Oliver RÃ¶hrle

List of Publications by Year
in descending order

118	1,631	304743	345221
papers	citations	22 h-index	36 g-index

122	122	122	1437
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Three-dimensional finite element modelling of muscle forces during mastication. Journal of Biomechanics, 2007, 40, 3363-3372.	2.1	138
2	OpenCMISS: A multi-physics & multi-scale computational infrastructure for the VPH/Physiome project. Progress in Biophysics and Molecular Biology, 2011, 107, 32-47.	2.9	123
3	A Physiologically Based, Multi-Scale Model of Skeletal Muscle Structure and Function. Frontiers in Physiology, 2012, 3, 358.	2.8	70
4	Bridging Scales: A Three-Dimensional Electromechanical Finite Element Model of Skeletal Muscle. SIAM Journal of Scientific Computing, 2008, 30, 2882-2904.	2.8	64
5	Review of the human masticatory system and masticatory robotics. Mechanism and Machine Theory, 2008, 43, 1353-1375.	4.5	56
6	A two-muscle, continuum-mechanical forward simulation of the upper limb. Biomechanics and Modeling in Mechanobiology, 2017, 16, 743-762.	2.8	55
7	Modeling the Chemoelectromechanical Behavior of Skeletal Muscle Using the Parallel Open-Source Software Library OpenCMISS. Computational and Mathematical Methods in Medicine, 2013, 2013, 1-14.	1.3	51
8	A multiscale chemo-electro-mechanical skeletal muscle model to analyze muscle contraction and force generation for different muscle fiber arrangements. Frontiers in Physiology, 2014, 5, 498.	2.8	45
9	Using a Motionâ€Capture System to Record Dynamic Articulation for Application in CAD/CAM Software. Journal of Prosthodontics, 2009, 18, 703-710.	3.7	40
10	Reconstruction of muscle fascicle architecture from iodine-enhanced microCT images: A combined texture mapping and streamline approach. Journal of Theoretical Biology, 2015, 382, 34-43.	1.7	40
11	Predicting electromyographic signals under realistic conditions using a multiscale chemoâ€“electroâ€“mechanical finite element model. Interface Focus, 2015, 5, 20140076.	3.0	40
12	A microstructurally-based, multi-scale, continuum-mechanical model for the passive behaviour of skeletal muscle tissue. Journal of the Mechanical Behavior of Biomedical Materials, 2019, 97, 171-186.	3.1	40
13	A multi-scale continuum model of skeletal muscle mechanics predicting force enhancement based on actinâ€“titin interaction. Biomechanics and Modeling in Mechanobiology, 2016, 15, 1423-1437.	2.8	39
14	Occlusal loading during biting from an experimental and simulation point of view. Dental Materials, 2018, 34, 58-68.	3.5	37
15	A continuum-mechanical skeletal muscle model including actin-titin interaction predicts stable contractions on the descending limb of the force-length relation. PLoS Computational Biology, 2017, 13, e1005773.	3.2	36
16	Multiscale modeling of the neuromuscular system: Coupling neurophysiology and skeletal muscle mechanics. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2019, 11, e1457.	6.6	35
17	Multiscale musculoskeletal modelling, dataâ€“model fusion and electromyography-informed modelling. Interface Focus, 2016, 6, 20150084.	3.0	34
18	The role of oral soft tissues in swallowing function: what can tongue pressure tell us?. Australian Dental Journal, 2014, 59, 155-161.	1.5	33

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19	Spreading out Muscle Mass within a Hill-Type Model: A Computer Simulation Study. Computational and Mathematical Methods in Medicine, 2012, 2012, 1-13.	1.3	32
20	Impact of transmural heterogeneities on arterial adaptation. Biomechanics and Modeling in Mechanobiology, 2010, 9, 295-315.	2.8	27
21	Simulating the Electro-Mechanical Behavior of Skeletal Muscles. Computing in Science and Engineering, 2010, 12, 48-58.	1.2	26
22	An Efficient Modelling-Simulation-Analysis Workflow to Investigate Stump-Socket Interaction Using Patient-Specific, Three-Dimensional, Continuum-Mechanical, Finite Element Residual Limb Models. Frontiers in Bioengineering and Biotechnology, 2018, 6, 126.	4.1	25
23	Experiment for validation of fluidâ€structure interaction models and algorithms. International Journal for Numerical Methods in Biomedical Engineering, 2017, 33, e2848.	2.1	23
24	Characterization of Electromechanical Delay Based on a Biophysical Multi-Scale Skeletal Muscle Model. Frontiers in Physiology, 2019, 10, 1270.	2.8	22
25	Linking continuous and discrete intervertebral disc models through homogenisation. Biomechanics and Modeling in Mechanobiology, 2013, 12, 453-466.	2.8	19
26	Model-based identification of motion sensor placement for tracking retraction and elongation of the tongue. Biomechanics and Modeling in Mechanobiology, 2013, 12, 383-399.	2.8	19
27	Convergence of the multigrid reduction in time algorithm for the linear elasticity equations. Numerical Linear Algebra With Applications, 2018, 25, e2155.	1.6	19
28	POD-DEIM reduction of computational EMG models. Journal of Computational Science, 2017, 19, 86-96.	2.9	18
29	Validation of a nonâ€conforming monolithic fluidâ€structure interaction method using phaseâ€contrast MRI. International Journal for Numerical Methods in Biomedical Engineering, 2017, 33, e2845.	2.1	17
30	People with low back pain show reduced movement complexity during their most active daily tasks. European Journal of Pain, 2019, 23, 410-418.	2.8	17
31	Extensive eccentric contractions in intact cardiac trabeculae: revealing compelling differences in contractile behaviour compared to skeletal muscles. Proceedings of the Royal Society B: Biological Sciences, 2019, 286, 20190719.	2.6	16
32	A Computationally Efficient Optimization Kernel for Material Parameter Estimation Procedures. Journal of Biomechanical Engineering, 2007, 129, 279-283.	1.3	15
33	Simulating a dual-array electrode configuration to investigate the influence of skeletal muscle fatigue following functional electrical stimulation. Computers in Biology and Medicine, 2012, 42, 915-924.	7.0	14
34	Gradientâ€based optimization with Bâ€splines on sparse grids for solving forwardâ€dynamics simulations of threeâ€dimensional, continuumâ€mechanical musculoskeletal system models. International Journal for Numerical Methods in Biomedical Engineering, 2018, 34, e2965.	2.1	14
35	Structure and function of the musculoskeletal ovipositor system of an ichneumonid wasp. BMC Zoology, 2018, 3, .	1.0	14
36	Computational 3D imaging to quantify structural components and assembly of protein networks. Acta Biomaterialia, 2018, 69, 206-217.	8.3	14

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37	A novel computational method to determine subject-specific bite force and occlusal loading during mastication. Computer Methods in Biomechanics and Biomedical Engineering, 2018, 21, 453-460.	1.6	14
38	Cytological analysis and structural quantification of FtsZ1-2 and FtsZ2-1 network characteristics in Physcomitrella patens. Scientific Reports, 2018, 8, 11165.	3.3	14
39	Modelling the electrical activity of skeletal muscle tissue using a multi-domain approach. Biomechanics and Modeling in Mechanobiology, 2020, 19, 335-349.	2.8	14
40	Multilevel Convergence Analysis of Multigrid-Reduction-in-Time. SIAM Journal of Scientific Computing, 2020, 42, A771-A796.	2.8	14
41	Occlusal load modelling significantly impacts the predicted tooth stress response during biting: a simulation study. Computer Methods in Biomechanics and Biomedical Engineering, 2020, 23, 261-270.	1.6	14
42	Enabling Detailed, Biophysics-Based Skeletal Muscle Models on HPC Systems. Frontiers in Physiology, 2018, 9, 816.	2.8	13
43	Computational Continuum Biomechanics with Application to Swelling Media and Growth Phenomena. GAMM Mitteilungen, 2009, 32, 135-156.	5.5	12
44	Multiphasic modelling of boneâ€cement injection into vertebral cancellous bone. International Journal for Numerical Methods in Biomedical Engineering, 2015, 31, e02696.	2.1	12
45	Investigating the spatial resolution of EMG and MMG based on a systemic multi-scale model. Biomechanics and Modeling in Mechanobiology, 2022, 21, 983-997.	2.8	11
46	Anatomically based lower limb nerve model for electrical stimulation. BioMedical Engineering OnLine, 2007, 6, 48.	2.7	10
47	Automatically Generating Subject-specific Functional Tooth Surfaces Using Virtual Mastication. Annals of Biomedical Engineering, 2009, 37, 1646-1653.	2.5	10
48	First-order system least squares for the Oseen equations. Numerical Linear Algebra With Applications, 2006, 13, 523-542.	1.6	9
49	An integrated model of the neuromuscular system. , 2013, , .		8
50	Bone cement allocation analysis in artificial cancellous bone structures. Journal of Orthopaedic Translation, 2017, 8, 40-48.	3.9	7
51	Biomechanical investigation of two long bone growth modulation techniques by finite element simulations. Journal of Orthopaedic Research, 2018, 36, 1398-1405.	2.3	7
52	Decoding rejuvenating effects of mechanical loading on skeletal aging using in vivo Î¼CT imaging and deep learning. Acta Biomaterialia, 2020, 106, 193-207.	8.3	7
53	Tangent second-order homogenisation estimates for incompressible hyperelastic composites with fibrous microstructures and anisotropic phases. Journal of the Mechanics and Physics of Solids, 2021, 147, 104251.	4.8	7
54	Adaptive Stiffness and Joint-Free Kinematics: Actively Actuated Rod-Shaped Structures in Plants and Animals and Their Biomimetic Potential in Architecture and Engineering. Biologically-inspired Systems, 2016, , 135-167.	0.2	7

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55	A NanoFE simulation-based surrogate machine learning model to predict mechanical functionality of protein networks from live confocal imaging. Computational and Structural Biotechnology Journal, 2020, 18, 2774-2788.	4.1	6
56	Analysis of Physcomitrella Chloroplasts to Reveal Adaptation Principles Leading to Structural Stability at the Nano-Scale. Biologically-inspired Systems, 2016, , 261-275.	0.2	6
57	Muscle-Specific High-Density Electromyography Arrays for Hand Gesture Classification. IEEE Transactions on Biomedical Engineering, 2022, 69, 1758-1766.	4.2	6
58	Projection Multilevel Methods for Quasilinear Elliptic Partial Differential Equations: Numerical Results. SIAM Journal on Numerical Analysis, 2006, 44, 120-138.	2.3	5
59	Mathematically modelling surface EMG signals. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 123-124.	0.2	5
60	A class of analytic solutions for verification and convergence analysis of linear and nonlinear fluid-structure interaction algorithms. Computer Methods in Applied Mechanics and Engineering, 2020, 362, 112841.	6.6	5
61	Low-Profile Electromagnetic Field Sensors in the Measurement and Modelling of Three-Dimensional Jaw Kinematics and Occlusal Loading. Annals of Biomedical Engineering, 2021, 49, 1561-1571.	2.5	5
62	Analysis of confocal microscopy image data of Physcomitrella chloroplasts to reveal adaptation principles leading to structural stability at the nanoscale. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 69-70.	0.2	4
63	Finite Element Evaluation of the Effect of Adhesive Creams on the Stress State of Dentures and Oral Mucosa. Applied Bionics and Biomechanics, 2021, 2021, 1-9.	1.1	4
64	A Physiology-Guided Classification of Active-Stress and Active-Strain Approaches for Continuum-Mechanical Modeling of Skeletal Muscle Tissue. Frontiers in Physiology, 2021, 12, 685531.	2.8	4
65	Multiscale Skeletal Muscle Modeling: From Cellular Level to a Multi-segment Skeletal Muscle Model of the Upper Limb. , 2013, , 103-116.		4
66	Time-periodic steady-state solution of fluid-structure interaction and cardiac flow problems through multigrid-reduction-in-time. Computer Methods in Applied Mechanics and Engineering, 2022, 389, 114368.	6.6	4
67	Modelling intra-muscular contraction dynamics using in silico to in vivo domain translation. BioMedical Engineering OnLine, 2022, 21, .	2.7	4
68	Towards effective mechanical properties of skeletal muscle tissue via homogenisation. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 83-84.	0.2	3
69	Force enhancement and stability of finite element muscle models. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 85-86.	0.2	3
70	Multiscale modelling of skeletal muscle tissue by incorporating microstructural effects. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 75-76.	0.2	3
71	A framework for simulating gastric electrical propagation in confocal microscopy derived geometries. , 2017, 2017, 4215-4218.		3
72	The plastid skeleton: a source of ideas in the nano range. , 2019, , 163-166.		3

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73	Segmentation of Skeletal Muscle Fibres for Applications in Computational Skeletal Muscle Mechanics. , 2011, , 107-117.		3
74	Mathematically Modeling the Effects of Electrically Stimulating Skeletal Muscle. , 2006, 2006, 4635-8.		2
75	Projection Multilevel Methods for Quasilinear Elliptic Partial Differential Equations: Theoretical Results. SIAM Journal on Numerical Analysis, 2006, 44, 139-152.	2.3	2
76	Homogenisation method to capture the non-linear behaviour of intervertebral discs in multi-body systems. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 95-96.	0.2	2
77	On the treatment of active behaviour in continuum muscle mechanics. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 71-72.	0.2	2
78	Towards modelling skeletal muscle growth and adaptation. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 921-924.	0.2	2
79	A dynamical model for the calcineurinâ€NFATc signaling pathway and muscle fiber shifting. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000274.	0.2	2
80	Biopolymer segmentation from CLSM microscopy images using a convolutional neural network. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000188.	0.2	2
81	Identification of Tongue Muscle Fibre Group Contraction from MR Images. , 2013, , 185-196.		2
82	Skeletal Muscle Modelling. , 2018, , 1-10.		2
83	3D modelling of arterial growth for adaptation to hypertension â€" the influence of transmural changes in the mechanical environment. Proceedings in Applied Mathematics and Mechanics, 2009, 9, 71-74.	0.2	1
84	Forward dynamics applied to a three-dimensional continuum-mechanical model of the upper limb. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 115-116.	0.2	1
85	Porous-media simulation of bone-cement spreading during vertebroplasty. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 67-68.	0.2	1
86	The Role of Parvalbumin, Sarcoplasmatic Reticulum Calcium Pump Rate, Rates of Cross-Bridge Dynamics, and Ryanodine Receptor Calcium Current on Peripheral Muscle Fatigue: A Simulation Study. Computational and Mathematical Methods in Medicine, 2016, 2016, 1-14.	1.3	1
87	Exploring the Use of Non-Image-Based Ultrasound to Detect the Position of the Residual Femur within a Stump. PLoS ONE, 2016, 11, e0164583.	2.5	1
88	3D Fluidâ€Structure Interaction Experiment and Benchmark Results. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 451-452.	0.2	1
89	Featureâ€based Classification of Protein Networks using Confocal Microscopy Imaging and Machine Learning. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800246.	0.2	1
90	A Systematic Review and Meta-Analysis on the Longitudinal Effects of Unilateral Knee Extension Exercise on Muscle Strength. Frontiers in Sports and Active Living, 2020, 2, 518148.	1.8	1

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91	Variations in Muscle Activity and Exerted Torque During Temporary Blood Flow Restriction in Healthy Individuals. Frontiers in Bioengineering and Biotechnology, 2021, 9, 557761.	4.1	1
92	Editorial: Somatosensory Integration in Human Movement: Perspectives for Neuromechanics, Modelling and Rehabilitation. Frontiers in Bioengineering and Biotechnology, 2021, 9, 725603.	4.1	1
93	POD-DEIM Model Order Reduction for the Monodomain Reaction-Diffusion Sub-Model of the Neuro-Muscular System. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2020, , 177-190.	0.2	1
94	Spindle Model Responsive to Mixed Fusimotor Inputs: an updated version of the Maltenfort and Burke (2003) model. Physiome, 2022, , .	0.3	1
95	Classification of Biomechanical Models: The Wrong Battle Between Phenomenological and Structural Approaches, the Partly Underestimated Strength of Phenomenology and Challenges for Future (Clinical) Applications. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2022, , 335-352.	1.0	1
96	FINITE ELEMENT EVALUATION OF THE EFFECT OF ADHESIVE CREAMS ON THE STRESS STATE OF DENTURES AND ABUTMENT TEETH. Journal of Mechanics in Medicine and Biology, 2022, 22, .	0.7	1
97	Bridging scales: An attempt to incorporate cellular responses within a three-dimensional FEM model of active muscle contraction. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 4020013-4020014.	0.2	0
98	On the Coupling of 3D-1D Muscle Models for Lumbar Spine Mechanics. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 125-126.	0.2	0
99	HOMOGENISATION LINKS CONTINUOUS AND DISCRETE INTERVERTEBRAL DISC MODELS â€“ A SIMULATION STUDY. Journal of Biomechanics, 2012, 45, S472.	2.1	0
100	Coupling 3D and 1D Skeletal Muscle Models. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 111-112.	0.2	0
101	A geometrical model of skeletal muscle. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 119-120.	0.2	0
102	Towards modelling the dynamics of a 3D continuum-mechanical two-muscle musculoskeletal system. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 65-66.	0.2	0
103	Multiphasic Modelling of the Vertebral Bone for Cement-Injection Studies. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 117-118.	0.2	0
104	The Use of Collision Detection to Infer Multi-Camera Calibration Quality. Frontiers in Bioengineering and Biotechnology, 2015, 3, 65.	4.1	0
105	Model order reduction of dynamic skeletal muscle models. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 851-852.	0.2	0
106	A homogenisation method for the multiscale modelling of transversely isotropic skeletal muscle tissue. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 183-184.	0.2	0
107	Predicting Skeletal Muscle Force from Motorâ€Unit Activity using a 3D FE Model. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800035.	0.2	0
108	Simulating electromechanical delay across the scales â€“ relating the behavior of single sarcomers on a subâ€cellular scale and the muscleâ€tendon system on the organ scale. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900312.	0.2	0

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109	A parametric permeability study for a simplified vertebra based on regular microstructures. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900383.	0.2	0
110	Comparative Study of a Biomechanical Model-based and Black-box Approach for Subject-Specific Movement Prediction*. , 2020, 2020, 4775-4778.		0
111	Simulating vertebroplasty: A biomechanical challenge. Proceedings in Applied Mathematics and Mechanics, 2021, 20, e202000313.	0.2	0
112	Skeletal Muscle Modelling. , 2020, , 2292-2301.		0
113	Challenges in Robotic Soft Tissue Manipulationâ€"Problem Identification Based on an Interdisciplinary Case Study of a Teleoperated Drawing Robot in Practice. , 2021, , 245-262.		0
114	Multi-physics Multi-scale HPC Simulations of Skeletal Muscles. , 2021, , 185-203.		0
115	Spindle Model Responsive to Mixed Fusimotor Inputs: an updated version of the Maltenfort and Burke (2003) model. Physiome, 2022, , .	0.3	0
116	Spindle Model Responsive to Mixed Fusimotor Inputs: an updated version of the Maltenfort and Burke (2003) model. Physiome, 2022, , .	0.3	0
117	Numerical Study of the Stress State on the Oral Mucosa and Abutment Tooth upon Insertion of Partial Dentures in the Mandible. International Journal for Numerical Methods in Biomedical Engineering, 2022, , e3604.	2.1	0
118	Mathematically Modeling the Effects of Electrically Stimulating Skeletal Muscle. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	0