Gerald E Loeb

List of Publications by Citations

146 papers	5,431 citations	43 h-index	70 g-index
161 ext. papers	6,218 ext. citations	3.9 avg, IF	5.94 L-index

#	Paper	IF	Citations
146	Biomimetic Tactile Sensor Array. *Advanced Robotics*, **2008**, 22, 829-849	1.7	244
145	The Control and Responses of Mammalian Muscle Spindles During Normally Executed Motor Tasks. *Exercise and Sport Sciences Reviews*, **1984**, 12, 157???204	6.7	221
144	Bayesian exploration for intelligent identification of textures. *Frontiers in Neurorobotics*, **2012**, 6, 4	3.4	206
143	Parylene as a chronically stable, reproducible microelectrode insulator. *IEEE Transactions on Biomedical Engineering*, **1977**, 24, 121-8	5	195
142	BION system for distributed neural prosthetic interfaces. *Medical Engineering and Physics*, **2001**, 23, 9-18	2.4	184
141	Muscle coordination is habitual rather than optimal. *Journal of Neuroscience*, **2012**, 32, 7384-91	6.6	158
140	Virtual muscle: a computational approach to understanding the effects of muscle properties on motor control. *Journal of Neuroscience Methods*, **2000**, 101, 117-30	3	140
139	Architecture and consequent physiological properties of the semitendinosus muscle in domestic goats. *Journal of Morphology*, **1989**, 199, 287-97	1.6	138
138	Optimal isn℞ good enough. *Biological Cybernetics*, **2012**, 106, 757-65	2.8	134
137	Hard lessons in motor control from the mammalian spinal cord. *Trends in Neurosciences*, **1987**, 10, 108-11	13.3	130
136	Real-time sonography to estimate muscle thickness: comparison with MRI and CT. *Journal of Clinical Ultrasound*, **2001**, 29, 230-6	1	126
135	Mathematical models of proprioceptors. I. Control and transduction in the muscle spindle. *Journal of Neurophysiology*, **2006**, 96, 1772-88	3.2	119
134	Mechanical properties of aponeurosis and tendon of the cat soleus muscle during whole-muscle isometric contractions. *Journal of Morphology*, **1995**, 224, 73-86	1.6	118
133	What do reflex and voluntary mean? Modern views on an ancient debate. *Experimental Brain Research*, **2000**, 130, 417-32	2.3	115
132	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, 627-43	3.5	113
131	Spatial cross-correlation. A proposed mechanism for acoustic pitch perception. *Biological Cybernetics*, **1983**, 47, 149-63	2.8	107
130	Mechanics of feline soleus: I. Effect of fascicle length and velocity on force output. *Journal of Muscle Research and Cell Motility*, **1996**, 17, 207-19	3.5	90

129	Mechanics of feline soleus: II. Design and validation of a mathematical model. *Journal of Muscle Research and Cell Motility*, **1996**, 17, 221-33	3.5	89
128	Force estimation and slip detection/classification for grip control using a biomimetic tactile sensor **2015**,		87
127	A Reductionist Approach to Creating and Using Neuromusculoskeletal Models **2000**, 148-163		87
126	Grip Control Using Biomimetic Tactile Sensing Systems. *IEEE/ASME Transactions on Mechatronics*, **2009**, 14, 718-723	5.5	85
125	Tactile identification of objects using Bayesian exploration **2013**,		82
124	BCI Meeting 2005--workshop on signals and recording methods. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2006**, 14, 138-41	4.8	81
123	Cognitive signals for brain-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, 17075-80	11.5	75
122	Are muscle synergies useful for neural control?. *Frontiers in Computational Neuroscience*, **2013**, 7, 19	3.5	70
121	Use of tactile feedback to control exploratory movements to characterize object compliance. *Frontiers in Neurorobotics*, **2012**, 6, 7	3.4	69
120	Spinal-like regulator facilitates control of a two-degree-of-freedom wrist. *Journal of Neuroscience*, **2010**, 30, 9431-44	6.6	68
119	Single- and Triaxis Piezoelectric-Bimorph Accelerometers. *Journal of Microelectromechanical Systems*, **2008**, 17, 45-57	2.5	66
118	BIONic WalkAide for correcting foot drop. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2005**, 13, 242-6	4.8	64
117	The BION devices: injectable interfaces with peripheral nerves and muscles. *Neurosurgical Focus*, **2006**, 20, E2	4.2	63
116	Measured and modeled properties of mammalian skeletal muscle: IV. dynamics of activation and deactivation. *Journal of Muscle Research and Cell Motility*, **2000**, 21, 33-47	3.5	63
115	Mathematical models of proprioceptors. II. Structure and function of the Golgi tendon organ. *Journal of Neurophysiology*, **2006**, 96, 1789-802	3.2	62
114	Sensing tactile microvibrations with the BioTac Comparison with human sensitivity **2012**,		57
113	Percutaneous fiber-optic sensor for chronic glucose monitoring in vivo. *Biosensors and Bioelectronics*, **2008**, 23, 1458-65	11.8	57
112	A virtual reality environment for designing and fitting neural prosthetic limbs. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2007**, 15, 9-15	4.8	53

111	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. *Journal of Muscle Research and Cell Motility*, **1999**, 20, 443-56	3.5	50
110	Biophysical considerations in electrical stimulation of the auditory nervous system. *Annals of the New York Academy of Sciences*, **1983**, 405, 123-36	6.5	50
109	A robust micro-vibration sensor for biomimetic fingertips **2008**,		49
108	First Clinical Experience with BION Implants for Therapeutic Electrical Stimulation. *Neuromodulation*, **2004**, 7, 38-47	3.1	49
107	**2011**,		46
106	Signal processing and fabrication of a biomimetic tactile sensor array with thermal, force and microvibration modalities **2009**,		45
105	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	1.6	45
104	Toward Perceiving Robots as Humans: Three Handshake Models Face the Turing-Like Handshake Test. *IEEE Transactions on Haptics*, **2012**, 5, 196-207	2.7	44
103	Neural prosthetic interfaces with the nervous system. *Trends in Neurosciences*, **1989**, 12, 195-201	13.3	43
102	Feline caudofemoralis muscle. Muscle fibre properties, architecture, and motor innervation. *Experimental Brain Research*, **1998**, 121, 76-91	2.3	42
101	Post-Activation Potentiation: A Clue for Simplifying Models of Muscle Dynamics. *American Zoologist*, **1998**, 38, 743-754		41
100	Decreased conduction velocity in the proximal projections of myelinated dorsal root ganglion cells in the cat. *Brain Research*, **1976**, 103, 381-5	3.7	40
99	Model-based development of neural prostheses for movement. *IEEE Transactions on Biomedical Engineering*, **2007**, 54, 1909-18	5	39
98	The functional reanimation of paralyzed limbs. *IEEE Engineering in Medicine and Biology Magazine*, **2005**, 24, 45-51		37
97	Measured and modeled properties of mammalian skeletal muscle: III. the effects of stimulus frequency on stretch-induced force enhancement and shortening-induced force depression. *Journal of Muscle Research and Cell Motility*, **2000**, 21, 21-31	3.5	37
96	Why cats pace on the treadmill. *Physiology and Behavior*, **1993**, 53, 501-7	3.5	36
95	Ventral root projections of myelinated dorsal root ganglion cells in the cat. *Brain Research*, **1976**, 106, 159-65	3.7	36
94	Prevention of muscle disuse atrophy by low-frequency electrical stimulation in rats. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2003**, 11, 218-26	4.8	35

93	Mammalian muscle model for predicting force and energetics during physiological behaviors. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2012**, 20, 117-33	4.8	34
92	Finding common groud between robotics and physiology. *Trends in Neurosciences*, **1983**, 6, 203-204	13.3	30
91	The functional replacement of the ear. *Scientific American*, **1985**, 252, 104-11	0.5	29
90	Overcomplete musculature or underspecified tasks?. *Motor Control*, **2000**, 4, 81-3; discussion 97-116	1.3	27
89	Multimodal Tactile Sensor. *Springer Tracts in Advanced Robotics*, **2014**, 405-429	0.5	27
88	Useful properties of spinal circuits for learning and performing planar reaches. *Journal of Neural Engineering*, **2014**, 11, 056006	5	26
87	A two-joint human posture control model with realistic neural delays. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2012**, 20, 738-48	4.8	26
86	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	5	23
85	Real-time animation software for customized training to use motor prosthetic systems. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2012**, 20, 134-42	4.8	22
84	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	1.2	22
83	Preclinical testing and optimization of a novel fetal micropacemaker. *Heart Rhythm*, **2015**, 12, 1683-90	6.7	19
82	Are cochlear implant patients suffering from perceptual dissonance?. *Ear and Hearing*, **2005**, 26, 435-50	3.4	19
81	Neuromorphic meets neuromechanics, part II: the role of fusimotor drive. *Journal of Neural Engineering*, **2017**, 14, 025002	5	18
80	On the use of musculoskeletal models to interpret motor control strategies from performance data. *Journal of Neural Engineering*, **2008**, 5, 232-53	5	18
79	Neural Prosthetics:A Review of Empirical vs. Systems Engineering Strategies. *Applied Bionics and Biomechanics*, **2018**, 2018, 1435030	1.6	18
78	Using the BioTac as a tumor localization tool **2014**,		16
77	Bayesian action&perception: representing the world in the brain. *Frontiers in Neuroscience*, **2014**, 8, 341	5.1	16
76	Prenatal diagnosis and management of congenital complete heart block. *Birth Defects Research*, **2019**, 111, 380-388	2.9	16

75	Design and testing of a percutaneously implantable fetal pacemaker. *Annals of Biomedical Engineering*, **2013**, 41, 17-27	4.7	15
74	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	14.3	15
73	Major remaining gaps in models of sensorimotor systems. *Frontiers in Computational Neuroscience*, **2015**, 9, 70	3.5	14
72	Deformable skin design to enhance response of a biomimetic tactile sensor **2008**,		14
71	Accelerated life-test methods and results for implantable electronic devices with adhesive encapsulation. *Biomedical Microdevices*, **2017**, 19, 46	3.7	13
70	Modeling the potentiality of spinal-like circuitry for stabilization of a planar arm system. *Progress in Brain Research*, **2011**, 194, 203-13	2.9	13
69	Recruitment and comfort of BION implanted electrical stimulation: implications for FES applications. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2007**, 15, 577-86	4.8	13
68	Elastomeric skin selection for a fluid-filled artificial fingertip. *Journal of Applied Polymer Science*, **2013**, 127, 4624-4633	2.9	12
67	Utility of contact detection reflexes in prosthetic hand control **2013**,		12
66	Design for an inexpensive but effective cochlear implant. *Otolaryngology - Head and Neck Surgery*, **1998**, 118, 235-41	5.5	12
65	Development of a BIONic muscle spindle for prosthetic proprioception. *IEEE Transactions on Biomedical Engineering*, **2007**, 54, 1031-41	5	12
64	Effects of muscle immobilization at different lengths on tetrodotoxin-induced disuse atrophy. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2003**, 11, 209-17	4.8	12
63	The effect of sarcomere length on triad location in intact feline caudofeomoralis muscle fibres. *Journal of Muscle Research and Cell Motility*, **1998**, 19, 473-7	3.5	11
62	What might the brain know about muscles, limbs and spinal circuits?. *Progress in Brain Research*, **1999**, 123, 405-9	2.9	11
61	Optimal control principles for sensory transducers **1985**, 409-415		11
60	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	2.9	10
59	Biomimetic Tactile Sensor for Control of Grip **2007**,		10
58	Minimally Invasive Implantation of a Micropacemaker Into the Pericardial Space. *Circulation: Arrhythmia and Electrophysiology*, **2018**, 11, e006307	6.4	10

57	**2011**,		9
56	Understanding haptics by evolving mechatronic systems. *Progress in Brain Research*, **2011**, 192, 129-44	2.9	9
55	Virtual biomechanics: a new method for online reconstruction of force from EMG recordings. *Journal of Neurophysiology*, **2012**, 108, 3333-41	3.2	9
54	Feasibility of prosthetic posture sensing via injectable electronic modules. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2007**, 15, 295-309	4.8	9
53	Directional motor control. *Trends in Neurosciences*, **1996**, 19, 137-8	13.3	9
52	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	2.4	9
51	Predicting EMG with generalized Volterra kernel model. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2008**, 2008, 201-4	0.9	8
50	BION Implants for Therapeutic and Functional Electrical Stimulation. *Frontiers in Neuroscience*, **2000**,		8
49	Learning Manipulation Graphs from Demonstrations Using Multimodal Sensory Signals **2018**,		8
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47	BioTac ^|^mdash;Biomimetic Multi-modal Tactile Sensor^|^mdash;. *Journal of the Robotics Society of Japan*, **2012**, 30, 496-498	0.1	7
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45	Design and fabrication of disposable percutaneous chemical sensors **2005**,		7
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43	Minimally invasive implantable fetal micropacemaker: mechanical testing and technical refinements. *Medical and Biological Engineering and Computing*, **2016**, 54, 1819-1830	3.1	7
42	The importance of biomechanics. *Advances in Experimental Medicine and Biology*, **2002**, 508, 481-7	3.6	7
41	Design and fabrication of an injection tool for neuromuscular microstimulators. *Annals of Biomedical Engineering*, **2009**, 37, 1858-70	4.7	6
40	Mechanical loading of rigid intramuscular implants. *Biomedical Microdevices*, **2007**, 9, 901-10	3.7	6

39	Muscle and Limb Mechanics. *Comprehensive Physiology*, **2017**, 7, 429-462	7.7	5
38	Sparse optimal motor estimation (SOME) for extracting commands for prosthetic limbs. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, **2013**, 21, 104-11	4.8	5
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36	The influence of temporal predictability on express visuomotor responses. *Journal of Neurophysiology*, **2021**, 125, 731-747	3.2	5
35	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	5.3	5
34	An Information Highway To the Auditory Nerve. *Seminars in Hearing*, **1996**, 17, 309-316	2	4
33	Architectural features of multiarticular muscles. *Human Movement Science*, **1994**, 13, 545-556	2.4	4
32	Analytical Modeling for Computing Lead Stress in a Novel Epicardial Micropacemaker. *Cardiovascular Engineering and Technology*, **2017**, 8, 96-105	2.2	3
31	Haptic Human-Robot Interaction. *IEEE Transactions on Haptics*, **2012**, 5, 193-195	2.7	3
30	Preventing Ischial Pressure Ulcers: III. Clinical Pilot Study of Chronic Neuromuscular Electrical Stimulation. *Applied Bionics and Biomechanics*, **2011**, 8, 345-359	1.6	3
29	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**, 2006, 5483-6		3
28	Flexible communication and control protocol for injectable neuromuscular interfaces. *IEEE Transactions on Biomedical Circuits and Systems*, **2007**, 1, 19-27	5.1	3
27	Issues in cochlear prosthetics from an international survey of opinions. *International Journal of Technology Assessment in Health Care*, **1991**, 7, 403-10	1.8	3
26	Learning to use Muscles. *Journal of Human Kinetics*, **2021**, 76, 9-33	2.6	3
25	Percutaneous fiber-optic sensor for the detection of chemotherapy-induced apoptosis in vivo **2010**,		2
24	Percutaneously injectable fetal pacemaker: electrodes, mechanical design and implantation. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2012**, 2012, 6600-3	0.9	2
23	Biomimetic posture sensing and feedback for proprioception. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, **2005**, 2005, 7389-92		2
22	Motor partitioning: Epiphenomena masquerading as control theory. *Behavioral and Brain Sciences*, **1989**, 12, 660-661	0.9	2

21	Force variability is mostly not motor noise: Theoretical implications for motor control. *PLoS Computational Biology*, **2021**, 17, e1008707	5	2
20	A new approach to medical diagnostic decision support. *Journal of Biomedical Informatics*, **2021**, 116, 103723	10.2	2
19	Natural and accelerated recovery from brain damage: experimental and theoretical approaches. *IEEE Pulse*, **2012**, 3, 61-5	0.7	1
18	Estimation of excitatory drive from sparse motoneuron sampling. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2012**, 2012, 3628-31	0.9	1
17	Percutaneously injectable fetal pacemaker: electronics, pacing thresholds, and power budget. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2012**, 2012, 5730-3	0.9	1
16	Dissemination: Getting BCIs to the People Who Need Them **2012**, 338-349		1
15	General-pupose technology for a general-purpose nervous system **2008**,		1
14	A FAILURE ANALYSIS OF INTRAMUSCULAR RIGID IMPLANTS FOR MUSCLE CONTRACTIONS. *Modern Physics Letters B*, **2008**, 22, 791-796	1.6	1
13	Biomimetic design of neural prostheses587-601		1
12	Design and fabrication of a disposable, percutaneous glucose sensor **2006**,		1
11	Evaluating the use of a tactile sensor for measuring carton compliance. *Nordic Pulp and Paper Research Journal*, **2020**, 35, 362-369	1.1	1
10	Trial-by-trial modulation of express visuomotor responses induced by symbolic or barely detectable cues. *Journal of Neurophysiology*, **2021**, 126, 1507-1523	3.2	1
9	Preventing Ischial Pressure Ulcers: II. Biomechanics. *Applied Bionics and Biomechanics*, **2011**, 8, 333-343	1.6	0
8	: A Bio-Inspired Machine Learning Approach to Estimating Posture in Robots Driven by Compliant Tendons. *Frontiers in Neurorobotics*, **2021**, 15, 679122	3.4	0
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6	Turning Neural Prosthetics Into Viable Products. *Frontiers in Robotics and AI*, **2021**, 8, 754114	2.8	0
5	Physiology and Computational Principles of Muscle Force Generation **2022**, 2779-2795		0
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2 Relating Muscle Activity to Movement in Animals **1999**, 777-786

1 Spinal Cord, Integrated (Non CPG) Models of **2022**, 3270-3281