Andy L Ruina

List of Publications by Year
in descending order

50 papers	10,595 citations	147566 31 h-index	243296 44 g-index
54 all docs	54 docs citations	54 times ranked	5232 citing authors

#	Article	IF	Citations
1	Slip instability and state variable friction laws. Journal of Geophysical Research, 1983, 88, 10359-10370.	3.3	2,490
2	Efficient Bipedal Robots Based on Passive-Dynamic Walkers. Science, 2005, 307, 1082-1085.	6.0	1,624
3	The Simplest Walking Model: Stability, Complexity, and Scaling. Journal of Biomechanical Engineering, 1998, 120, 281-288.	0.6	900
4	Energetic Consequences of Walking Like an Inverted Pendulum: Step-to-Step Transitions. Exercise and Sport Sciences Reviews, 2005, 33, 88-97.	1.6	568
5	Computer optimization of a minimal biped model discovers walking and running. Nature, 2006, 439, 72-75.	13.7	491
6	Slip motion and stability of a single degree of freedom elastic system with rate and state dependent friction. Journal of the Mechanics and Physics of Solids, 1984, 32, 167-196.	2.3	467
7	A collisional model of the energetic cost of support work qualitatively explains leg sequencing in walking and galloping, pseudo-elastic leg behavior in running and the walk-to-run transition. Journal of Theoretical Biology, 2005, 237, 170-192.	0.8	382
8	Multiple Walking Speedâ€“frequency Relations are Predicted by Constrained Optimization. Journal of Theoretical Biology, 2001, 209, 445-453.	0.8	294
9	Linearized dynamics equations for the balance and steer of a bicycle: a benchmark and review. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2007, 463, 1955-1982.	1.0	261
10	A Bipedal Walking Robot with Efficient and Human-Like Gait. , 0, , .		237
11	Planar sliding with dry friction Part 1. Limit surface and moment function. Wear, 1991, 143, 307-330.	1.5	222
12	Low-bandwidth reflex-based control for lower power walking: 65 km on a single battery charge. International Journal of Robotics Research, 2014, 33, 1305-1321.	5.8	182
13	An Uncontrolled Walking Toy That Cannot Stand Still. Physical Review Letters, 1998, 80, 3658-3661.	2.9	180
14	A Helping Hand: Soft Orthosis with Integrated Optical Strain Sensors and EMG Control. IEEE Robotics and Automation Magazine, 2016, 23, 55-64.	2.2	146
15	Efficiency, speed, and scaling of two-dimensional passive-dynamic walking. Dynamical Systems, 2000, 15, 75-99.	0.7	143
16	Motions of a rimless spoked wheel: a simple three-dimensional system with impacts. Dynamical Systems, 1997, 12, 139-159.	0.7	140
17	A Bicycle Can Be Self-Stable Without Gyroscopic or Caster Effects. Science, 2011, 332, 339-342.	6.0	133
18	A two degree-of-freedom earthquake model with static/dynamic friction. Pure and Applied Geophysics, 1987, 125, 629-656.	0.8	97

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19	Microbuckling instability in elastomeric cellular solids. Journal of Materials Science, 1993, 28, 4667-4672.	1.7	91
20	Slip patterns in a spatially homogeneous fault model. Journal of Geophysical Research, 1989, 94, 10279-10298.	3.3	85
21	Planar sliding with dry friction Part 2. Dynamics of motion. Wear, 1991, 143, 331-352.	1.5	67
22	Walking model with no energy cost. Physical Review E, 2011, 83, 032901.	0.8	65
23	Why K? High order singularities and small scale yielding. International Journal of Fracture, 1995, 72, 97-120.	1.1	62
24	Nonholonomic stability aspects of piecewise holonomic systems. Reports on Mathematical Physics, 1998, 42, 91-100.	0.4	56
25	DESIGN AND CONTROL OF RANGER: AN ENERGY-EFFICIENT, DYNAMIC WALKING ROBOT. , 2012, , 441-448.		49
26	Cohesive Zone Models and Fracture. Journal of Adhesion, 2011, 87, 1-52.	1.8	48
27	Elastic instability model of rapid beak closure in hummingbirds. Journal of Theoretical Biology, 2011, 282, 41-51.	0.8	47
28	A five-link 2D brachiating ape model with life-like zero-energy-cost motions. Journal of Theoretical Biology, 2005, 237, 265-278.	0.8	44
29	A simple 1+ dimensional model of rowing mimics observed forces and motions. Human Movement Science, 2006, 25, 192-220.	0.6	41
30	Prediction of stable walking for a toy that cannot stand. Physical Review E, 2001, 64, 022901.	0.8	38
31	Two steps is enough: No need to plan far ahead for walking balance. , 2015, , .		38
32	The Boundaries of Walking Stability: Viability and Controllability of Simple Models. IEEE Transactions on Robotics, 2018, 34, 336-352.	7.3	38
33	A chain that speeds up, rather than slows, due to collisions: How compression can cause tension. American Journal of Physics, 2011, 79, 723-729.	0.3	35
34	Idealized walking and running gaits minimize work. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2007, 463, 2429-2446.	1.0	28
35	Rocking and rolling: A can that appears to rock might actually roll. Physical Review E, 2008, 78, 066609.	0.8	21
36	A quantitative model of technology transfer and technological â€œcatch-upâ€• Technological Forecasting and Social Change, 1983, 24, 31-44.	6.2	19

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37	Persistent Passive Hopping and Juggling is Possible Even With Plastic Collisions. International Journal of Robotics Research, 2002, 21, 621-634.	5.8	19
38	Static equilibria of planar, rigid bodies: is there anything new?. Journal of Elasticity, 1994, 36, 59-66.	0.9	16
39	Discrete-Decision Continuous-Actuation Control: Balance of an Inverted Pendulum and Pumping a Pendulum Swing. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2015, 137, .	0.9	15
40	Non-linear robust control for inverted-pendulum 2D walking. , 2015, , .		12
41	A pressure field model for fast, robust approximation of net contact force and moment between nominally rigid objects. , 2019, , .		11
42	Unsteady motions between sliding surfaces. Wear, 1986, 113, 83-86.	1.5	6
43	Steinkamp's Toy Can Hop 100 Times But Can't Stand Up. Journal of Mechanisms and Robotics, 2017, 9, .	1.5	5
44	Feynman: Wobbles, Bottles and Ripples. Physics Today, 1989, 42, 127-130.	0.3	4
45	The bricycle: a bicycle in zero gravity can be balanced or steered but not both. Vehicle System Dynamics, 2014, 52, 1681-1694.	2.2	4
46	Construction and Excavation by Collaborative Double-Tailed SAW Robots. IEEE Robotics and Automation Letters, 2022, 7, 3742-3748.	3.3	3
47	A circle construction based on elastostatics and hydrodynamics. Mechanics Research Communications, 1993, 20, 181-185.	1.0	2
48	Off-line controller design for reliable walking of ranger. , 2016, , .		2
49	Standing horse posture: a longer stance is more stable. Biology Open, 2022, 11, .	0.6	1
50	The â€œvisco-plasticâ€•approximation to Hart's constitutive law for inelastic deformation. International Journal of Solids and Structures, 1987, 23, 693-709.	1.3	0