Robert F Shepherd

List of Publications by Year
in descending order

103 papers	16,251 citations	31902 53 h-index	37111 96 g-index
112 all docs	112 docs citations	112 times ranked	12677 citing authors

#	Article	IF	Citations
1	Multigait soft robot. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 20400-20403.	3.3	1,750
2	Pneumatic Networks for Soft Robotics that Actuate Rapidly. Advanced Functional Materials, 2014, 24, 2163-2170.	7.8	1,125
3	Highly stretchable electroluminescent skin for optical signaling and tactile sensing. Science, 2016, 351, 1071-1074.	6.0	1,106
4	Soft Robotics for Chemists. Angewandte Chemie - International Edition, 2011, 50, 1890-1895.	7.2	912
5	A Resilient, Untethered Soft Robot. Soft Robotics, 2014, 1, 213-223.	4.6	885
6	Soft Robotics: Review of Fluidâ€Driven Intrinsically Soft Devices; Manufacturing, Sensing, Control, and Applications in Humanâ€Robot Interaction. Advanced Engineering Materials, 2017, 19, 1700016.	1.6	707
7	Camouflage and Display for Soft Machines. Science, 2012, 337, 828-832.	6.0	642
8	3D printing of soft robotic systems. Nature Reviews Materials, 2018, 3, 84-100.	23.3	620
9	Optoelectronically innervated soft prosthetic hand via stretchable optical waveguides. Science Robotics, 2016, 1, .	9.9	619
10	Robotic Tentacles with Threeâ€Dimensional Mobility Based on Flexible Elastomers. Advanced Materials, 2013, 25, 205-212.	11.1	580
11	Directed Colloidal Assembly of 3D Periodic Structures. Advanced Materials, 2002, 14, 1279-1283.	11.1	324
12	Directâ€Write Assembly of 3D Hydrogel Scaffolds for Guided Cell Growth. Advanced Materials, 2009, 21, 2407-2410.	11.1	266
13	Microfluidic Assembly of Homogeneous and Janus Colloid-Filled Hydrogel Granules. Langmuir, 2006, 22, 8618-8622.	1.6	251
14	Stretchable distributed fiber-optic sensors. Science, 2020, 370, 848-852.	6.0	246
15	Using Explosions to Power a Soft Robot. Angewandte Chemie - International Edition, 2013, 52, 2892-2896.	7.2	227
16	3D printing antagonistic systems of artificial muscle using projection stereolithography. Bioinspiration and Biomimetics, 2015, 10, 055003.	1.5	225
17	Fugitive Inks for Direct-Write Assembly of Three-Dimensional Microvascular Networks. Advanced Materials, 2005, 17, 395-399.	11.1	216
18	Pneumatic Energy Sources for Autonomous and Wearable Soft Robotics. Soft Robotics, 2014, 1, 263-274.	4.6	215

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19	Stretchable surfaces with programmable 3D texture morphing for synthetic camouflaging skins. Science, 2017, 358, 210-214.	6.0	210
20	3D Microperiodic Hydrogel Scaffolds for Robust Neuronal Cultures. Advanced Functional Materials, 2011, 21, 47-54.	7.8	205
21	A Hybrid Combining Hard and Soft Robots. Soft Robotics, 2014, 1, 70-74.	4.6	198
22	A transparent, self-healing and high-Îº dielectric for low-field-emission stretchable optoelectronics. Nature Materials, 2020, 19, 182-188.	13.3	183
23	Morphing Metal and Elastomer Bicontinuous Foams for Reversible Stiffness, Shape Memory, and Selfâ€Healing Soft Machines. Advanced Materials, 2016, 28, 2801-2806.	11.1	168
24	Highly Elastic, Transparent, and Conductive 3Dâ€Printed Ionic Composite Hydrogels. Advanced Functional Materials, 2017, 27, 1701807.	7.8	162
25	Soft Machines That are Resistant to Puncture and That Self Seal. Advanced Materials, 2013, 25, 6709-6713.	11.1	158
26	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
27	Electrolytic vascular systems for energy-dense robots. Nature, 2019, 571, 51-57.	13.7	143
28	A Stretchable Multicolor Display and Touch Interface Using Photopatterning and Transfer Printing. Advanced Materials, 2016, 28, 9770-9775.	11.1	135
29	Magnetic Assembly of Soft Robots with Hard Components. Advanced Functional Materials, 2014, 24, 2180-2187.	7.8	129
30	Soft optoelectronic sensory foams with proprioception. Science Robotics, 2018, 3, .	9.9	129
31	Integrated soft sensors and elastomeric actuators for tactile machines with kinesthetic sense. Extreme Mechanics Letters, 2015, 5, 47-53.	2.0	126
32	Click chemistry stereolithography for soft robots that self-heal. Journal of Materials Chemistry B, 2017, 5, 6249-6255.	2.9	126
33	An untethered jumping soft robot. , 2014, , .		124
34	Autonomic perspiration in 3D-printed hydrogel actuators. Science Robotics, 2020, 5, .	9.9	121
35	Bioâ€inspired Design and Additive Manufacturing of Soft Materials, Machines, Robots, and Haptic Interfaces. Angewandte Chemie - International Edition, 2019, 58, 11182-11204.	7.2	120
36	Poroelastic Foams for Simple Fabrication of Complex Soft Robots. Advanced Materials, 2015, 27, 6334-6340.	11.1	109

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37	Digital light processing of liquid crystal elastomers for self-sensing artificial muscles. Science Advances, 2021, 7, .	4.7	99
38	Scalable manufacturing of high force wearable soft actuators. Extreme Mechanics Letters, 2015, 3, 89-104.	2.0	91
39	Stopâ€Flow Lithography of Colloidal, Glass, and Silicon Microcomponents. Advanced Materials, 2008, 20, 4734-4739.	11.1	85
40	Towards enduring autonomous robots via embodied energy. Nature, 2022, 602, 393-402.	13.7	84
41	Flexible and stretchable sensors for fluidic elastomer actuated soft robots. MRS Bulletin, 2017, 42, 138-142.	1.7	76
42	Influence of surface traction on soft robot undulation. International Journal of Robotics Research, 2013, 32, 1577-1584.	5.8	74
43	3D printable tough silicone double networks. Nature Communications, 2020, 11, 4000.	5.8	74
44	Using â€œClickâ€eâ€Bricksâ€•to Make 3D Elastomeric Structures. Advanced Materials, 2014, 26, 5991-5999.	11.1	73
45	Hierarchical chemomechanical encoding of multi-responsive hydrogel actuators <i>via</i> 3D printing. Journal of Materials Chemistry A, 2019, 7, 15395-15403.	5.2	73
46	Biomimetic silicification of 3D polyamine-rich scaffolds assembled by direct ink writing. Soft Matter, 2006, 2, 205.	1.2	68
47	Control of soft machines using actuators operated by a Braille display. Lab on A Chip, 2014, 14, 189-199.	3.1	65
48	Shaping the future of robotics through materials innovation. Nature Materials, 2021, 20, 1582-1587.	13.3	65
49	Dynamic photovoltaic building envelopes for adaptive energy and comfort management. Nature Energy, 2019, 4, 671-682.	19.8	63
50	Stretchable Optical Fibers: Threads for Strainâ€Sensitive Textiles. Advanced Materials Technologies, 2017, 2, 1700087.	3.0	59
51	Direct Ink Writing of Silicon Carbide for Microwave Optics. Advanced Engineering Materials, 2016, 18, 39-45.	1.6	58
52	Designing colloidal suspensions for directed materials assembly. Current Opinion in Colloid and Interface Science, 2011, 16, 71-79.	3.4	57
53	Optical lace for synthetic afferent neural networks. Science Robotics, 2019, 4, .	9.9	56
54	Elastomeric Tiles for the Fabrication of Inflatable Structures. Advanced Functional Materials, 2014, 24, 5541-5549.	7.8	53

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55	Elastomeric passive transmission for autonomous force-velocity adaptation applied to 3D-printed prosthetics. Science Robotics, 2018, 3, .	9.9	52
56	Patient-specific design of a soft occluder for the left atrial appendage. Nature Biomedical Engineering, 2018, 2, 8-16.	11.6	50
57	Elastomeric Haptic Devices for Virtual and Augmented Reality. Advanced Functional Materials, 2021, 31, 2009364.	7.8	39
58	A Deformable Interface for Human Touch Recognition Using Stretchable Carbon Nanotube Dielectric Elastomer Sensors and Deep Neural Networks. Soft Robotics, 2019, 6, 611-620.	4.6	35
59	3D Printing Soft Materials: What Is Possible?. Soft Robotics, 2015, 2, 3-6.	4.6	34
60	3D Printing of Viscoelastic Suspensions via Digital Light Synthesis for Tough Nanoparticleâ€"Elastomer Composites. Advanced Materials, 2020, 32, e2001646.	11.1	31
61	Sculpting Soft Machines. Soft Robotics, 2016, 3, 101-108.	4.6	26
62	Fiber Embroidery of Self-Sensing Soft Actuators. Biomimetics, 2018, 3, 24.	1.5	22
63	Fluidic Elastomer Actuators for Haptic Interactions in Virtual Reality. IEEE Robotics and Automation Letters, 2019, 4, 277-284.	3.3	22
64	Rapid 3D Printing of Electrohydraulic (HASEL) Tentacle Actuators. Advanced Functional Materials, 2020, 30, 2005244.	7.8	22
65	Compliant Buckled Foam Actuators and Application in Patient-Specific Direct Cardiac Compression. Soft Robotics, 2018, 5, 99-108.	4.6	21
66	Simple Synthesis of Elastomeric Photomechanical Switches That Selfâ€Heal. Macromolecular Rapid Communications, 2019, 40, e1800815.	2.0	21
67	Underactuated fluidic control of a continuous multistable membrane. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 5217-5221.	3.3	21
68	Optical stereolithography of antifouling zwitterionic hydrogels. Journal of Materials Chemistry B, 2019, 7, 2855-2864.	2.9	20
69	Curvature control of soft orthotics via low cost solid-state optics. , 2016, , .		19
70	Valveless microliter combustion for densely packed arrays of powerful soft actuators. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	19
71	Making bioinspired 3D-printed autonomic perspiring hydrogel actuators. Nature Protocols, 2021, 16, 2068-2087.	5.5	18
72	Air-powered soft robots for K-12 classrooms. , 2013, , .		16

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73	Haptic perception using optoelectronic robotic flesh for embodied artificially intelligent agents. Science Robotics, 2022, 7, .	9.9	16
74	Analog modeling of Worm-Like Chain molecules using macroscopic beads-on-a-string. Physical Chemistry Chemical Physics, 2012, 14, 9041.	1.3	15
75	A variable shape and variable stiffness controller for haptic virtual interactions. , 2018, , .		15
76	Leveraging fluid resistance in soft robots. , 2018, , .		14
77	Acoustophoretic Liquefaction for 3D Printing Ultrahighâ€Viscosity Nanoparticle Suspensions. Advanced Materials, 2022, 34, e2106183.	11.1	14
78	Structural evolution of cuboidal granular media. Soft Matter, 2012, 8, 4795.	1.2	11
79	Energy for Biomimetic Robots: Challenges and Solutions. Soft Robotics, 2014, 1, 106-109.	4.6	11
80	Untethered Stretchable Displays for Tactile Interaction. Soft Robotics, 2019, 6, 142-149.	4.6	11
81	Stereolithography for Personalized Left Atrial Appendage Occluders. Advanced Materials Technologies, 2018, 3, 1800233.	3.0	10
82	Fluid-driven intrinsically soft robots. , 2019, , 61-84.		8
83	Polymer interdigitated pillar electrostatic (PIPE) actuators. Microsystems and Nanoengineering, 2022, 8, 18.	3.4	8
84	Magnetohydrodynamic levitation for high-performance flexible pumps. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	3.3	8
85	Configurable Tendon Routing in a 3D-printed Soft Actuator for Improved Locomotion in a Multi-Legged Robot. , 2019, , .		7
86	Pump Up the Jam: Granular Media as a Quasiâ€Hydraulic Fluid for Independent Control Over Isometric and Isotonic Actuation. Advanced Science, 2022, 9, e2104402.	5.6	6
87	Bioinspiriertes Design und additive Fertigung von weichen Materialien, Maschinen, Robotern und haptischen Schnittstellen. Angewandte Chemie, 2019, 131, 11300-11324.	1.6	5
88	High-Bandwidth Nonlinear Control for Soft Actuators with Recursive Network Models. Springer Proceedings in Advanced Robotics, 2021, , 589-599.	0.9	4
89	Measurement of Parachute Canopy Textile Deformation Using Mechanically Invisible Stretchable Lightguides. Advanced Materials Technologies, 2022, 7, .	3.0	4
90	Simple synthesis of soft, tough, and cytocompatible biohybrid composites. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	3.3	4

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91	Soft Robotics: Poroelastic Foams for Simple Fabrication of Complex Soft Robots (Adv. Mater. 41/2015). Advanced Materials, 2015, 27, 6333-6333.	11.1	3
92	Mechanical Model of Globular Transition in Polymers. ChemPlusChem, 2015, 80, 37-41.	1.3	3
93	Selective Mineralization of Tough Hydrogel Lumens for Simulating Arterial Plaque. Advanced Engineering Materials, 2017, 19, 1600591.	1.6	3
94	Resilient Task Planning and Execution for Reactive Soft Robots. , 2019, , .		3
95	3D Printed Pyroelectric Lithium-Niobate High Voltages Source with Pull-in Regulated Output. , 2020, , .		3
96	The new material science of robots. Current Opinion in Solid State and Materials Science, 2021, 25, 100894.	5.6	3
97	Gait Synthesis for Modular Soft Robots. Springer Proceedings in Advanced Robotics, 2017, , 669-678.	0.9	2
98	Stretchable transducers for kinesthetic interactions in virtual reality. , 2017, , .		2
99	3D Microperiodic Hydrogel Scaffolds for Robust Neuronal Cultures. Advanced Functional Materials, 2011, 21, 46-46.	7.8	1
100	Addressing sensor drift in a proprioceptive optical foam system. , 2019, , .		1
101	Cover Picture: Soft Robotics for Chemists (Angew. Chem. Int. Ed. 8/2011). Angewandte Chemie - International Edition, 2011, 50, 1727-1727.	7.2	0
102	Materials for 3D Printing Cardiovascular Devices. , 2018, , 33-59.		0
103	Electrohydraulic Tentacle Actuators: Rapid 3D Printing of Electrohydraulic (HASEL) Tentacle Actuators (Adv. Funct. Mater. 40/2020). Advanced Functional Materials, 2020, 30, 2070266.	7.8	0