Syn Schmitt

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/6113247/publications.pdf

Version: 2024-02-01

68	1,235	430442	433756
papers	citations	18 h-index	31 g-index

73	73	73	775
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Hill-type muscle model with serial damping and eccentric forceâ€“velocity relation. Journal of Biomechanics, 2014, 47, 1531-1536.	0.9	136
2	High-frequency oscillations as a consequence of neglected serial damping in Hill-type muscle models. Biological Cybernetics, 2007, 97, 63-79.	0.6	84
3	A clutched parallel elastic actuator concept: Towards energy efficient powered legs in prosthetics and robotics. , 2012, , .		67
4	A forward dynamics simulation of human lumbar spine flexion predicting the load sharing of intervertebral discs, ligaments, and muscles. Biomechanics and Modeling in Mechanobiology, 2015, 14, 1081-1105.	1.4	66
5	Quantifying control effort of biological and technical movements: An information-entropy-based approach. Physical Review E, 2014, 89, 012716.	0.8	61
6	ELECTRO-MECHANICAL DELAY IN HILL-TYPE MUSCLE MODELS. Journal of Mechanics in Medicine and Biology, 2012, 12, 1250085.	0.3	58
7	A two-muscle, continuum-mechanical forward simulation of the upper limb. Biomechanics and Modeling in Mechanobiology, 2017, 16, 743-762.	1.4	55
8	Comparative Sensitivity Analysis of Muscle Activation Dynamics. Computational and Mathematical Methods in Medicine, 2015, 2015, 1-16.	0.7	46
9	Human leg impact: energy dissipation of wobbling masses. Archive of Applied Mechanics, 2011, 81, 887-897.	1.2	45
10	The influence of biophysical muscle properties on simulating fast human arm movements. Computer Methods in Biomechanics and Biomedical Engineering, 2017, 20, 803-821.	0.9	41
11	Spreading out Muscle Mass within a Hill-Type Model: A Computer Simulation Study. Computational and Mathematical Methods in Medicine, 2012, 2012, 1-13.	0.7	32
12	Evaluating Morphological Computation in Muscle and DC-Motor Driven Models of Hopping Movements. Frontiers in Robotics and AI, 2016, 3, .	2.0	30
13	Tailoring anatomical muscle paths: a sheath-like solution for muscle routing in musculoskeletal computer models. Mathematical Biosciences, 2019, 311, 68-81.	0.9	29
14	A macroscopic ansatz to deduce the Hill relation. Journal of Theoretical Biology, 2010, 263, 407-418.	0.8	25
15	Learning to Control Redundant Musculoskeletal Systems with Neural Networks and SQP: Exploiting Muscle Properties. , 2018, , .		25
16	Inter-filament spacing mediates calcium binding to troponin: A simple geometric-mechanistic model explains the shift of force-length maxima with muscle activation. Journal of Theoretical Biology, 2018, 454, 240-252.	0.8	24
17	The dynamics of the skeletal muscle: A systems biophysics perspective on muscle modeling with the focus on Hillâ€type muscle models. GAMM Mitteilungen, 2019, 42, e201900013.	2.7	24
18	Loads distributed in vivo among vertebrae, muscles, spinal ligaments, and intervertebral discs in a passively flexed lumbar spine. Biomechanics and Modeling in Mechanobiology, 2020, 19, 2015-2047.	1.4	23

#	Article	IF	Citations
19	External control strategies for self-propelled particles: Optimizing navigational efficiency in the presence of limited resources. Physical Review E, 2016, 94, 012617.	0.8	21
20	The Benefit of Combining Neuronal Feedback and Feed-Forward Control for Robustness in Step Down Perturbations of Simulated Human Walking Depends on the Muscle Function. Frontiers in Computational Neuroscience, 2018, 12, 80.	1.2	20
21	Muscles Reduce Neuronal Information Load: Quantification of Control Effort in Biological vs. Robotic Pointing and Walking. Frontiers in Robotics and AI, 2020, 7, 77.	2.0	20
22	Linking continuous and discrete intervertebral disc models through homogenisation. Biomechanics and Modeling in Mechanobiology, 2013, 12, 453-466.	1.4	19
23	Hill equation and Hatzeâ€™s muscle activation dynamics complement each other: enhanced pharmacological and physiological interpretability of modelled activity-pCa curves. Journal of Theoretical Biology, 2017, 431, 11-24.	0.8	19
24	Nature as an engineer: one simple concept of a bio-inspired functional artificial muscle. Bioinspiration and Biomimetics, 2012, 7, 036022.	1.5	18
25	Implementation and validation of the extended Hill-type muscle model with robust routing capabilities in LS-DYNA for active human body models. BioMedical Engineering OnLine, 2017, 16, 109.	1.3	17
26	How to model a muscleâ€™s active forceâ€“length relation: A comparative study. Computer Methods in Applied Mechanics and Engineering, 2017, 313, 321-336.	3.4	16
27	Optimality Principles in Human Point-to-Manifold Reaching Accounting for Muscle Dynamics. Frontiers in Computational Neuroscience, 2020, 14, 38.	1.2	16
28	Neuromuscular Ankle Joint Stabilisation after 4-weeks WBV Training. International Journal of Sports Medicine, 2009, 30, 461-466.	0.8	15
29	The basic mechanical structure of the skeletal muscle machinery: One model for linking microscopic and macroscopic scales. Journal of Theoretical Biology, 2018, 456, 137-167.	0.8	15
30	Exhaustion of Skeletal Muscle Fibers Within Seconds: Incorporating Phosphate Kinetics Into a Hill-Type Model. Frontiers in Physiology, 2020, 11, 306.	1.3	14
31	Can Quick Release Experiments Reveal the Muscle Structure? A Bionic Approach. Journal of Bionic Engineering, 2012, 9, 211-223.	2.7	13
32	Novel approach for a precise determination of short-time intervals in ankle sprain experiments. Journal of Biomechanics, 2009, 42, 2823-2825.	0.9	12
33	Strain in shock-loaded skeletal muscle and the time scale of muscular wobbling mass dynamics. Scientific Reports, 2017, 7, 13266.	1.6	11
34	Inverse Dynamics in Cycling Performance. , 2007, , 329-334.		10
35	Bioinspired pneumatic muscle spring units mimicking the human motion apparatus: benefits for passive motion range and joint stiffness variation in antagonistic setups. , 2018, , .		9
36	Rules of natureâ€™s Formula Run: Muscle mechanics during late stance is the key to explaining maximum running speed. Journal of Theoretical Biology, 2021, 523, 110714.	0.8	9

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37	Proof of Concept: Model Based Bionic Muscle with Hyperbolic Force-Velocity Relation. Applied Bionics and Biomechanics, 2012, 9, 267-274.	0.5	8
38	Weekly Time Course of Neuro-Muscular Adaptation to Intensive Strength Training. Frontiers in Physiology, 2017, 8, 329.	1.3	8
39	Theoretical Hill-Type Muscle and Stability: Numerical Model and Application. Computational and Mathematical Methods in Medicine, 2013, 2013, 1-7.	0.7	7
40	Effect of uphill and downhill walking on walking performance in geriatric patients using aÂwheeled walker. Zeitschrift Fur Gerontologie Und Geriatrie, 2017, 50, 483-487.	0.8	7
41	A geometry- and muscle-based control architecture for synthesising biological movement. Biological Cybernetics, 2021, 115, 7-37.	0.6	7
42	Assessment of physical activity of the human body considering the thermodynamic system. Computer Methods in Biomechanics and Biomedical Engineering, 2016, 19, 923-933.	0.9	5
43	A movement generation algorithm for FE Human Body Models. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 201-202.	0.2	5
44	Active Inverse Model Learning with Error and Reachable Set Estimates. , 2019, , .		5
45	â€˜Falling headsâ€™: investigating reflexive responses to headâ€“neck perturbations. BioMedical Engineering OnLine, 2022, 21, 25.	1.3	5
46	Proof of concept of an artificial muscle: Theoretical model, numerical model, and hardware experiment. , 2011, 2011, 5975336.		3
47	Morphological Computation Increases From Lower- to Higher-Level of Biological Motor Control Hierarchy. Frontiers in Robotics and AI, 2020, 7, 511265.	2.0	3
48	Mechanics and Thermodynamics of Biological Muscle â€“ A Simple Model Approach. , 2015, , 134-144.		3
49	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
50	Development of an internal physiological muscle controller within an openâ€source Hillâ€type material model in LSâ€DYNA. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800198.	0.2	2
51	On Laterally Perturbed Human Stance: Experiment, Model, and Control. Applied Bionics and Biomechanics, 2018, 2018, 1-20.	0.5	2
52	A systems-theoretic analysis of low-level human motor control: application to a single-joint arm model. Journal of Mathematical Biology, 2020, 80, 1139-1158.	0.8	2
53	Editorial: Recent Trends in Morphological Computation. Frontiers in Robotics and AI, 2021, 8, 708206.	2.0	2
54	Intuitive assessment of modeled lumbar spinal motion by clustering and visualization of finite helical axes. Computers in Biology and Medicine, 2021, 135, 104528.	3.9	2

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55	Cross-bridge mechanics estimated from skeletal musclesâ€™ work-loop responses to impacts in legged locomotion. Scientific Reports, 2021, 11, 23638.	1.6	2
56	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
57	INVERSE DYNAMICS OF THE LOWER EXTREMITIES: NOVEL APPROACH CONSIDERING TALOCRURAL AND SUBTALAR JOINT AXIS. Journal of Mechanics in Medicine and Biology, 2011, 11, 515-527.	0.3	1
58	Energy Expenditure of Dynamic Submaximal Human Plantarflexion Movements: Model Prediction and Validation by in-vivo Magnetic Resonance Spectroscopy. Frontiers in Bioengineering and Biotechnology, 2020, 8, 622.	2.0	1
59	Variations in Muscle Activity and Exerted Torque During Temporary Blood Flow Restriction in Healthy Individuals. Frontiers in Bioengineering and Biotechnology, 2021, 9, 557761.	2.0	1
60	The control effort to steer self-propelled microswimmers depends on their morphology: comparing symmetric spherical versus asymmetric L -shaped particles. Royal Society Open Science, 2021, 8, 201839.	1.1	1
61	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
62	HOMOGENISATION LINKS CONTINUOUS AND DISCRETE INTERVERTEBRAL DISC MODELS â€“ A SIMULATION STUDY. Journal of Biomechanics, 2012, 45, S472.	0.9	0
63	Coupling 3D and 1D Skeletal Muscle Models. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 111-112.	0.2	0
64	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
65	Navigation within buildings: Novel movement detection algorithms supporting people with visual impairments. Research in Developmental Disabilities, 2014, 35, 2026-2034.	1.2	0
66	A key to high-amplitude movement synthesis: the muscle lever arm. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 191-192.	0.2	0
67	Towards overcoming the bottleneck of optimizing control parameters in finite element active human body models. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900353.	0.2	0
68	Musculo-Skeletal Models as Tools to Quantify Embodiment. , 0, , .		0