

Steven H Collins

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

62

papers

4,143

citations

26

h-index

64

g-index

71

ext. papers

5,327

ext. citations

7.1

avg, IF

6.06

L-index

#	Paper	IF	Citations
62	The energy cost of split-belt walking for a variety of belt speed combinations.. <i>Journal of Biomechanics</i> , 2022 , 132, 110905	2.9	1
61	Characterizing the relationship between peak assistance torque and metabolic cost reduction during running with ankle exoskeletons.. <i>Journal of NeuroEngineering and Rehabilitation</i> , 2022 , 19, 46	5.3	1
60	General variability leads to specific adaptation toward optimal movement policies.. <i>Current Biology</i> , 2022 ,	6.3	4
59	Optimized hip-knee-ankle exoskeleton assistance reduces the metabolic cost of walking with worn loads. <i>Journal of NeuroEngineering and Rehabilitation</i> , 2021 , 18, 161	5.3	3
58	Comparing optimized exoskeleton assistance of the hip, knee, and ankle in single and multi-joint configurations. <i>Wearable Technologies</i> , 2021 , 2,	4	4
57	Optimized hip-knee-ankle exoskeleton assistance at a range of walking speeds. <i>Journal of NeuroEngineering and Rehabilitation</i> , 2021 , 18, 152	5.3	4
56	Shortcomings of human-in-the-loop optimization of an ankle-foot prosthesis emulator: a case series. <i>Royal Society Open Science</i> , 2021 , 8, 202020	3.3	4
55	The Iterative Learning Gain That Optimizes Real-Time Torque Tracking for Ankle Exoskeletons in Human Walking Under Gait Variations. <i>Frontiers in Neurorobotics</i> , 2021 , 15, 653409	3.4	3
54	Teleoperation of an Ankle-Foot Prosthesis With a Wrist Exoskeleton. <i>IEEE Transactions on Biomedical Engineering</i> , 2021 , 68, 1714-1725	5	1
53	A hip-knee-ankle exoskeleton emulator for studying gait assistance. <i>International Journal of Robotics Research</i> , 2021 , 40, 722-746	5.7	19
52	Optimizing Exoskeleton Assistance for Faster Self-Selected Walking. <i>IEEE Transactions on Neural Systems and Rehabilitation Engineering</i> , 2021 , 29, 786-795	4.8	15
51	The effects of ground-irregularity-cancelling prosthesis control on balance over uneven surfaces. <i>Royal Society Open Science</i> , 2021 , 8, 201235	3.3	1
50	Sensing leg movement enhances wearable monitoring of energy expenditure. <i>Nature Communications</i> , 2021 , 12, 4312	17.4	4
49	Design of a Hip Exoskeleton With Actuation in Frontal and Sagittal Planes. <i>IEEE Transactions on Medical Robotics and Bionics</i> , 2021 , 3, 773-782	3.1	4
48	How adaptation, training, and customization contribute to benefits from exoskeleton assistance. <i>Science Robotics</i> , 2021 , 6, eabf1078	18.6	11
47	Using force data to self-pace an instrumented treadmill and measure self-selected walking speed. <i>Journal of NeuroEngineering and Rehabilitation</i> , 2020 , 17, 68	5.3	12
46	Improving the energy economy of human running with powered and unpowered ankle exoskeleton assistance. <i>Science Robotics</i> , 2020 , 5,	18.6	48

45	The Effects of Prosthesis Inversion/Eversion Stiffness on Balance-Related Variability During Level Walking: A Pilot Study. <i>Journal of Biomechanical Engineering</i> , 2020 , 142,	2.1	5
44	Design of Lower-Limb Exoskeletons and Emulator Systems 2020 , 251-274		8
43	Lower limb active prosthetic systems overview 2020 , 469-486		4
42	Testing Simulated Assistance Strategies on a Hip-Knee-Ankle Exoskeleton: a Case Study 2020 ,		8
41	Self-selected step length asymmetry is not explained by energy cost minimization in individuals with chronic stroke. <i>Journal of NeuroEngineering and Rehabilitation</i> , 2020 , 17, 119	5.3	3
40	An Ankle-Foot Prosthesis Emulator Capable of Modulating Center of Pressure. <i>IEEE Transactions on Biomedical Engineering</i> , 2020 , 67, 166-176	5	9
39	Rapid energy expenditure estimation for ankle assisted and inclined loaded walking. <i>Journal of NeuroEngineering and Rehabilitation</i> , 2019 , 16, 67	5.3	9
38	Heuristic-Based Ankle Exoskeleton Control for Co-Adaptive Assistance of Human Locomotion. <i>IEEE Transactions on Neural Systems and Rehabilitation Engineering</i> , 2019 , 27, 2059-2069	4.8	25
37	An Ankle Boot Prosthesis Emulator With Control of Plantarflexion and Inversion/Eversion Torque. <i>IEEE Transactions on Robotics</i> , 2018 , 34, 1183-1194	6.5	11
36	The effects of electroadhesive clutch design parameters on performance characteristics. <i>Journal of Intelligent Material Systems and Structures</i> , 2018 , 29, 3804-3828	2.3	26
35	. <i>IEEE Transactions on Robotics</i> , 2017 , 33, 406-418	6.5	26
34	Muscle recruitment and coordination with an ankle exoskeleton. <i>Journal of Biomechanics</i> , 2017 , 59, 50-58.	5.9	29
33	Human-in-the-loop optimization of exoskeleton assistance during walking. <i>Science</i> , 2017 , 356, 1280-1284.	3.3	359
32	Muscle-tendon mechanics explain unexpected effects of exoskeleton assistance on metabolic rate during walking. <i>Journal of Experimental Biology</i> , 2017 , 220, 2082-2095	3	45
31	Design of a lightweight, tethered, torque-controlled knee exoskeleton. <i>IEEE International Conference on Rehabilitation Robotics</i> , 2017 , 2017, 1646-1653	1.3	18
30	Torque Control in Legged Locomotion ? ?Supplementary document of this chapter is located at https://www.andrew.cmu.edu/user/shc17/Zhang_2016_BLLSuppMat.pdf . 2017 , 347-400		11
29	Step-to-Step Ankle Inversion/Eversion Torque Modulation Can Reduce Effort Associated with Balance. <i>Frontiers in Neurorobotics</i> , 2017 , 11, 62	3.4	15
28	The Passive Series Stiffness That Optimizes Torque Tracking for a Lower-Limb Exoskeleton in Human Walking. <i>Frontiers in Neurorobotics</i> , 2017 , 11, 68	3.4	15

27	A lightweight, low-power electroadhesive clutch and spring for exoskeleton actuation 2016 ,		49
26	Increasing ankle push-off work with a powered prosthesis does not necessarily reduce metabolic rate for transtibial amputees. <i>Journal of Biomechanics</i> , 2016 , 49, 3452-3459	2.9	69
25	An ankle-foot prosthesis emulator with control of plantarflexion and inversion-eversion torque 2015 ,		15
24	Once-per-step control of ankle-foot prosthesis push-off work reduces effort associated with balance during walking. <i>Journal of NeuroEngineering and Rehabilitation</i> , 2015 , 12, 43	5.3	54
23	The influence of push-off timing in a robotic ankle-foot prosthesis on the energetics and mechanics of walking. <i>Journal of NeuroEngineering and Rehabilitation</i> , 2015 , 12, 21	5.3	57
22	Reducing the energy cost of human walking using an unpowered exoskeleton. <i>Nature</i> , 2015 , 522, 212-5	50.4	477
21	An experimental comparison of the relative benefits of work and torque assistance in ankle exoskeletons. <i>Journal of Applied Physiology</i> , 2015 , 119, 541-57	3.7	115
20	2015 ,		58
19	Experimental comparison of torque control methods on an ankle exoskeleton during human walking 2015 ,		53
18	Informing Ankle-Foot Prosthesis Prescription through Haptic Emulation of Candidate Devices. <i>IEEE International Conference on Robotics and Automation: ICRA: [proceedings]</i> , 2015 , 2015, 6445-6450	2.2	12
17	Prosthetic ankle push-off work reduces metabolic rate but not collision work in non-amputee walking. <i>Scientific Reports</i> , 2014 , 4, 7213	4.9	57
16	A universal ankle-foot prosthesis emulator for human locomotion experiments. <i>Journal of Biomechanical Engineering</i> , 2014 , 136, 035002	2.1	93
15	What do walking humans want from mechatronics? 2013 ,		3
14	Stabilization of a three-dimensional limit cycle walking model through step-to-step ankle control. <i>IEEE International Conference on Rehabilitation Robotics</i> , 2013 , 2013, 6650437	1.3	7
13	An experimental robotic testbed for accelerated development of ankle prostheses 2013 ,		16
12	Two independent contributions to step variability during over-ground human walking. <i>PLoS ONE</i> , 2013 , 8, e73597	3.7	64
11	The effects of a controlled energy storage and return prototype prosthetic foot on transtibial amputee ambulation. <i>Human Movement Science</i> , 2012 , 31, 918-31	2.4	53
10	The effect of prosthetic foot push-off on mechanical loading associated with knee osteoarthritis in lower extremity amputees. <i>Gait and Posture</i> , 2011 , 34, 502-7	2.6	103

9	Systematic variation of prosthetic foot spring affects center-of-mass mechanics and metabolic cost during walking. <i>IEEE Transactions on Neural Systems and Rehabilitation Engineering</i> , 2011 , 19, 411-9	4.8	86
8	Recycling energy to restore impaired ankle function during human walking. <i>PLoS ONE</i> , 2010 , 5, e9307	3.7	124
7	Dynamic arm swinging in human walking. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2009 , 276, 3679-88	4.4	226
6	A simple method for calibrating force plates and force treadmills using an instrumented pole. <i>Gait and Posture</i> , 2009 , 29, 59-64	2.6	72
5	Ankle fixation need not increase the energetic cost of human walking. <i>Gait and Posture</i> , 2008 , 28, 427-33	3.6	39
4	Efficient bipedal robots based on passive-dynamic walkers. <i>Science</i> , 2005 , 307, 1082-5	33.3	1243
3	Optimized hip-knee-ankle exoskeleton assistance at a range of walking speeds		1
2	How adaptation, training, and customization contribute to benefits from exoskeleton assistance		1
1	Comparing optimized exoskeleton assistance of the hip, knee, and ankle in single and multi-joint configurations		