2013**, 16, 185-97	2.1	9
68	Weekly Time Course of Neuro-Muscular Adaptation to Intensive Strength Training. *Frontiers in Physiology*, **2017**, 8, 329	4.6	8
67	Modeling the life cycle of the human brain. *Current Opinion in Biomedical Engineering*, **2020**, 15, 16-25	4.4	8
66	Neuronal Oscillations on Evolving Networks: Dynamics, Damage, Degradation, Decline, Dementia, and Death. *Physical Review Letters*, **2020**, 125, 128102	7.4	8
65	Do annuloplasty rings designed to treat ischemic/functional mitral regurgitation alter left-ventricular dimensions in the acutely ischemic ovine heart?. *Journal of Thoracic and Cardiovascular Surgery*, **2019**, 158, 1058-1068	1.5	8

64	Predicting critical drug concentrations and torsadogenic risk using a multiscale exposure-response simulator. *Progress in Biophysics and Molecular Biology*, **2019**, 144, 61-76	4.7	8
63	Determining the Differential Effects of Stretch and Growth in Tissue-Expanded Skin: Combining Isogeometric Analysis and Continuum Mechanics in a Porcine Model. *Dermatologic Surgery*, **2018**, 44, 48-52	1.7	7
62	Acceleration insensitive encapsulated silicon microresonator. *Applied Physics Letters*, **2008**, 93, 234103	3.4	7
61	Modeling neurodegeneration in chronic traumatic encephalopathy using gradient damage models. *Computational Mechanics*, **2019**, 64, 1375-1387	4	6
60	The mechanics of decompressive craniectomy: Bulging in idealized geometries. *Journal of the Mechanics and Physics of Solids*, **2016**, 96, 572-590	5	6
59	An illustration of the equivalence of the loss of ellipticity conditions in spatial and material settings of hyperelasticity. *European Journal of Mechanics, A/Solids*, **2006**, 25, 199-214	3.7	6
58	Micro-structurally Based Kinematic Approaches to Electromechanics of the Heart **2013**, 175-187		6
57	Viscoelasticity of the axon limits stretch-mediated growth. *Computational Mechanics*, **2020**, 65, 587-595	4	6
56	Network Diffusion Modeling Explains Longitudinal Tau PET Data. *Frontiers in Neuroscience*, **2020**, 14, 566876	5.1	5
55	Computational modeling of electrocardiograms: A finite element approach toward cardiac excitation. *International Journal for Numerical Methods in Biomedical Engineering*, **2010**, 26, n/a-n/a	2.6	5
54	Region- and loading-specific finite viscoelasticity of human brain tissue. *Proceedings in Applied Mathematics and Mechanics*, **2018**, 18, e201800169	0.2	5
53	Visualization of particle interactions in granular media. *IEEE Transactions on Visualization and Computer Graphics*, **2008**, 14, 1110-25	4	4
52	Microplane modelling and particle modelling of cohesive-frictional materials. *Lecture Notes in Physics*, **2001**, 31-46	0.8	4
51	Is it safe to lift COVID-19 travel bans? The Newfoundland story **2020**,		4
50	Folding drives cortical thickness variations. *European Physical Journal: Special Topics*, **2020**, 229, 2757-2778	2.3	3
49	Quantification of Strain in a Porcine Model of Skin Expansion Using Multi-View Stereo and Isogeometric Kinematics. *Journal of Visualized Experiments*, **2017**,	1.6	3
48	A three-field, bi-domain based approach to the strongly coupled electromechanics of the heart. *Proceedings in Applied Mathematics and Mechanics*, **2011**, 11, 931-934	0.2	3
47	A hyperelastodynamic ALE formulation based on referential, spatial and material settings of continuum mechanics. *Acta Mechanica*, **2005**, 174, 201-222	2.1	3

46	Challenges and perspectives in brain tissue testing and modeling. *Proceedings in Applied Mathematics and Mechanics*, **2019**, 19, e201900269	0.2	3
45	Sex Differences in Drug-Induced Arrhythmogenesis. *Frontiers in Physiology*, **2021**, 12, 708435	4.6	3
44	Modeling and Simulation of Remodeling in Soft Biological Tissues **2006**, 77-89		3
43	On the Multiscale Computation of Confined Granular Media **2009**, 121-133		3
42	Mechanical Cues in Spinal Cord Injury. *Biophysical Journal*, **2018**, 115, 751-753	2.9	2
41	Connectomics of neurodegeneration. *Nature Neuroscience*, **2019**, 22, 1200-1202	25.5	2
40	Electromechanics of Cardiac Tissue: A Unified Approach to the Fully Coupled Excitation-Contraction Problem. *Proceedings in Applied Mathematics and Mechanics*, **2009**, 9, 159-160	0.2	2
39	Application of a Viscoelastic Material Model in Electro-Mechanics. *Proceedings in Applied Mathematics and Mechanics*, **2010**, 10, 387-388	0.2	2
38	A finite element method for cohesive crack modelling. *Proceedings in Applied Mathematics and Mechanics*, **2004**, 4, 350-351	0.2	2
37	On the impact of configurational mechanics on computational mechanics **2004**, 15-29		2
36	Predicting brain atrophy from tau pathology: a summary of clinical findings and their translation into personalized models. *Brain Multiphysics*, **2021**, 2, 100039	4.2	2
35	Are college campuses superspreaders? A data-driven modeling study		2
34	Computational Homogenization of Confined Frictional Granular Matter. *IUTAM Symposium on Cellular, Molecular and Tissue Mechanics*, **2010**, 157-169	0.3	2
33	Bulging Brains **2018**, 197-212		2
32	COVID-19 dynamics across the US: A deep learning study of human mobility and social behavior		2
31	Prion-like spreading of Alzheimer's disease within the brain's connectome		2
30	Classifying drugs by their arrhythmogenic risk using machine learning		2
29	Bayesian Physics-Based Modeling of Tau Propagation in Alzheimer's Disease. *Frontiers in Physiology*, **2021**, 12, 702975	4.6	2

28	Sex Matters: A Comprehensive Comparison of Female and Male Hearts.. *Frontiers in Physiology*, **2022**, 13, 831179	4.6	2
27	A computational model to predict cell traction-mediated prestretch in the mitral valve. *Computer Methods in Biomechanics and Biomedical Engineering*, **2019**, 22, 1174-1185	2.1	1
26	Primary and secondary instabilities in soft bilayered systems. *Proceedings in Applied Mathematics and Mechanics*, **2015**, 15, 281-282	0.2	1
25	Modeling Tissue Expansion with Isogeometric Analysis. *Plastic and Reconstructive Surgery*, **2015**, 136, 31-32	2.7	1
24	Mechanics in biology: cells and tissues. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2009**, 367, 3335-7	3	1
23	On the Application of Hansbo□ Method for Interface Problems. *IUTAM Symposium on Cellular, Molecular and Tissue Mechanics*, **2007**, 255-265	0.3	1
22	Simulation of Thermal Impact Welded Lightweight Structures. *Proceedings in Applied Mathematics and Mechanics*, **2006**, 6, 201-202	0.2	1
21	Failure of granular materials at different scales - microscale approach. *Proceedings in Applied Mathematics and Mechanics*, **2006**, 6, 399-400	0.2	1
20	Modelling of Mass Changes in Anisotropic Materials. *Proceedings in Applied Mathematics and Mechanics*, **2005**, 5, 299-300	0.2	1
19	Material Force Method. Continuum Damage & Thermo-Hyperelasticity **2005**, 95-104		1
18	Growth and remodeling in the pulmonary autograft: Computational evaluation using kinematic growth models and constrained mixture theory. *International Journal for Numerical Methods in Biomedical Engineering*, **2021**, e3545	2.6	1
17	Outbreak dynamics of COVID-19 in Europe and the effect of travel restrictions		1
16	Effects of B.1.1.7 and B.1.351 on COVID-19 dynamics. A campus reopening study		1
15	Response to Letters Regarding Article, "Segmental Aortic Stiffening Contributes to Experimental Abdominal Aortic Aneurysm Development". *Circulation*, **2016**, 133, e11-2	16.7	1
14	Effects of B.1.1.7 and B.1.351 on COVID-19 Dynamics: A Campus Reopening Study. *Archives of Computational Methods in Engineering*, **2021**, 28, 1-12	7.8	1
13	How drugs modulate the performance of the human heart. *Computational Mechanics*,1	4	1
12	A Framework for Evaluating Myocardial Stiffness Using 3D-Printed Heart Phantoms. *Lecture Notes in Computer Science*, **2021**, 305-314	0.9	0
11	Nervous Tissue Stiffens Postinjury. *Biophysical Journal*, **2020**, 118, 276-278	2.9	

10	A mechanical approach to explain cortical folding phenomena in healthy and diseased brains. *Proceedings in Applied Mathematics and Mechanics*, **2014**, 14, 101-102	0.2
9	Cardiovascular Tissue Damage: An Experimental and Computational Framework **2013**, 129-148	
8	Dilation and Hypertrophy: A Cell-Based Continuum Mechanics Approach Towards Ventricular Growth and Remodeling. *IUTAM Symposium on Cellular, Molecular and Tissue Mechanics*, **2010**, 237-244	0.3
7	Theory and Implementation of Time-Dependent Fibre Reorientation in Transversely Isotropic Materials. *Proceedings in Applied Mathematics and Mechanics*, **2006**, 6, 131-132	0.2
6	Modelling and Computation of 3D Discontinuities in Solids. *Proceedings in Applied Mathematics and Mechanics*, **2006**, 6, 383-384	0.2
5	Theory and implementation of orthotropic materials in growing continua. *Proceedings in Applied Mathematics and Mechanics*, **2004**, 4, 320-321	0.2
4	Computational Spatial and Material Settings of Continuum Mechanics. An Arbitrary Lagrangian Eulerian Formulation **2005**, 115-125	
3	On Well Posedness in Continuum Interface Problems. *Proceedings in Applied Mathematics and Mechanics*, **2005**, 5, 369-370	0.2
2	Imaging-Based Computation of the Dynamics of Pelvic Floor Deformation and Strain Visualization Analysis. *Lecture Notes in Computer Science*, **2010**, 604-612	0.9
1	Cahn-Hilliard Generalized Diffusion Modeling Using the Natural Element Method. *Advanced Structured Materials*, **2011**, 325-337	0.6