David W Franklin

List of Publications by Year
in descending order

87 papers	6,412 citations	126858 33 h-index	106281 65 g-index
96 all docs	96 docs citations	96 times ranked	3840 citing authors

#	Article	IF	Citations
1	The central nervous system stabilizes unstable dynamics by learning optimal impedance. Nature, 2001, 414, 446-449.	13.7	999
2	Computational Mechanisms of Sensorimotor Control. Neuron, 2011, 72, 425-442.	3.8	563
3	Nanomesh pressure sensor for monitoring finger manipulation without sensory interference. Science, 2020, 370, 966-970.	6.0	361
4	Adaptation to Stable and Unstable Dynamics Achieved By Combined Impedance Control and Inverse Dynamics Model. Journal of Neurophysiology, 2003, 90, 3270-3282.	0.9	358
5	Short- and Long-Term Changes in Joint Co-Contraction Associated With Motor Learning as Revealed From Surface EMG. Journal of Neurophysiology, 2002, 88, 991-1004.	0.9	308
6	CNS Learns Stable, Accurate, and Efficient Movements Using a Simple Algorithm. Journal of Neuroscience, 2008, 28, 11165-11173.	1.7	271
7	Endpoint Stiffness of the Arm Is Directionally Tuned to Instability in the Environment. Journal of Neuroscience, 2007, 27, 7705-7716.	1.7	255
8	Specificity of Reflex Adaptation for Task-Relevant Variability. Journal of Neuroscience, 2008, 28, 14165-14175.	1.7	179
9	Functional significance of stiffness in adaptation of multijoint arm movements to stable and unstable dynamics. Experimental Brain Research, 2003, 151, 145-157.	0.7	155
10	A method for measuring endpoint stiffness during multi-joint arm movements. Journal of Biomechanics, 2000, 33, 1705-1709.	0.9	148
11	Impedance control and internal model use during the initial stage of adaptation to novel dynamics in humans. Journal of Physiology, 2005, 567, 651-664.	1.3	139
12	Impedance Control Reduces Instability That Arises from Motor Noise. Journal of Neuroscience, 2009, 29, 12606-12616.	1.7	123
13	Stability and motor adaptation in human arm movements. Biological Cybernetics, 2006, 94, 20-32.	0.6	118
14	Different Mechanisms Involved in Adaptation to Stable and Unstable Dynamics. Journal of Neurophysiology, 2003, 90, 3255-3269.	0.9	115
15	Gone in 0.6 Seconds: The Encoding of Motor Memories Depends on Recent Sensorimotor States. Journal of Neuroscience, 2012, 32, 12756-12768.	1.7	115
16	The effect of contextual cues on the encoding of motor memories. Journal of Neurophysiology, 2013, 109, 2632-2644.	0.9	114
17	Motor Planning, Not Execution, Separates Motor Memories. Neuron, 2016, 92, 773-779.	3.8	113
18	Visuomotor feedback gains upregulate during the learning of novel dynamics. Journal of Neurophysiology, 2012, 108, 467-478.	0.9	110

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19	The Temporal Evolution of Feedback Gains Rapidly Update to Task Demands. Journal of Neuroscience, 2013, 33, 10898-10909.	1.7	105
20	HUMANâ€“HUMANOID INTERACTION: IS A HUMANOID ROBOT PERCEIVED AS A HUMAN?. International Journal of Humanoid Robotics, 2005, 02, 537-559.	0.6	101
21	Impedance Control Balances Stability With Metabolically Costly Muscle Activation. Journal of Neurophysiology, 2004, 92, 3097-3105.	0.9	99
22	Human Robotics. , 2013, , .		98
23	Adaptive control of stiffness to stabilize hand position with large loads. Experimental Brain Research, 2003, 152, 211-220.	0.7	96
24	Concurrent adaptation of force and impedance in the redundant muscle system. Biological Cybernetics, 2010, 102, 31-44.	0.6	89
25	Inability to activate muscles maximally during cocontraction and the effect on joint stiffness. Experimental Brain Research, 1995, 107, 293-305.	0.7	88
26	Visual Feedback Is Not Necessary for the Learning of Novel Dynamics. PLoS ONE, 2007, 2, e1336.	1.1	82
27	Task-dependent coordination of rapid bimanual motor responses. Journal of Neurophysiology, 2012, 107, 890-901.	0.9	78
28	Motor Effort Alters Changes of Mind in Sensorimotor Decision Making. PLoS ONE, 2014, 9, e92681.	1.1	78
29	Motor learning of novel dynamics is not represented in a single global coordinate system: evaluation of mixed coordinate representations and local learning. Journal of Neurophysiology, 2014, 111, 1165-1182.	0.9	74
30	The Value of the Follow-Through Derives from Motor Learning Depending on Future Actions. Current Biology, 2015, 25, 397-401.	1.8	73
31	Characterization of multijoint finger stiffness: dependence on finger posture and force direction. IEEE Transactions on Biomedical Engineering, 1998, 45, 1363-1375.	2.5	68
32	A Dedicated Binding Mechanism for the Visual Control of Movement. Current Biology, 2014, 24, 780-785.	1.8	62
33	Central control of grasp: Manipulation of objects with complex and simple dynamics. NeuroImage, 2007, 36, 388-395.	2.1	50
34	Temporal Evolution of Spatial Computations for Visuomotor Control. Journal of Neuroscience, 2016, 36, 2329-2341.	1.7	43
35	When Optimal Feedback Control Is Not Enough: Feedforward Strategies Are Required for Optimal Control with Active Sensing. PLoS Computational Biology, 2016, 12, e1005190.	1.5	42
36	Increasing muscle co-contraction speeds up internal model acquisition during dynamic motor learning. Scientific Reports, 2018, 8, 16355.	1.6	40

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37	Motor interference between Humans and Humanoid Robots: Effect of Biological and Artificial Motion. , 0, , .		38
38	Rapid visuomotor feedback gains are tuned to the task dynamics. Journal of Neurophysiology, 2017, 118, 2711-2726.	0.9	33
39	Impedance control is selectively tuned to multiple directions of movement. Journal of Neurophysiology, 2011, 106, 2737-2748.	0.9	29
40	Fractionation of the visuomotor feedback response to directions of movement and perturbation. Journal of Neurophysiology, 2014, 112, 2218-2233.	0.9	29
41	5-Dimension Cross-Industry Digital Twin Applications Model and Analysis of Digital Twin Classification Terms and Models. IEEE Access, 2021, 9, 131306-131321.	2.6	28
42	Neural Tuning Functions Underlie Both Generalization and Interference. PLoS ONE, 2015, 10, e0131268.	1.1	28
43	Generalization in Adaptation to Stable and Unstable Dynamics. PLoS ONE, 2012, 7, e45075.	1.1	22
44	Accurate Real-Time Feedback of Surface EMG During fMRI. Journal of Neurophysiology, 2007, 97, 912-920.	0.9	21
45	Central Representation of Dynamics When Manipulating Handheld Objects. Journal of Neurophysiology, 2006, 95, 893-901.	0.9	20
46	Timescales of motor memory formation in dual-adaptation. PLoS Computational Biology, 2020, 16, e1008373.	1.5	19
47	Direct and indirect cues can enable dual adaptation, but through different learning processes. Journal of Neurophysiology, 2021, 126, 1490-1506.	0.9	18
48	Asymmetry in kinematic generalization between visual and passive lead-in movements are consistent with a forward model in the sensorimotor system. PLoS ONE, 2020, 15, e0228083.	1.1	17
49	Adaptive tuning functions arise from visual observation of past movement. Scientific Reports, 2016, 6, 28416.	1.6	16
50	Active lead-in variability affects motor memory formation and slows motor learning. Scientific Reports, 2017, 7, 7806.	1.6	16
51	The Sensorimotor System Can Sculpt Behaviorally Relevant Representations for Motor Learning. ENeuro, 2016, 3, ENEURO.0070-16.2016.	0.9	13
52	Time-to-Target Simplifies Optimal Control of Visuomotor Feedback Responses. ENeuro, 2020, 7, ENEURO.0514-19.2020.	0.9	13
53	Coordinate Representations for Interference Reduction in Motor Learning. PLoS ONE, 2015, 10, e0129388.	1.1	11
54	Influence of Visual Feedback on the Sensorimotor Control of an Inverted Pendulum. , 2018, 2018, 5170-5173.		10

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55	Contextual cues are not unique for motor learning: Task-dependant switching of feedback controllers. PLoS Computational Biology, 2022, 18, e1010192.	1.5	10
56	Methodology for Digital Twin Use Cases: Definition, Prioritization, and Implementation. IEEE Access, 2022, 10, 75444-75457.	2.6	10
57	How is somatosensory information used to adapt to changes in the mechanical environment?. Progress in Brain Research, 2007, 165, 363-372.	0.9	9
58	Feedback Modulation: A Window into Cortical Function. Current Biology, 2011, 21, R924-R926.	1.8	9
59	Selection and control of limb posture for stability. , 2013, 2013, 5626-9.		9
60	Estimation of multijoint limb stiffness from EMG during reaching movements. , 0, , .		7
61	Active strategies for multisensory conflict suppression in the virtual hand illusion. Scientific Reports, 2021, 11, 22844.	1.6	7
62	Impedance control: Learning stability in human sensorimotor control. , 2015, 2015, 1421-4.		6
63	Rapid Feedback Responses Arise From Precomputed Gains. Motor Control, 2016, 20, 171-176.	0.3	6
64	Feedback Delay Changes the Control of an Inverted Pendulum. , 2019, 2019, 1517-1520.		6
65	Feedback Gains modulate with Motor Memory Uncertainty. Neurons, Behavior, Data Analysis, and Theory, 2021, 5, .	1.8	6
66	Mixed-horizon optimal feedback control as a model of human movement. Neurons, Behavior, Data Analysis, and Theory, 2022, 1, .	1.8	6
67	Conflicting Visual and Proprioceptive Reflex Responses During Reaching Movements. Lecture Notes in Computer Science, 2007, , 1002-1011.	1.0	5
68	A Simulated Inverted Pendulum to Investigate Human Sensorimotor Control. , 2018, 2018, 5166-5169.		4
69	Single trial learning of external dynamics: What can the brain teach us about learning mechanisms?. International Congress Series, 2007, 1301, 67-70.	0.2	3
70	LQG framework explains performance of balancing inverted pendulum with incongruent visual feedback. , 2019, 2019, 1940-1943.		2
71	Controller Gains of an Inverted Pendulum are Influenced by the Visual Feedback Position. , 2019, 2019, 5068-5071.		2
72	Motor Learning in Response to Different Experimental Pain Models Among Healthy Individuals: A Systematic Review. Frontiers in Human Neuroscience, 2022, 16, 863741.	1.0	2

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73	Learning the dynamics of the external world: Brain inspired learning for robotic applications. International Congress Series, 2006, 1291, 109-112.	0.2	1
74	Learning feedforward commands to muscles using time-shifted sensory feedback. International Congress Series, 2006, 1291, 113-116.	0.2	1
75	Reflex Contributions to the Directional Tuning of Arm Stiffness. Lecture Notes in Computer Science, 2007, , 913-922.	1.0	0
76	Timescales of motor memory formation in dual-adaptation. , 2020, 16, e1008373.		0
77	Timescales of motor memory formation in dual-adaptation. , 2020, 16, e1008373.		0
78	Timescales of motor memory formation in dual-adaptation. , 2020, 16, e1008373.		0
79	Timescales of motor memory formation in dual-adaptation. , 2020, 16, e1008373.		0
80	Timescales of motor memory formation in dual-adaptation. , 2020, 16, e1008373.		0
81	Timescales of motor memory formation in dual-adaptation. , 2020, 16, e1008373.		0
82	Title is missing!. , 2020, 15, e0228083.		0
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86	Title is missing!. , 2020, 15, e0228083.		0
87	Title is missing!. , 2020, 15, e0228083.		0