Ian D Walker

List of Publications by Year
in descending order

81 papers	4,104 citations	331538 21 h-index	414303 32 g-index
82 all docs	82 docs citations	82 times ranked	2632 citing authors

#	Article	IF	Citations
1	3D Printing of Concrete with a Continuum Robot Hose Using Variable Curvature Kinematics. , 2022, , .		6
2	Dynamic Control of Multisection Three-Dimensional Continuum Manipulators Based on Virtual Discrete-Jointed Robot Models. IEEE/ASME Transactions on Mechatronics, 2021, 26, 777-788.	3.7	39
3	TMTDyn: A Matlab package for modeling and control of hybrid rigidâ€“continuum robots based on discretized lumped systems and reduced-order models. International Journal of Robotics Research, 2021, 40, 296-347.	5.8	52
4	Cosserat Rod-Based Dynamic Modeling of Tendon-Driven Continuum Robots: A Tutorial. IEEE Access, 2021, 9, 68703-68719.	2.6	42
5	Kinematic-Model-Free Control for Space Operations with Continuum Manipulators. , 2021, , .		5
6	The Challenges of Inferring Organic Function from Structure and Its Emulation in Biomechanics and Biomimetics. Biomimetics, 2021, 6, 21.	1.5	6
7	Editorial: Generation Growbots: Materials, Mechanisms, and Biomimetic Design for Growing Robots. Frontiers in Robotics and AI, 2021, 8, 711942.	2.0	3
8	Searching and Intertwining: Climbing Plants and GrowBots. Frontiers in Robotics and AI, 2020, 7, 118.	2.0	17
9	A Haptic Continuum Interface for the Teleoperation of Extensible Continuum Manipulators. IEEE Robotics and Automation Letters, 2020, 5, 1875-1882.	3.3	12
10	Opportunities and Challenges in Soft Robotics. Advanced Intelligent Systems, 2020, 2, 2000072.	3.3	1
11	Stiffness Imaging With a Continuum Appendage: Real-Time Shape and Tip Force Estimation From Base Load Readings. IEEE Robotics and Automation Letters, 2020, 5, 2824-2831.	3.3	19
12	Geometric constraint-based modeling and analysis of a novel continuum robot with Shape Memory Alloy initiated variable stiffness. International Journal of Robotics Research, 2020, 39, 1620-1634.	5.8	95
13	A Lumped-Mass Model for Large Deformation Continuum Surfaces Actuated by Continuum Robotic Arms. Journal of Mechanisms and Robotics, 2020, 12, .	1.5	17
14	A Discrete-Jointed Robot Model Based Control Strategy for Spatial Continuum Manipulators. , 2020, , .		4
15	Elephantâ€™s Trunk Robot: An Extremely Versatile Under-Actuated Continuum Robot Driven by a Single Motor. Journal of Mechanisms and Robotics, 2019, 11, .	1.5	26
16	Modeling Variable Curvature Parallel Continuum Robots Using Euler Curves. , 2019, , .		27
17	TREE: A Variable Topology, Branching Continuum Robot. , 2019, , .		8
18	Center-of-Gravity-Based Approach for Modeling Dynamics of Multisection Continuum Arms. IEEE Transactions on Robotics, 2019, 35, 1097-1108.	7.3	22

#	Article	IF	Citations
19	Design and Characterization of a Novel Robotic Surface for Application to Compressed Physical Environments. , 2019, , .		11
20	Design and Characterization of a Novel, Continuum-Robot Surface for the Human Environment. , 2019, , .		9
21	Elasticity Versus Hyperelasticity Considerations in Quasistatic Modeling of a Soft Finger-Like Robotic Appendage for Real-Time Position and Force Estimation. Soft Robotics, 2019, 6, 228-249.	4.6	35
22	Motion Planning for a Continuum Robotic Mobile Lamp: Defining and Navigating the Configuration Space. , 2019, , .		8
23	Three-Dimensional-Printable Thermoactive Helical Interface With Decentralized Morphological Stiffness Control for Continuum Manipulators. IEEE Robotics and Automation Letters, 2018, 3, 2283-2290.	3.3	11
24	Developing a Kinematically Similar Master Device for Extensible Continuum Robot Manipulators. Journal of Mechanisms and Robotics, 2018, 10, .	1.5	19
25	A Comparison of Constant Curvature Forward Kinematics for Multisection Continuum Manipulators. , 2018, , .		21
26	Control Space Reduction and Real-Time Accurate Modeling of Continuum Manipulators Using Ritz and Ritzâ€“Galerkin Methods. IEEE Robotics and Automation Letters, 2018, 3, 328-335.	3.3	80
27	Modelling an Actuated Large Deformation Soft Continuum Robot Surface Undergoing External Forces Using a Lumped-Mass Approach. , 2018, , .		4
28	Continuum Robot Control Based on Virtual Discrete-Jointed Robot Models. , 2018, , .		5
29	Vine-Inspired Continuum Tendril Robots and Circumnutations. Robotics, 2018, 7, 58.	2.1	41
30	Exploration and Inspection with Vine-Inspired Continuum Robots. , 2018, , .		32
31	A Nonlinear Control Strategy for Extensible Continuum Robots. , 2018, , .		6
32	Robot tendrils: Long, thin continuum robots for inspection in space operations. , 2017, , .		30
33	Mechanics of Continuum Manipulators, a Comparative Study of Five Methods with Experiments. Lecture Notes in Computer Science, 2017, , 686-702.	1.0	40
34	Teleoperation mappings from rigid link robots to their extensible continuum counterparts. , 2016, , .		11
35	Soft Robots and Kangaroo Tails: Modulating Compliance in Continuum Structures Through Mechanical Layer Jamming. Soft Robotics, 2016, 3, 54-63.	4.6	71
36	Challenges in creating long continuum robots. , 2016, , .		7

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37	Efficient Spatial Dynamics for Continuum Arms. , 2015, , .		2
38	Robot-Human Handovers Based on Trust. , 2015, , .		9
39	Biologically inspired vine-like and tendril-like robots. , 2015, , .		17
40	Autonomous robotic refueling of an unmanned surface vehicle in varying sea states. , 2015, , .		11
41	Dual Quaternion based modal kinematics for multisection continuum arms. , 2015, , .		19
42	Spatial kinematic modeling of a long and thin continuum robotic cable. , 2015, , .		15
43	Accurate and Efficient Dynamics for Variable-Length Continuum Arms: A Center of Gravity Approach. Soft Robotics, 2015, 2, 96-106.	4.6	62
44	Design, modeling and performance evaluation of a long and slim continuum robotic cable. , 2014, , .		11
45	Empirical investigation of closed-loop control of extensible continuum manipulators. , 2014, , .		24
46	Energy based control of compass gait soft limbed bipeds. , 2014, , .		6
47	Rethinking the Machines in Which We Live: A Multidisciplinary Course in Architectural Robotics. IEEE Robotics and Automation Magazine, 2014, 21, 143-150.	2.2	2
48	A Gesture Learning Interface for Simulated Robot Path Shaping With a Human Teacher. IEEE Transactions on Human-Machine Systems, 2014, 44, 41-54.	2.5	88
49	3D non-rigid deformable surface estimation without feature correspondence. , 2013, , .		11
50	Autonomous continuum grasping. , 2013, , .		3
51	Self-motion analysis of extensible continuum manipulators. , 2013, , .		11
52	A new approach to clothing classification using mid-level layers. , 2013, , .		32
53	The Importance of Continuous and Discrete Elements in Continuum Robots. International Journal of Advanced Robotic Systems, 2013, 10, 165.	1.3	23
54	Continuous Backbone â€œContinuumâ€•Robot Manipulators. ISRN Robotics, 2013, 2013, 1-19.	1.3	267

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55	Classification of Clothing Using Midlevel Layers. ISRN Robotics, 2013, 2013, 1-17.	1.3	14
56	Teleoperation control of a redundant continuum manipulator using a non-redundant rigid-link master. , 2012, , .		9
57	An energy minimization approach to 3D non-rigid deformable surface estimation using RGBD data. , 2012, , .		12
58	Interactive Perception of Rigid and Non-Rigid Objects. International Journal of Advanced Robotic Systems, 2012, 9, 227.	1.3	3
59	Occlusion-aware reconstruction and manipulation of 3D articulated objects. , 2012, , .		12
60	A vision of the patient room as an architectural-robotic ecosystem. , 2012, , .		4
61	Task-space control of extensible continuum manipulators. , 2011, , .		34
62	Continuum robot appendages for traversal of uneven terrain in in situ exploration. , 2011, , .		7
63	Task-space control of extensible continuum manipulators. , 2011, , .		2
64	Mobility and routing joint design for lifetime maximization in mobile sensor networks. , 2011, , .		0
65	Rigid and non-rigid classification using interactive perception. , 2010, , .		8
66	“Architectural Robotics”: An interdisciplinary course rethinking the machines we live in. , 2010, , .		2
67	Design, construction, and testing of a new class of mobile robots for cave exploration. , 2009, , .		10
68	Closed-Form Inverse Kinematics for Continuum Manipulators. Advanced Robotics, 2009, 23, 2077-2091.	1.1	136
69	Octopus-inspired grasp-synergies for continuum manipulators. , 2009, , .		46
70	A geometrical approach to inverse kinematics for continuum manipulators. , 2008, , .		41
71	Soft Robotics: Biological Inspiration, State of the Art, and Future Research. Applied Bionics and Biomechanics, 2008, 5, 99-117.	0.5	1,168
72	A Neural Network Controller for Continuum Robots. IEEE Transactions on Robotics, 2007, 23, 1270-1277.	7.3	155

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73	New dynamic models for planar extensible continuum robot manipulators. , 2007, , .		45
74	Limiting-case Analysis of Continuum Trunk Kinematics. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	23
75	Dynamic Modelling for Planar Extensible Continuum Robot Manipulators. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	60
76	Handling uncertainty due to the delay between complex sensing and manipulation in an industrial workcell. Robotica, 2006, 24, 697-698.	1.3	0
77	Design and experimental testing of the OctArm soft robot manipulator. , 2006, , .		77
78	Handling Uncertainty due to the Delay Between Complex Sensing and Manipulation in an Industrial Workcell. , 2006, , .		0
79	Continuum robot arms inspired by cephalopods. , 2005, 5804, 303.		192
80	Kinematics and the Implementation of an Elephant's Trunk Manipulator and Other Continuum Style Robots. Journal of Field Robotics, 2003, 20, 45-63.	0.7	566
81	Reduced Order vs. Discretized Lumped System Models with Absolute and Relative States for Continuum Manipulators. , 0, , .		14