Gerald E Loeb

List of Publications by Year
in descending order

155 papers	6,906 citations	76326 40 h-index	79698 73 g-index
161 all docs	161 docs citations	161 times ranked	4878 citing authors

#	Article	IF	Citations
1	The Control and Responses of Mammalian Muscle Spindles During Normally Executed Motor Tasks. Exercise and Sport Sciences Reviews, 1984, 12, 157???204.	3.0	315
2	Biomimetic Tactile Sensor Array. Advanced Robotics, 2008, 22, 829-849.	1.8	305
3	Bayesian Exploration for Intelligent Identification of Textures. Frontiers in Neurorobotics, 2012, 6, 4.	2.8	280
4	BIONâ„¢ system for distributed neural prosthetic interfaces. Medical Engineering and Physics, 2001, 23, 9-18.	1.7	231
5	Parylene as a Chronically Stable, Reproducible Microelectrode Insulator. IEEE Transactions on Biomedical Engineering, 1977, BME-24, 121-128.	4.2	228
6	Muscle Coordination Is Habitual Rather than Optimal. Journal of Neuroscience, 2012, 32, 7384-7391.	3.6	197
7	Virtual muscle: a computational approach to understanding the effects of muscle properties on motor control. Journal of Neuroscience Methods, 2000, 101, 117-130.	2.5	169
8	Mathematical Models of Proprioceptors. I. Control and Transduction in the Muscle Spindle. Journal of Neurophysiology, 2006, 96, 1772-1788.	1.8	166
9	Optimal isnâ€™t good enough. Biological Cybernetics, 2012, 106, 757-765.	1.3	165
10	Realâ€time sonography to estimate muscle thickness: Comparison with MRI and CT. Journal of Clinical Ultrasound, 2001, 29, 230-236.	0.8	154
11	What do reflex and voluntary mean? Modern views on an ancient debate. Experimental Brain Research, 2000, 130, 417-432.	1.5	151
12	Architecture and consequent physiological properties of the semitendinosus muscle in domestic goats. Journal of Morphology, 1989, 199, 287-297.	1.2	144
13	Hard lessons in motor control from the mammalian spinal cord. Trends in Neurosciences, 1987, 10, 108-113.	8.6	138
14	Mechanical properties of aponeurosis and tendon of the cat soleus muscle during whole-muscle isometric contractions. Journal of Morphology, 1995, 224, 73-86.	1.2	137
15	Force estimation and slip detection/classification for grip control using a biomimetic tactile sensor. , 2015, , .		136
16	Measured and modeled properties of mammalian skeletal muscle. II. The effects of stimulus frequency on force-length and force-velocity relationships. Journal of Muscle Research and Cell Motility, 1999, 20, 627-643.	2.0	133
17	A Reductionist Approach to Creating and Using Neuromusculoskeletal Models. , 2000, , 148-163.		121
18	Spatial cross-correlation. Biological Cybernetics, 1983, 47, 149-163.	1.3	118

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19	Tactile identification of objects using Bayesian exploration. , 2013, , .		117
20	Mechanics of feline soleus: II design and validation of a mathematical model. Journal of Muscle Research and Cell Motility, 1996, 17, 221-233.	2.0	108
21	Grip Control Using Biomimetic Tactile Sensing Systems. IEEE/ASME Transactions on Mechatronics, 2009, 14, 718-723.	5.8	108
22	Mechanics of feline soleus: I. Effect of fascicle length and velocity on force output. Journal of Muscle Research and Cell Motility, 1996, 17, 207-219.	2.0	104
23	BCI meeting 2005-workshop on signals and recording methods. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2006, 14, 138-141.	4.9	97
24	Sensing tactile microvibrations with the BioTac — Comparison with human sensitivity. , 2012, , .		94
25	Cognitive signals for brainâ€“machine interfaces in posterior parietal cortex include continuous 3D trajectory commands. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 17075-17080.	7.1	87
26	Are muscle synergies useful for neural control?. Frontiers in Computational Neuroscience, 2013, 7, 19.	2.1	86
27	Measured and modeled properties of mammalian skeletal muscle: IV. dynamics of activation and deactivation. , 2000, 21, 33-47.		85
28	Use of tactile feedback to control exploratory movements to characterize object compliance. Frontiers in Neurorobotics, 2012, 6, 7.	2.8	85
29	Spinal-Like Regulator Facilitates Control of a Two-Degree-of-Freedom Wrist. Journal of Neuroscience, 2010, 30, 9431-9444.	3.6	84
30	Mathematical Models of Proprioceptors. II. Structure and Function of the Golgi Tendon Organ. Journal of Neurophysiology, 2006, 96, 1789-1802.	1.8	80
31	BIONic WalkAide for correcting foot drop. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2005, 13, 242-246.	4.9	77
32	Single- and Triaxis Piezoelectric-Bimorph Accelerometers. Journal of Microelectromechanical Systems, 2008, 17, 45-57.	2.5	76
33	A Virtual Reality Environment for Designing and Fitting Neural Prosthetic Limbs. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2007, 15, 9-15.	4.9	75
34	The BION devices: injectable interfaces with peripheral nerves and muscles. Neurosurgical Focus, 2006, 20, 1-9.	2.3	74
35	Percutaneous fiber-optic sensor for chronic glucose monitoring in vivo. Biosensors and Bioelectronics, 2008, 23, 1458-1465.	10.1	73
36	A robust micro-vibration sensor for biomimetic fingertips. , 2008, , .		64

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37	Haptic feature extraction from a biomimetic tactile sensor: Force, contact location and curvature. , 2011, , .		62
38	First Clinical Experience with BION Implants for Therapeutic Electrical Stimulation. Neuromodulation, 2004, 7, 38-47.	0.8	59
39	Signal processing and fabrication of a biomimetic tactile sensor array with thermal, force and microvibration modalities. , 2009, , .		58
40	Relationships between range of motion, Lo, and passive force in five strap-like muscles of the feline hind limb. Journal of Morphology, 1996, 230, 69-77.	1.2	55
41	Measured and modeled properties of mammalian skeletal muscle. I. The effects of post-activation potentiation on the time course and velocity dependencies of force production. , 1999, 20, 443-456.		54
42	Model-Based Development of Neural Prostheses for Movement. IEEE Transactions on Biomedical Engineering, 2007, 54, 1909-1918.	4.2	54
43	BIOPHYSICAL CONSIDERATIONS IN ELECTRICAL STIMULATION OF THE AUDITORY NERVOUS SYSTEM. Annals of the New York Academy of Sciences, 1983, 405, 123-136.	3.8	53
44	Toward Perceiving Robots as Humans: Three Handshake Models Face the Turing-Like Handshake Test. IEEE Transactions on Haptics, 2012, 5, 196-207.	2.7	52
45	Post-Activation Potentiationâ€"A Clue for Simplifying Models of Muscle Dynamics. American Zoologist, 1998, 38, 743-754.	0.7	50
46	Neural prosthetic interfaces with the nervous system. Trends in Neurosciences, 1989, 12, 195-201.	8.6	49
47	Feline caudofemoralis muscle. Experimental Brain Research, 1998, 121, 76-91.	1.5	45
48	Prevention of muscle disuse atrophy by low-frequency electrical stimulation in rats. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2003, 11, 218-226.	4.9	44
49	Mammalian Muscle Model for Predicting Force and Energetics During Physiological Behaviors. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2012, 20, 117-133.	4.9	43
50	Decreased conduction velocity in the proximal projections of myelinated dorsal root ganglion cells in the cat. Brain Research, 1976, 103, 381-385.	2.2	42
51	Why cats pace on the treadmill. Physiology and Behavior, 1993, 53, 501-507.	2.1	42
52	Measured and modeled properties of mammalian skeletal muscle: III. the effects of stimulus frequency on stretch-induced force enhancement and shortening-induced force depression. , 2000, 21, 21-31.		42
53	The Functional Replacement of the Ear. Scientific American, 1985, 252, 104-111.	1.0	40
54	Useful properties of spinal circuits for learning and performing planar reaches. Journal of Neural Engineering, 2014, 11, 056006.	3.5	40

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55	The functional reanimation of paralyzed limbs. IEEE Engineering in Medicine and Biology Magazine, 2005, 24, 45-51.	0.8	39
56	Prenatal diagnosis and management of congenital complete heart block. Birth Defects Research, 2019, 111, 380-388.	1.5	38
57	Ventral root projections of myelinated dorsal root ganglion cells in the cat. Brain Research, 1976, 106, 159-165.	2.2	37
58	Multimodal Tactile Sensor. Springer Tracts in Advanced Robotics, 2014, , 405-429.	0.4	37
59	Evaluation of a Noninvasive Command Scheme for Upper-Limb Prostheses in a Virtual Reality Reach and Grasp Task. IEEE Transactions on Biomedical Engineering, 2013, 60, 792-802.	4.2	35
60	A Two-Joint Human Posture Control Model With Realistic Neural Delays. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2012, 20, 738-748.	4.9	34
61	Finding common groud between robotics and physiology. Trends in Neurosciences, 1983, 6, 203-204.	8.6	32
62	Neural Prosthetics:<b />A Review of Empirical vs. Systems Engineering Strategies. Applied Bionics and Biomechanics, 2018, 2018, 1-17.	1.1	30
63	Overcomplete Musculature or Underspecified Tasks?. Motor Control, 2000, 4, 81-83.	0.6	29
64	A Software Tool for Faster Development of Complex Models of Musculoskeletal Systems and Sensorimotor Controllers in SimulinkTM. Journal of Applied Biomechanics, 2002, 18, 357-365.	0.8	26
65	Real-Time Animation Software for Customized Training to Use Motor Prosthetic Systems. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2012, 20, 134-142.	4.9	25
66	Are Cochlear Implant Patients Suffering From Perceptual Dissonance?. Ear and Hearing, 2005, 26, 435-450.	2.1	23
67	Bayesian Action&Perception: Representing the World in the Brain. Frontiers in Neuroscience, 2014, 8, 341.	2.8	22
68	Preclinical testing and optimization of a novel fetal micropacemaker. Heart Rhythm, 2015, 12, 1683-1690.	0.7	22
69	Neuromorphic meets neuromechanics, part II: the role of fusimotor drive. Journal of Neural Engineering, 2017, 14, 025002.	3.5	22
70	Deformable skin design to enhance response of a biomimetic tactile sensor. , 2008, , .		20
71	The influence of temporal predictability on express visuomotor responses. Journal of Neurophysiology, 2021, 125, 731-747.	1.8	20
72	Prediction of Distal Arm Posture in 3-D Space From Shoulder Movements for Control of Upper Limb Prostheses. Proceedings of the IEEE, 2008, 96, 1217-1225.	21.3	19

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73	On the use of musculoskeletal models to interpret motor control strategies from performance data. Journal of Neural Engineering, 2008, 5, 232-253.	3.5	19
74	Major remaining gaps in models of sensorimotor systems. Frontiers in Computational Neuroscience, 2015, 9, 70.	2.1	19
75	Design and Testing of a Percutaneously Implantable Fetal Pacemaker. Annals of Biomedical Engineering, 2013, 41, 17-27.	2.5	18
76	Modeling the potentiality of spinal-like circuitry for stabilization of a planar arm system. Progress in Brain Research, 2011, 194, 203-213.	1.4	17
77	Development of a Physics-Based Target Shooting Game to Train Amputee Users of Multijoint Upper Limb Prostheses. Presence: Teleoperators and Virtual Environments, 2012, 21, 85-95.	0.6	17
78	Using the BioTac as a tumor localization tool. , 2014, , .		17
79	Force variability is mostly not motor noise: Theoretical implications for motor control. PLoS Computational Biology, 2021, 17, e1008707.	3.2	17
80	Optimal control principles for sensory transducers. , 1985, , 409-415.		17
81	Utility of contact detection reflexes in prosthetic hand control. , 2013, , .		16
82	Accelerated life-test methods and results for implantable electronic devices with adhesive encapsulation. Biomedical Microdevices, 2017, 19, 46.	2.8	16
83	Biomimetic Tactile Sensor for Control of Grip. , 2007, , .		15
84	Development of a BIONic Muscle Spindle for Prosthetic Proprioception. IEEE Transactions on Biomedical Engineering, 2007, 54, 1031-1041.	4.2	15
85	BIONâ„¢ Implants for Therapeutic and Functional Electrical Stimulation. Frontiers in Neuroscience, 2000, , .	0.0	15
86	Chapter 36 What might the Brain Know about Muscles, Limbs and Spinal Circuits?. Progress in Brain Research, 1999, 123, 405-409.	1.4	14
87	Effects of muscle immobilization at different lengths on tetrodotoxin-induced disuse atrophy. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2003, 11, 209-217.	4.9	14
88	Recruitment and Comfort of BION Implanted Electrical Stimulation: Implications for FES Applications. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2007, 15, 577-586.	4.9	14
89	Understanding haptics by evolving mechatronic systems. Progress in Brain Research, 2011, 192, 129-144.	1.4	14
90	Virtual biomechanics: a new method for online reconstruction of force from EMG recordings. Journal of Neurophysiology, 2012, 108, 3333-3341.	1.8	14

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91	Elastomeric skin selection for a fluidâ€filled artificial fingertip. Journal of Applied Polymer Science, 2013, 127, 4624-4633.	2.6	14
92	Muscle and Limb Mechanics. , 2017, 7, 429-462.		14
93	Learning Manipulation Graphs from Demonstrations Using Multimodal Sensory Signals. , 2018, , .		14
94	Trial-by-trial modulation of express visuomotor responses induced by symbolic or barely detectable cues. Journal of Neurophysiology, 2021, 126, 1507-1523.	1.8	14
95	Minimally Invasive Implantation of a Micropacemaker Into the Pericardial Space. Circulation: Arrhythmia and Electrophysiology, 2018, 11, e006307.	4.8	13
96	Shoulder kinematics plus contextual target information enable control of multiple distal joints of a simulated prosthetic arm and hand. Journal of NeuroEngineering and Rehabilitation, 2021, 18, 3.	4.6	13
97	The effect of sarcomere length on triad location in intact feline caudofeomoralis muscle fibres. Journal of Muscle Research and Cell Motility, 1998, 19, 473-477.	2.0	12
98	Design for an Inexpensive but Effective Cochlear Implant. Otolaryngology - Head and Neck Surgery, 1998, 118, 235-241.	1.9	12
99	Learning to Use Muscles. Journal of Human Kinetics, 2021, 76, 9-33.	1.5	12
100	Directional motor control. Trends in Neurosciences, 1996, 19, 137-138.	8.6	11
101	Learning to Switch Between Sensorimotor Primitives Using Multimodal Haptic Signals. Lecture Notes in Computer Science, 2016, , 170-182.	1.3	11
102	Feasibility of Prosthetic Posture Sensing Via Injectable Electronic Modules. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2007, 15, 295-309.	4.9	10
103	Predicting EMG with generalized Volterra kernel model. , 2008, 2008, 201-4.		10
104	Cortical control of reach and grasp kinematics in a virtual environment using musculoskeletal modeling software. , 2011, , .		10
105	The Importance of Biomechanics. Advances in Experimental Medicine and Biology, 2002, 508, 481-487.	1.6	9
106	Relationships between full-day arm movement characteristics and developmental status in infants with typical development as they learn to reach: An observational study. Gates Open Research, 2018, 2, 17.	1.1	9
107	Design and fabrication of disposable percutaneous chemical sensors. , 2005, , .		8
108	BioTac ^|^mdash;Biomimetic Multi-modal Tactile Sensor^|^mdash;. Journal of the Robotics Society of Japan, 2012, 30, 496-498.	0.1	8

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109	Minimally invasive implantable fetal micropacemaker: mechanical testing and technical refinements. Medical and Biological Engineering and Computing, 2016, 54, 1819-1830.	2.8	8
110	A new approach to medical diagnostic decision support. Journal of Biomedical Informatics, 2021, 116, 103723.	4.3	8
111	A model for self-organization of sensorimotor function: the spinal monosynaptic loop. Journal of Neurophysiology, 2022, 127, 1460-1477.	1.8	8
112	Flexible Communication and Control Protocol for Injectable Neuromuscular Interfaces. IEEE Transactions on Biomedical Circuits and Systems, 2007, 1, 19-27.	4.0	7
113	Mechanical loading of rigid intramuscular implants. Biomedical Microdevices, 2007, 9, 901-910.	2.8	7
114	Taking Control of Prosthetic Arms. JAMA - Journal of the American Medical Association, 2009, 301, 670.	7.4	7
115	Design and Fabrication of an Injection Tool for Neuromuscular Microstimulators. Annals of Biomedical Engineering, 2009, 37, 1858-1870.	2.5	7
116	A percutaneously implantable fetal pacemaker. , 2014, 2014, 4459-63.		7
117	Architectural features of multiarticular muscles. Human Movement Science, 1994, 13, 545-556.	1.4	6
118	Motor partitioning: Epiphenomena masquerading as control theory. Behavioral and Brain Sciences, 1989, 12, 660-661.	0.7	5
119	Issues in Cochlear Prosthetics From an International Survey of Opinions. International Journal of Technology Assessment in Health Care, 1991, 7, 403-410.	0.5	5
120	An Information Highway To the Auditory Nerve. Seminars in Hearing, 1996, 17, 309-316.	1.2	5
121	PREDICTION OF ELBOW TRAJECTORY FROM SHOULDER ANGLES USING NEURAL NETWORKS. International Journal of Computational Intelligence and Applications, 2008, 07, 333-349.	0.8	5
122	Sparse Optimal Motor Estimation (SOME) for Extracting Commands for Prosthetic Limbs. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2013, 21, 104-111.	4.9	5
123	A Non-spiking Neuron Model With Dynamic Leak to Avoid Instability in Recurrent Networks. Frontiers in Computational Neuroscience, 2021, 15, 656401.	2.1	5
124	Biomimetic Posture Sensing and Feedback for Proprioception. , 2005, 2005, 7389-92.		4
125	Galvaniâ€™s delayed legacy: neuromuscular electrical stimulation. Expert Review of Medical Devices, 2005, 2, 379-381.	2.8	4
126	Spinal Cord, Integrated (Non CPG) Models of. , 2014, , 1-13.		4

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127	A Model for Self-Organization of Sensorimotor Function: Spinal Interneuronal Integration. Journal of Neurophysiology, 2022, , .	1.8	4
128	The Effects of Training Set on Prediction of Elbow Trajectory from Shoulder Trajectory during Reaching to Targets. , 2006, 2006, 5483-6.		3
129	Preventing Ischial Pressure Ulcers: III. Clinical Pilot Study of Chronic Neuromuscular Electrical Stimulation. Applied Bionics and Biomechanics, 2011, 8, 345-359.	1.1	3
130	Haptic Human-Robot Interaction. IEEE Transactions on Haptics, 2012, 5, 193-195.	2.7	3
131	Analytical Modeling for Computing Lead Stress in a Novel Epicardial Micropacemaker. Cardiovascular Engineering and Technology, 2017, 8, 96-105.	1.6	3
132	Turning Neural Prosthetics Into Viable Products. Frontiers in Robotics and AI, 2021, 8, 754114.	3.2	3
133	Physiology and Computational Principles of Muscle Force Generation. , 2014, , 1-18.		3
134	insideOut: A Bio-Inspired Machine Learning Approach to Estimating Posture in Robots Driven by Compliant Tendons. Frontiers in Neurorobotics, 2021, 15, 679122.	2.8	3
135	Multichannel FES system with distributed microstimulators. , 1992, , .		2
136	Percutaneous fiber-optic sensor for the detection of chemotherapy-induced apoptosis in vivo. Proceedings of SPIE, 2010, , .	0.8	2
137	Percutaneously injectable fetal pacemaker: Electrodes, mechanical design and implantation. , 2012, 2012, 6600-3.		2
138	Developing Intelligent Robots that Grasp Affordance. Frontiers in Robotics and AI, 0, 9, .	3.2	2
139	Biomimetic design of neural prostheses. , 0, , 587-601.		1
140	Design and fabrication of a disposable, percutaneous glucose sensor. , 2006, , .		1
141	General-pupose technology for a general-purpose nervous system. , 2008, , .		1
142	A FAILURE ANALYSIS OF INTRAMUSCULAR RIGID IMPLANTS FOR MUSCLE CONTRACTIONS. Modern Physics Letters B, 2008, 22, 791-796.	1.9	1
143	Preventing Ischial Pressure Ulcers: II. Biomechanics. Applied Bionics and Biomechanics, 2011, 8, 333-343.	1.1	1
144	Estimation of excitatory drive from sparse motoneuron sampling. , 2012, 2012, 3628-31.		1

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145	Percutaneously injectable fetal pacemaker: Electronics, pacing thresholds, and power budget. , 2012, 2012, 5730-3.		1
146	Dissemination: Getting BCIs to the People Who Need Them. , 2012, , 338-349.		1
147	Natural and Accelerated Recovery from Brain Damage: Experimental and Theoretical Approaches. IEEE Pulse, 2012, 3, 61-65.	0.3	1
148	Evaluating the use of a tactile sensor for measuring carton compliance. Nordic Pulp and Paper Research Journal, 2020, 35, 362-369.	0.7	1
149	Biomimetic Tactile Sensor. , 2007, , .		1
150	Physiology and Computational Principles of Muscle Force Generation. , 2022, , 2779-2795.		1
151	What can we expect from models of motor control?. Behavioral and Brain Sciences, 1995, 18, 767-768.	0.7	0
152	Is There an Equilibrium Point Hypothesis?. Motor Control, 2010, 14, e19-e22.	0.6	0
153	Relating Muscle Activity to Movement in Animals. , 1999, , 777-786.		0
154	The Effects of Training Set on Prediction of Elbow Trajectory from Shoulder Trajectory during Reaching to Targets. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	0
155	Spinal Cord, Integrated (Non CPG) Models of. , 2022, , 3270-3281.		0