

Mark Cutkosky

List of Publications by Year in descending order

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140
papers

6,144
citations

101543

36
h-index

91884

69
g-index

142
all docs

142
docs citations

142
times ranked

4177
citing authors

#	ARTICLE	IF	CITATIONS
1	Perceived Intensities of Normal and Shear Skin Stimuli Using a Wearable Haptic Bracelet. IEEE Robotics and Automation Letters, 2022, 7, 6099-6106.	5.1	7
2	RVEX: Right Ventricular External Device for Biomimetic Support and Monitoring of the Right Heart. Advanced Materials Technologies, 2022, 7, .	5.8	2
3	Bimanual Handling of Deformable Objects With Hybrid Adhesion. IEEE Robotics and Automation Letters, 2022, 7, 5497-5503.	5.1	4
4	DynaRing: A Patient-Specific Mitral Annuloplasty Ring With Selective Stiffness Segments. Journal of Medical Devices, Transactions of the ASME, 2022, 16, .	0.7	3
5	Testing Gecko-Inspired Adhesives With Astrobee Aboard the International Space Station: Readyng the Technology for Space. IEEE Robotics and Automation Magazine, 2022, 29, 24-33.	2.0	4
6	ReachBot: A Small Robot with Exceptional Reach for Rough Terrain. , 2022, , .		5
7	Forcing the issue: testing gecko-inspired adhesives. Journal of the Royal Society Interface, 2021, 18, 20200730.	3.4	11
8	Compression Molding and Nickel Molds for Directional Gecko-Inspired Adhesives. Journal of Micro and Nano-Manufacturing, 2021, 9, .	0.7	2
9	Cutting to the Point: Directly Machined Metal Molds for Directional Gecko-Inspired Adhesives. Journal of Micro and Nano-Manufacturing, 2021, 9, .	0.7	4
10	Exploratory Hand: Leveraging Safe Contact to Facilitate Manipulation in Cluttered Spaces. IEEE Robotics and Automation Letters, 2021, 6, 5159-5166.	5.1	6
11	Extending Reach Inside the MRI Bore: A 7-DOF, Low-Friction, Hydrostatic Teleoperator. IEEE Transactions on Medical Robotics and Bionics, 2021, 3, 701-713.	3.2	6
12	A Stretchable Tactile Sleeve for Reaching Into Cluttered Spaces. IEEE Robotics and Automation Letters, 2021, 6, 5308-5315.	5.1	6
13	Hybrid electrostatic and gecko-inspired gripping pads for manipulating bulky, non-smooth items. Smart Materials and Structures, 2021, 30, 025010.	3.5	11
14	Bird-inspired dynamic grasping and perching in arboreal environments. Science Robotics, 2021, 6, eabj7562.	17.6	81
15	From grasping to manipulation with gecko-inspired adhesives on a multifinger gripper. Science Robotics, 2021, 6, eabi9773.	17.6	49
16	Mitral chordae tendineae force profile characterization using a posterior ventricular anchoring neochordal repair model for mitral regurgitation in a three-dimensional-printed <i>ex vivo</i> left heart simulator. European Journal of Cardio-thoracic Surgery, 2020, 57, 535-544.	1.4	30
17	Development and Ex Vivo Validation of Novel Force-Sensing Neochordae for Measuring Chordae Tendineae Tension in the Mitral Valve Apparatus Using Optical Fibers With Embedded Bragg Gratings. Journal of Biomechanical Engineering, 2020, 142, .	1.3	33
18	Tactile Sensing and Terrain-Based Gait Control for Small Legged Robots. IEEE Transactions on Robotics, 2020, 36, 15-27.	10.3	37

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19	Distal Hyperextension Is Handy: High Range of Motion in Cluttered Environments. IEEE Robotics and Automation Letters, 2020, 5, 921-928.	5.1	6
20	Dynamically Reconfigurable Tactile Sensor for Robotic Manipulation. IEEE Robotics and Automation Letters, 2020, 5, 2562-2569.	5.1	27
21	A Stretchable Capacitive Sensory Skin for Exploring Cluttered Environments. IEEE Robotics and Automation Letters, 2020, 5, 1750-1757.	5.1	8
22	Enabling In-Bore MRI-Guided Biopsies With Force Feedback. IEEE Transactions on Haptics, 2020, 13, 159-166.	2.7	11
23	Haptic Surface Display based on Miniature Dielectric Fluid Transducers. IEEE Robotics and Automation Letters, 2020, 5, 4021-4027.	5.1	28
24	Creating Metal Molds for Directional Gecko-Inspired Adhesives. Journal of Micro and Nano-Manufacturing, 2020, 8, .	0.7	9
25	PEDOT:PSS Coating Improves Gecko-Inspired Adhesive Performance. Journal of Micro and Nano-Manufacturing, 2020, 8, .	0.7	1
26	Birds land reliably on complex surfaces by adapting their foot-surface interactions upon contact. ELife, 2019, 8, .	6.0	24
27	ExVivo Biomechanical Study of Apical Versus Papillary Neochord Anchoring for Mitral Regurgitation. Annals of Thoracic Surgery, 2019, 108, 90-97.	1.3	38
28	Capacitive Sensing for a Gripper With Gecko-Inspired Adhesive Film. IEEE Robotics and Automation Letters, 2019, 4, 677-683.	5.1	38
29	Low-Cost, Continuously Variable, Strain Wave Transmission Using Gecko-Inspired Adhesives. IEEE Robotics and Automation Letters, 2019, 4, 894-901.	5.1	11
30	Long-Stroke Rolling Diaphragm Actuators For Haptic Display of Forces in Teleoperation. IEEE Robotics and Automation Letters, 2019, 4, 1478-1484.	5.1	10
31	Load-Sharing in Soft and Spiny Paws for a Large Climbing Robot. IEEE Robotics and Automation Letters, 2019, 4, 1439-1446.	5.1	27
32	The Role of Tissue Slip Feedback in Robot-Assisted Surgery. Journal of Medical Devices, Transactions of the ASME, 2019, 13, .	0.7	5
33	SpinyHand: Contact Load Sharing for a Human-Scale Climbing Robot. Journal of Mechanisms and Robotics, 2019, 11, .	2.2	24
34	Spatially variant microstructured adhesive with one-way friction. Journal of the Royal Society Interface, 2019, 16, 20180705.	3.4	12
35	Tunable Contact Conditions and Grasp Hydrodynamics Using Gentle Fingertip Suction. IEEE Transactions on Robotics, 2019, 35, 295-306.	10.3	15
36	Design of Materials and Mechanisms for Responsive Robots. Annual Review of Control, Robotics, and Autonomous Systems, 2018, 1, 359-384.	11.8	17

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37	Improving Industrial Grippers With Adhesion-Controlled Friction. IEEE Robotics and Automation Letters, 2018, 3, 1041-1048.	5.1	37
38	Grasping Without Squeezing: Design and Modeling of Shear-Activated Grippers. IEEE Transactions on Robotics, 2018, 34, 303-316.	10.3	57
39	A Soft Robotic Gripper With Gecko-Inspired Adhesive. IEEE Robotics and Automation Letters, 2018, 3, 903-910.	5.1	246
40	MR-Compatible Haptic Display of Membrane Puncture in Robot-Assisted Needle Procedures. IEEE Transactions on Haptics, 2018, 11, 443-454.	2.7	12
41	Approximating gecko setae via direct laser lithography. Smart Materials and Structures, 2018, 27, 075009.	3.5	16
42	Forceful manipulation with micro air vehicles. Science Robotics, 2018, 3, .	17.6	40
43	Slip Sensing for Intelligent, Improved Grasping and Retraction in Robot-Assisted Surgery. IEEE Robotics and Automation Letters, 2018, 3, 4148-4155.	5.1	13
44	Active Sensing for Measuring Contact of Thin Film Gecko-Inspired Adhesives. IEEE Robotics and Automation Letters, 2018, 3, 3263-3270.	5.1	8
45	Efficient Equilibrium Testing Under Adhesion and Anisotropy Using Empirical Contact Force Models. IEEE Transactions on Robotics, 2018, 34, 1157-1169.	10.3	10
46	HoloNeedle: Augmented Reality Guidance System for Needle Placement Investigating the Advantages of Three-Dimensional Needle Shape Reconstruction. IEEE Robotics and Automation Letters, 2018, 3, 4156-4162.	5.1	17
47	Stochastic models of compliant spine arrays for rough surface grasping. International Journal of Robotics Research, 2018, 37, 669-687.	8.5	23
48	Abstract 17300: Development and Ex Vivo Validation of Novel Force-Sensing Neo-Tendons for Measuring Chordae Tendineae Tension in the Mitral Valve Apparatus Using Optical Fibers With Embedded Bragg Gratings. Circulation, 2018, 138, .	1.6	0
49	Abstract 17080: A 3D Printed Ex Vivo Left Heart Simulator Quantifies and Validates Posterior Ventricular Anchoring Neochordoplasty. Circulation, 2018, 138, .	1.6	0
50	Creating Paper Robots increases designersâ€™ confidence to prototype with microcontrollers and electronics. International Journal of Design Creativity and Innovation, 2017, 5, 48-59.	1.2	9
51	Incipient Slip Detection and Recovery for Controllable Gecko-Inspired Adhesion. IEEE Robotics and Automation Letters, 2017, 2, 460-467.	5.1	10
52	The Ocean One hands: An adaptive design for robust marine manipulation. International Journal of Robotics Research, 2017, 36, 150-166.	8.5	112
53	Robust capture and deorbit of rocket body debris using controllable dry adhesion. , 2017, , .		18
54	A Multimodal Robot for Perching and Climbing on Vertical Outdoor Surfaces. IEEE Transactions on Robotics, 2017, 33, 38-48.	10.3	105

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55	Touchdown to take-off: at the interface of flight and surface locomotion. <i>Interface Focus</i> , 2017, 7, 20160094.	3.0	60
56	Design and modeling of linearly-constrained compliant spines for human-scale locomotion on rocky surfaces. <i>International Journal of Robotics Research</i> , 2017, 36, 985-999.	8.5	30
57	Force and moment constraints of a curved surface gripper and wrist for assistive free flyers. , 2017, , .		8
58	A robotic device using gecko-inspired adhesives can grasp and manipulate large objects in microgravity. <i>Science Robotics</i> , 2017, 2, .	17.6	196
59	Sensing slip of grasped wet, conformable objects. , 2017, , .		3
60	A rolling-diaphragm hydrostatic transmission for remote MR-guided needle insertion. , 2017, , .		23
61	Bioinspired Grippers for Natural Curved Surface Perching. <i>Lecture Notes in Computer Science</i> , 2017, , 604-610.	1.3	5
62	Dry Adhesion of Artificial Gecko Setae Fabricated via Direct Laser Lithography. <i>Lecture Notes in Computer Science</i> , 2017, , 631-636.	1.3	6
63	Aggressive Flight With Quadrotors for Perching on Inclined Surfaces. <i>Journal of Mechanisms and Robotics</i> , 2016, 8, .	2.2	68
64	A palm for a rock climbing robot based on dense arrays of micro-spines. , 2016, , .		33
65	Force and Tactile Sensing. <i>Springer Handbooks</i> , 2016, , 717-736.	0.6	17
66	Scalable Electroactive Polymer for Variable Stiffness Suspensions. <i>IEEE/ASME Transactions on Mechatronics</i> , 2016, 21, 2836-2846.	5.8	19
67	Free-flyer acquisition of spinning objects with gecko-inspired adhesives. , 2016, , .		27
68	One Motor, Two Degrees of Freedom Through Dynamic Response Switching. <i>IEEE Robotics and Automation Letters</i> , 2016, 1, 969-975.	5.1	4
69	Integrated Ground Reaction Force Sensing and Terrain Classification for Small Legged Robots. <i>IEEE Robotics and Automation Letters</i> , 2016, 1, 1125-1132.	5.1	54
70	Letâ€™s All Pull Together: Principles for Sharing Large Loads in Microrobot Teams. <i>IEEE Robotics and Automation Letters</i> , 2016, 1, 1089-1096.	5.1	14
71	Slip classification for dynamic tactile array sensors. <i>International Journal of Robotics Research</i> , 2016, 35, 404-421.	8.5	50
72	Three-dimensional dynamic surface grasping with dry adhesion. <i>International Journal of Robotics Research</i> , 2016, 35, 943-958.	8.5	48

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73	Thrust-Assisted Perching and Climbing for a Bioinspired UAV. Lecture Notes in Computer Science, 2016, , 288-296.	1.3	9
74	Climbing with adhesion: from bioinspiration to biounderstanding. Interface Focus, 2015, 5, 20150015.	3.0	41
75	μTugs: Enabling microrobots to deliver macro forces with controllable adhesives. , 2015, , .		27
76	Perching failure detection and recovery with onboard sensing. , 2015, , .		6
77	Grasping without squeezing: Shear adhesion gripper with fibrillar thin film. , 2015, , .		74
78	Scaling controllable adhesives to grapple floating objects in space. , 2015, , .		36
79	Vertical dry adhesive climbing with a 100× bodyweight payload. , 2015, , .		24
80	A Passive Parallel Master“Slave Mechanism for Magnetic Resonance Imaging-Guided Interventions. Journal of Medical Devices, Transactions of the ASME, 2015, 9, 0110081-1100811.	0.7	16
81	Surface and Shape Deposition Manufacturing for the Fabrication of a Curved Surface Gripper. Journal of Mechanisms and Robotics, 2015, 7, .	2.2	42
82	Planning and Control of Aggressive Maneuvers for Perching on Inclined and Vertical Surfaces. , 2015, , .		16
83	Stress distribution and contact area measurements of a gecko toe using a high-resolution tactile sensor. Bioinspiration and Biomimetics, 2015, 10, 016013.	2.9	50
84	Human climbing with efficiently scaled gecko-inspired dry adhesives. Journal of the Royal Society Interface, 2015, 12, 20140675.	3.4	96
85	Modeling the dynamics of perching with opposed-grip mechanisms. , 2014, , .		27
86	Dynamic Tactile Sensing. Springer Tracts in Advanced Robotics, 2014, , 389-403.	0.4	28
87	Contact event detection for robotic oil drilling. , 2014, , .		6
88	Design and testing of a selectively compliant underactuated hand. International Journal of Robotics Research, 2014, 33, 721-735.	8.5	138
89	Perching and vertical climbing: Design of a multimodal robot. , 2014, , .		23
90	Quantified self and human movement: A review on the clinical impact of wearable sensing and feedback for gait analysis and intervention. Gait and Posture, 2014, 40, 11-19.	1.4	309

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91	Detection of membrane puncture with haptic feedback using a tip-force sensing needle. , 2014, 2014, 3975-3981.		28
92	The Gecko's Toe: Scaling Directional Adhesives for Climbing Applications. IEEE/ASME Transactions on Mechatronics, 2013, 18, 518-526.	5.8	87
93	Slip interface classification through tactile signal coherence. , 2013, , .		14
94	Simulation-based tools for evaluating underactuated hand designs. , 2013, , .		8
95	Mr-compatible biopsy needle with enhanced tip force sensing. , 2013, 2013, 109-114.		29
96	Microwedge Machining for the Manufacture of Directional Dry Adhesives. Journal of Micro and Nano-Manufacturing, 2013, 1, .	0.7	87
97	Dynamic surface grasping with directional adhesion. , 2013, , .		47
98	Selectively compliant underactuated hand for mobile manipulation. , 2012, , .		45
99	Biologically inspired tactile classification of object-hand and object-world interactions. , 2012, , .		16
100	Designing Compliant Spine Mechanisms for Climbing. Journal of Mechanisms and Robotics, 2012, 4, .	2.2	35
101	Effects of Gamma Irradiation on Adhesion of Polymer Microstructure-Based Dry Adhesives. Nuclear Technology, 2012, 180, 450-455.	1.2	11
102	Region of attraction estimation for a perching aircraft: A Lyapunov method exploiting barrier certificates. , 2012, , .		21
103	Design of dielectric electroactive polymers for a compact and scalable variable stiffness device. , 2012, , .		16
104	Presenting spatial tactile messages with a hand-held device. , 2011, , .		8
105	Informing haptic feedback design for gait retraining. , 2011, , .		21
106	Virtual pebble: A haptic state display for pedestrians. , 2011, , .		6
107	Scaling walls: Applying dry adhesives to the real world. , 2011, , .		25
108	Variable impedance due to electromechanical coupling in electroactive polymer actuators. , 2011, , .		5

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109	Landing, perching and taking off from vertical surfaces. International Journal of Robotics Research, 2011, 30, 355-370.	8.5	109
110	Varying spring preloads to select grasp strategies in an adaptive hand. , 2011, , .		18
111	Sampling heuristics for optimal motion planning in high dimensions. , 2011, , .		6
112	Varying spring preloads to select grasp strategies in an adaptive hand. , 2011, , .		1
113	Variable impedance due to electromechanical coupling in electroactive polymer actuators. , 2011, , .		0
114	Landing and Perching on Vertical Surfaces with Microspines for Small Unmanned Air Vehicles. Journal of Intelligent and Robotic Systems: Theory and Applications, 2010, 57, 313-327.	3.4	47
115	Hybrid aerial and scansorial robotics. , 2010, , .		6
116	Hybrid aerial and scansorial robotics. , 2010, , .		18
117	Effect of fibril shape on adhesive properties. Applied Physics Letters, 2010, 97, 053701.	3.3	19
118	Haptic gait retraining for knee osteoarthritis treatment. , 2010, , .		35
119	Real-Time Estimation of 3-D Needle Shape and Deflection for MRI-Guided Interventions. IEEE/ASME Transactions on Mechatronics, 2010, 15, 906-915.	5.8	190
120	Analysis of torque capacities in hybrid actuation for human-friendly robot design. , 2010, , .		10
121	A robust, low-cost and low-noise artificial skin for human-friendly robots. , 2010, , .		106
122	Climbing rough vertical surfaces with hierarchical directional adhesion. , 2009, , .		55
123	Design and fabrication of multi-material structures for bioinspired robots. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 1799-1813.	3.4	87
124	Using Haptic Feedback to Improve Grasp Force Control in Multiple Sclerosis Patients. IEEE Transactions on Robotics, 2009, 25, 593-601.	10.3	27
125	A microfabricated wedge-shaped adhesive array displaying gecko-like dynamic adhesion, directionality and long lifetime. Journal of the Royal Society Interface, 2009, 6, 1223-1232.	3.4	228
126	Biologically inspired climbing with a hexapedal robot. Journal of Field Robotics, 2008, 25, 223-242.	6.0	382

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127	Directional adhesion for climbing: theoretical and practical considerations. Journal of Adhesion Science and Technology, 2007, 21, 1317-1341.	2.6	125
128	The Effect of Leg Specialization in a Biomimetic Hexapedal Running Robot. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2006, 128, 26-35.	1.6	19
129	Scaling Hard Vertical Surfaces with Compliant Microspine Arrays. International Journal of Robotics Research, 2006, 25, 1165-1179.	8.5	261
130	Design information retrieval: a thesauri-based approach for reuse of informal design information. Engineering With Computers, 2005, 21, 177-192.	6.1	43
131	Feedback Strategies for Telemanipulation with Shared Control of Object Handling Forces. Presence: Teleoperators and Virtual Environments, 2005, 14, 720-731.	0.6	69
132	Stride Period Adaptation for a Biomimetic Running Hexapod. , 2003, , 133-145.		22
133	Representation and reasoning of geometric tolerances in design. Artificial Intelligence for Engineering Design, Analysis and Manufacturing: AIEDAM, 1997, 11, 325-341.	1.1	30
134	Practical Force-Motion Models for Sliding Manipulation. International Journal of Robotics Research, 1996, 15, 557-572.	8.5	186
135	Working With Multiple Representations in a Concurrent Design System. Journal of Mechanical Design, Transactions of the ASME, 1992, 114, 515-524.	2.9	24
136	Fixture Planning With Friction. Journal of Engineering for Industry, 1991, 113, 320-327.	0.8	96
137	Research in Computational Design at Stanford. Research in Engineering Design - Theory, Applications, and Concurrent Engineering, 1990, 2, 53-59.	2.1	3
138	Human Grasp Choice and Robotic Grasp Analysis. , 1990, , 5-31.		154
139	Friction, Stability and the Design of Robotic Fingers. International Journal of Robotics Research, 1986, 5, 20-37.	8.5	149
140	Active Control of a Compliant Wrist in Manufacturing Tasks. Journal of Engineering for Industry, 1986, 108, 36-43.	0.8	45