Hugh Herr

List of Publications by Year
in descending order

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67 papers	4,218 citations	218381 26 h-index	182168 51 g-index
72 all docs	72 docs citations	72 times ranked	2961 citing authors

#	Article	IF	Citations
1	Powered ankle-foot prosthesis to assist level-ground and stair-descent gaits. Neural Networks, 2008, 21, 654-666.	3.3	414
2	Powered Ankle–Foot Prosthesis Improves Walking Metabolic Economy. IEEE Transactions on Robotics, 2009, 25, 51-66.	7.3	398
3	Control of a Powered Ankleâ€“Foot Prosthesis Based on a Neuromuscular Model. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2010, 18, 164-173.	2.7	344
4	Bionic ankleâ€“foot prosthesis normalizes walking gait for persons with leg amputation. Proceedings of the Royal Society B: Biological Sciences, 2012, 279, 457-464.	1.2	341
5	Autonomous exoskeleton reduces metabolic cost of human walking during load carriage. Journal of NeuroEngineering and Rehabilitation, 2014, 11, 80.	2.4	315
6	Clutchable series-elastic actuator: Implications for prosthetic knee design. International Journal of Robotics Research, 2014, 33, 1611-1625.	5.8	243
7	Biomechanical walking mechanisms underlying the metabolic reduction caused by an autonomous exoskeleton. Journal of NeuroEngineering and Rehabilitation, 2016, 13, 4.	2.4	161
8	Proprioception from a neurally controlled lower-extremity prosthesis. Science Translational Medicine, 2018, 10, .	5.8	145
9	MultiDIC: An Open-Source Toolbox for Multi-View 3D Digital Image Correlation. IEEE Access, 2018, 6, 30520-30535.	2.6	115
10	Autonomous exoskeleton reduces metabolic cost of human walking. Journal of NeuroEngineering and Rehabilitation, 2014, 11, 151.	2.4	111
11	A Variable-Impedance Prosthetic Socket for a Transtibial Amputee Designed from Magnetic Resonance Imaging Data. Journal of Prosthetics and Orthotics, 2013, 25, 129-137.	0.2	108
12	An autonomous, underactuated exoskeleton for load-carrying augmentation. , 2006, , .		102
13	Biomechanical Design of a Powered Ankle-Foot Prosthesis. , 2007, , .		98
14	The effect of series elasticity on actuator power and work output: Implications for robotic and prosthetic joint design. Robotics and Autonomous Systems, 2006, 54, 667-673.	3.0	97
15	A swimming robot actuated by living muscle tissue. Journal of NeuroEngineering and Rehabilitation, 2004, 1, 6.	2.4	92
16	Design of a quasi-passive knee exoskeleton to assist running. , 2008, , .		90
17	A model of scale effects in mammalian quadrupedal running. Journal of Experimental Biology, 2002, 205, 959-967.	0.8	65
18	The Ewing Amputation: The First Human Implementation of the Agonist-Antagonist Myoneural Interface. Plastic and Reconstructive Surgery - Global Open, 2018, 6, e1997.	0.3	51

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19	Multi-material 3-D viscoelastic model of a transtibial residuum from in-vivo indentation and MRI data. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 59, 379-392.	1.5	49
20	Design of an agonist-antagonist active knee prosthesis. , 2008, , .		48
21	Optogenetic Peripheral Nerve Immunogenicity. Scientific Reports, 2018, 8, 14076.	1.6	48
22	Translational Motion Tracking of Leg Joints for Enhanced Prediction of Walking Tasks. IEEE Transactions on Biomedical Engineering, 2018, 65, 763-769.	2.5	46
23	A murine model of a novel surgical architecture for proprioceptive muscle feedback and its potential application to control of advanced limb prostheses. Journal of Neural Engineering, 2017, 14, 036002.	1.8	40
24	Closed-loop functional optogenetic stimulation. Nature Communications, 2018, 9, 5303.	5.8	40
25	A model of scale effects in mammalian quadrupedal running. Journal of Experimental Biology, 2002, 205, 959-67.	0.8	40
26	Exploiting angular momentum to enhance bipedal center-of-mass control. , 2009, , .		39
27	Low-Latency Tracking of Multiple Permanent Magnets. IEEE Sensors Journal, 2019, 19, 11458-11468.	2.4	36
28	Reinventing Extremity Amputation in the Era of Functional Limb Restoration. Annals of Surgery, 2021, 273, 269-279.	2.1	36
29	Active Orthoses for the Lower-Limbs: Challenges and State of the Art. , 2007, , .		34
30	Spectrally distinct channelrhodopsins for two-colour optogenetic peripheral nerve stimulation. Nature Biomedical Engineering, 2018, 2, 485-496.	11.6	32
31	A High-Performance Cable-Drive Module for the Development of Wearable Devices. IEEE/ASME Transactions on Mechatronics, 2018, 23, 1238-1248.	3.7	31
32	A Framework for Measuring the Time-Varying Shape and Full-Field Deformation of Residual Limbs Using 3-D Digital Image Correlation. IEEE Transactions on Biomedical Engineering, 2019, 66, 2740-2752.	2.5	31
33	Towards functional restoration for persons with limb amputation: A dual-stage implementation of regenerative agonist-antagonist myoneural interfaces. Scientific Reports, 2019, 9, 1981.	1.6	30
34	Agonist-antagonist myoneural interface amputation preserves proprioceptive sensorimotor neurophysiology in lower limbs. Science Translational Medicine, 2020, 12, .	5.8	27
35	Magnetomicrometry. Science Robotics, 2021, 6, .	9.9	26
36	Design and Preliminary Results of a Reaction Force Series Elastic Actuator for Bionic Knee and Ankle Prostheses. IEEE Transactions on Medical Robotics and Bionics, 2021, 3, 542-553.	2.1	26

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37	An untethered cable-driven ankle exoskeleton with plantarflexion-dorsiflexion bidirectional movement assistance. Frontiers of Information Technology and Electronic Engineering, 2020, 21, 723-739.	1.5	20
38	An Ankle-Foot Prosthesis for Rock Climbing Augmentation. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2021, 29, 41-51.	2.7	18
39	FlexSEA: Flexible, Scalable Electronics Architecture for wearable robotic applications. , 2016, , .		16
40	A Radar-Based Terrain Mapping Approach for Stair Detection Towards Enhanced Prosthetic Foot Control. , 2018, , .		16
41	A cutaneous mechanoneural interface for neuroprosthetic feedback. Nature Biomedical Engineering, 2022, 6, 731-740.	11.6	16
42	Caprine Models of the Agonist-Antagonist Myoneural Interface Implemented at the Above- and Below-Knee Amputation Levels. Plastic and Reconstructive Surgery, 2019, 144, 218e-229e.	0.7	15
43	Accurate Heuristic Terrain Prediction in Powered Lower-Limb Prostheses Using Onboard Sensors. IEEE Transactions on Biomedical Engineering, 2021, 68, 384-392.	2.5	15
44	Neural interfacing architecture enables enhanced motor control and residual limb functionality postamputation. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	13
45	3D Ultrasound Imaging of Residual Limbs With Camera-Based Motion Compensation. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2019, 27, 207-217.	2.7	12
46	Flexible Dry Electrodes for EMG Acquisition within Lower Extremity Prosthetic Sockets. , 2020, 2020, 1088-1095.		12
47	Low-Cost Methodology for Skin Strain Measurement of a Flexed Biological Limb. IEEE Transactions on Biomedical Engineering, 2017, 64, 2750-2759.	2.5	11
48	Acquisition of Surface EMG Using Flexible and Low-Profile Electrodes for Lower Extremity Neuroprosthetic Control. IEEE Transactions on Medical Robotics and Bionics, 2021, 3, 563-572.	2.1	10
49	Goats decrease hindlimb stiffness when walking over compliant surfaces. Journal of Experimental Biology, 2019, 222, .	0.8	9
50	FlexSEA-Execute: Advanced motion controller for wearable robotic applications. , 2016, , .		8
51	ARACAM: A RGB-D Multi-View Photogrammetry System for Lower Limb 3D Reconstruction Applications. Sensors, 2022, 22, 2443.	2.1	8
52	Agonist-antagonist Myoneural Interfaces in Above-knee Amputation Preserve Distal Joint Function and Perception. Annals of Surgery, 2021, 273, e115-e118.	2.1	7
53	Development and Evaluation of a Powered Artificial Gastrocnemius for Transtibial Amputee Gait. Journal of Robotics, 2018, 2018, 1-15.	0.6	6
54	Polyimide Electrode-Based Electrical Stimulation Impedes Early Stage Muscle Graft Regeneration. Frontiers in Neurology, 2019, 10, 252.	1.1	6

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55	Biomechanic and Energetic Effects of a Quasi-Passive Artificial Gastrocnemius on Transtibial Amputee Gait. Journal of Robotics, 2018, 2018, 1-12.	0.6	5
56	The Agonist-Antagonist Myoneural Interface. Hand Clinics, 2021, 37, 435-445.	0.4	5
57	Rejecting Impulse Artifacts from Surface EMG Signals using Real-time Cumulative Histogram Filtering. , 2021, 2021, 6235-6241.		4
58	Modulation of Prosthetic Ankle Plantarflexion Through Direct Myoelectric Control of a Subject-Optimized Neuromuscular Model. IEEE Robotics and Automation Letters, 2022, 7, 7620-7627.	3.3	4
59	An Autonomous Exoskeleton for Ankle Plantarflexion Assistance. , 2019, , .		2
60	Electric-Energetic Consequences of Springs in Lower-Extremity Powered Prostheses on Varied Terrain. , 2020, , .		2
61	Pressure based MRI-compatible muscle fascicle length and joint angle estimation. Journal of NeuroEngineering and Rehabilitation, 2020, 17, 118.	2.4	2
62	Restoration of bilateral motor coordination from preserved agonist-antagonist coupling in amputation musculature. Journal of NeuroEngineering and Rehabilitation, 2021, 18, 38.	2.4	2
63	The Agonist-antagonist Myoneural Interface. Techniques in Orthopaedics, 2021, 36, 337-344.	0.1	2
64	Abstract P25: A Caprine Model of a Novel Amputation Paradigm for Bi-directional Neural Control of a Bionic Limb. Plastic and Reconstructive Surgery - Global Open, 2017, 5, 119-119.	0.3	1
65	Spatiotemporally Synchronized Surface EMG and Ultrasonography Measurement Using a Flexible and Low-Profile EMG Electrode. , 2021, 2021, 6242-6246.		1
66	Opening keynote luncheon: â€œThe impact of information technology on health care deliveryâ€• , 2011, , .		0
67	Workloop Energetics of Antagonist Muscles. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	0