Nathan F Lepora

List of Publications by Year
in descending order

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124 papers	2,770 citations	236925 25 h-index	233421 45 g-index
130 all docs	130 docs citations	130 times ranked	1693 citing authors

#	Article	IF	Citations
1	Goal-Driven Robotic Pushing Using Tactile and Proprioceptive Feedback. IEEE Transactions on Robotics, 2022, 38, 1201-1212.	10.3	23
2	Artificial SA-I and RA-I afferents for tactile sensing of ridges and gratings. Journal of the Royal Society Interface, 2022, 19, 20210822.	3.4	10
3	Artificial SA-I, RA-I and RA-II/vibrotactile afferents for tactile sensing of texture. Journal of the Royal Society Interface, 2022, 19, 20210603.	3.4	12
4	BRL/Pisa/IIT SoftHand: A Low-Cost, 3D-Printed, Underactuated, Tendon-Driven Hand With Soft and Adaptive Synergies. IEEE Robotics and Automation Letters, 2022, 7, 8745-8751.	5.1	5
5	DigiTac: A DIGIT-TacTip Hybrid Tactile Sensor for Comparing Low-Cost High-Resolution Robot Touch. IEEE Robotics and Automation Letters, 2022, 7, 9382-9388.	5.1	22
6	Mapping Mid-Air Haptics With a Low-Cost Tactile Robot. IEEE Robotics and Automation Letters, 2022, 7, 7873-7880.	5.1	3
7	Tactile Model O: Fabrication and Testing of a 3D-Printed, Three-Fingered Tactile Robot Hand. Soft Robotics, 2021, 8, 594-610.	8.0	28
8	Soft Biomimetic Optical Tactile Sensing With the TacTip: A Review. IEEE Sensors Journal, 2021, 21, 21131-21143.	4.7	61
9	Pose-Based Tactile Servoing: Controlled Soft Touch Using Deep Learning. IEEE Robotics and Automation Magazine, 2021, 28, 43-55.	2.0	18
10	Real time defect detection during composite layup via Tactile Shape Sensing. Science and Engineering of Composite Materials, 2021, 28, 1-10.	1.4	1
11	Slip Detection for Grasp Stabilization With a Multifingered Tactile Robot Hand. IEEE Transactions on Robotics, 2021, 37, 506-519.	10.3	49
12	Editorial: ViTac: Integrating Vision and Touch for Multimodal and Cross-Modal Perception. Frontiers in Robotics and AI, 2021, 8, 697601.	3.2	7
13	The statistics of optimal decision making: Exploring the relationship between signal detection theory and sequential analysis. Journal of Mathematical Psychology, 2021, 103, 102544.	1.8	13
14	Spatio-Temporal Encoding Improves Neuromorphic Tactile Texture Classification. IEEE Sensors Journal, 2021, 21, 19038-19046.	4.7	9
15	A Robust Controller for Stable 3D Pinching Using Tactile Sensing. IEEE Robotics and Automation Letters, 2021, 6, 8150-8157.	5.1	6
16	Learning offline: memory replay in biological and artificial reinforcement learning. Trends in Neurosciences, 2021, 44, 808-821.	8.6	20
17	Towards integrated tactile sensorimotor control in anthropomorphic soft robotic hands. , 2021, , .		13
18	Uncertainty-aware deep learning for robot touch: Application to Bayesian tactile servo control. , 2021, , .		0

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19	Deep Reinforcement Learning for Tactile Robotics: Learning to Type on a Braille Keyboard. IEEE Robotics and Automation Letters, 2020, 5, 6145-6152.	5.1	17
20	Sim-to-Real Transfer for Optical Tactile Sensing. , 2020, , .		26
21	NeuroTac: A Neuromorphic Optical Tactile Sensor applied to Texture Recognition. , 2020, , .		28
22	Optimal Deep Learning for Robot Touch: Training Accurate Pose Models of 3D Surfaces and Edges. IEEE Robotics and Automation Magazine, 2020, 27, 66-77.	2.0	32
23	Active Touch Sensing in Mammals and Robots. , 2020, , 79-109.		1
24	Sensing Ultrasonic Mid-Air Haptics withÂa Biomimetic Tactile Fingertip. Lecture Notes in Computer Science, 2020, , 362-370.	1.3	8
25	A Miniaturised Neuromorphic Tactile Sensor integrated with an Anthropomorphic Robot Hand. , 2020, , .		5
26	Walking on TacTip toes: A tactile sensing foot for walking robots. , 2020, , .		7
27	A Biomimetic Tactile Fingerprint Induces Incipient Slip. , 2020, , .		7
28	Learning to Live Life on the Edge: Online Learning for Data-Efficient Tactile Contour Following. , 2020, , .		2
29	Convolutional Autoencoder for Feature Extraction in Tactile Sensing. IEEE Robotics and Automation Letters, 2019, 4, 3671-3678.	5.1	44
30	Shear-invariant Sliding Contact Perception with a Soft Tactile Sensor. , 2019, , .		7
31	Guest Editorial Special Issue on Active Perception for Industrial Intelligence. IEEE Transactions on Automation Science and Engineering, 2019, 16, 1498-1499.	5.2	0
32	A Sense of Touch for the Shadow Modular Grasper. IEEE Robotics and Automation Letters, 2019, 4, 2220-2226.	5.1	20
33	From Pixels to Percepts: Highly Robust Edge Perception and Contour Following Using Deep Learning and an Optical Biomimetic Tactile Sensor. IEEE Robotics and Automation Letters, 2019, 4, 2101-2107.	5.1	79
34	Dual-Modal Tactile Perception and Exploration. IEEE Robotics and Automation Letters, 2018, 3, 1033-1040.	5.1	25
35	The TacTip Family: Soft Optical Tactile Sensors with 3D-Printed Biomimetic Morphologies. Soft Robotics, 2018, 5, 216-227.	8.0	307
36	TacWhiskers: Biomimetic Optical Tactile Whiskered Robots. , 2018, , .		16

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37	Principal Components of Touch. , 2018, , .		12
38	Voronoi Features for Tactile Sensing: Direct Inference of Pressure, Shear, and Contact Locations. , 2018, , .		21
39	Tactile Sensors for Friction Estimation and Incipient Slip Detectionâ€"Toward Dexterous Robotic Manipulation: A Review. IEEE Sensors Journal, 2018, 18, 9049-9064.	4.7	130
40	Slip Detection With a Biomimetic Tactile Sensor. IEEE Robotics and Automation Letters, 2018, 3, 3340-3346.	5.1	107
41	Active Touch with a Biomimetic 3D-Printed Whiskered Robot. Lecture Notes in Computer Science, 2018, , 263-275.	1.3	0
42	Texture Perception with a Biomimetic Optical Tactile Sensor. Lecture Notes in Computer Science, 2018, , 365-369.	1.3	1
43	MultiTip: A multimodal mechano-thermal soft fingertip. , 2018, , .		6
44	Building blocks. , 2018, , .		0
45	Biohybrid systems. , 2018, , .		0
46	A roadmap for Living Machines research. , 2018, , .		0
47	Exploratory Tactile Servoing With Active Touch. IEEE Robotics and Automation Letters, 2017, 2, 1156-1163.	5.1	65
48	Addition of a Biomimetic Fingerprint on an Artificial Fingertip Enhances Tactile Spatial Acuity. IEEE Robotics and Automation Letters, 2017, 2, 1336-1343.	5.1	31
49	Exploiting Sensor Symmetry for Generalized Tactile Perception in Biomimetic Touch. IEEE Robotics and Automation Letters, 2017, 2, 1218-1225.	5.1	14
50	Model-Free Precise in-Hand Manipulation with a 3D-Printed Tactile Gripper. IEEE Robotics and Automation Letters, 2017, 2, 2056-2063.	5.1	49
51	Active sensorimotor control for tactile exploration. Robotics and Autonomous Systems, 2017, 87, 15-27.	5.1	56
52	Object exploration using vision and active touch. , 2017, , .		7
53	Biomimetic Active Touch with Fingertips and Whiskers. IEEE Transactions on Haptics, 2016, 9, 170-183.	2.7	40
54	Tactile manipulation with biomimetic active touch. , 2016, , .		22

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55	Biology to Technology in Active Touch Sensing â€“ Introduction to the Special Section. IEEE Transactions on Haptics, 2016, 9, 155-157.	2.7	0
56	Tactile Manipulation With a TacThumb Integrated on the Open-Hand M2 Gripper. IEEE Robotics and Automation Letters, 2016, 1, 169-175.	5.1	47
57	Tactile Quality Control With Biomimetic Active Touch. IEEE Robotics and Automation Letters, 2016, 1, 646-652.	5.1	17
58	Force Sensing with a Biomimetic Fingertip. Lecture Notes in Computer Science, 2016, , 436-440.	1.3	3
59	Discrimination-Based Perception for Robot Touch. Lecture Notes in Computer Science, 2016, , 498-502.	1.3	1
60	Active Tactile Perception. , 2016, , 151-159.		9
61	Gaussian Process Regression for a Biomimetic Tactile Sensor. Lecture Notes in Computer Science, 2016, , 393-399.	1.3	0
62	Tactile Exploration by Contour Following Using a Biomimetic Fingertip. Lecture Notes in Computer Science, 2016, , 485-489.	1.3	0
63	A Biomimetic Fingerprint Improves Spatial Tactile Perception. Lecture Notes in Computer Science, 2016, , 418-423.	1.3	2
64	Active haptic shape recognition by intrinsic motivation with a robot hand. , 2015, , .		10
65	Probabilistic Decision Making with Spikes: From ISI Distributions to Behaviour via Information Gain. PLoS ONE, 2015, 10, e0124787.	2.5	7
66	Tactile Superresolution and Biomimetic Hyperacuity. IEEE Transactions on Robotics, 2015, 31, 605-618.	10.3	50
67	Superresolution with an optical tactile sensor. , 2015, , .		64
68	Analysis of hand kinematics reveals inter-individual differences in intertemporal decision dynamics. Experimental Brain Research, 2015, 233, 3597-3611.	1.5	26
69	Active Control for Object Perception and Exploration with a Robotic Hand. Lecture Notes in Computer Science, 2015, , 415-428.	1.3	3
70	Embodied Choice: How Action Influences Perceptual Decision Making. PLoS Computational Biology, 2015, 11, e1004110.	3.2	137
71	The Robot Vibrissal System: Understanding Mammalian Sensorimotor Co-ordination Through Biomimetics. , 2015, , 213-240.		5
72	Active tactile perception. Scholarpedia Journal, 2015, 10, 32364.	0.3	5

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73	A future of living machines?: International trends and prospects in biomimetic and biohybrid systems. Proceedings of SPIE, 2014, , .	0.8	4
74	Decision-making out of neural events: from discrimination information to psychometric power laws. BMC Neuroscience, 2013, 14, .	1.9	1
75	Active contour following to explore object shape with robot touch. , 2013, , .		54
76	Active Bayesian perception for angle and position discrimination with a biomimetic fingertip. , 2013, , .		24
77	Active Bayesian perception and reinforcement learning. , 2013, , .		3
78	The state of the art in biomimetics. Bioinspiration and Biomimetics, 2013, 8, 013001.	2.9	187
79	Cerebellum-based adaptation for fine haptic control over the space of uncertain surfaces. , 2013, , .		1
80	Living Machines 2012: The First International Conference on Biomimetic and Biohybrid Systems. Bioinspiration and Biomimetics, 2013, 8, 030201.	2.9	0
81	Active touch for robust perception under position uncertainty. , 2013, , .		39
82	The effect of whisker movement on radial distance estimation: a case study in comparative robotics. Frontiers in Neurorobotics, 2013, 6, 12.	2.8	13
83	Action Discovery and Intrinsic Motivation: A Biologically Constrained Formalisation. , 2013, , 151-181.		14
84	A SOLID Case for Active Bayesian Perception in Robot Touch. Lecture Notes in Computer Science, 2013, , 154-166.	1.3	4
85	Towards a Roadmap for Living Machines. Lecture Notes in Computer Science, 2013, , 396-398.	1.3	1
86	Angle and Position Perception for Exploration with Active Touch. Lecture Notes in Computer Science, 2013, , 405-408.	1.3	2
87	Optimal decision-making in mammals: insights from a robot study of rodent texture discrimination. Journal of the Royal Society Interface, 2012, 9, 1517-1528.	3.4	38
88	Brain-inspired Bayesian perception for biomimetic robot touch. , 2012, , .		21
89	Embodied hyperacuity from Bayesian perception: Shape and position discrimination with an iCub fingertip sensor. , 2012, , .		17
90	Tactile Discrimination Using Active Whisker Sensors. IEEE Sensors Journal, 2012, 12, 350-362.	4.7	62

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91	Texture Classification through Tactile Sensing. Lecture Notes in Computer Science, 2012, , 377-379.	1.3	3
92	Whiskered texture classification with uncertain contact pose geometry. , 2012, , .		4
93	The Basal Ganglia Optimize Decision Making over General Perceptual Hypotheses. Neural Computation, 2012, 24, 2924-2945.	2.2	44
94	Efficient fitting of conductance-based model neurons from somatic current clamp. Journal of Computational Neuroscience, 2012, 32, 1-24.	1.0	12
95	The State-of-the-Art in Biomimetics. Lecture Notes in Computer Science, 2012, , 367-368.	1.3	2
96	Towards a Framework for Tactile Perception in Social Robotics. Lecture Notes in Computer Science, 2012, , 335-336.	1.3	0
97	A simple method for characterizing passive and active neuronal properties: application to striatal neurons. European Journal of Neuroscience, 2011, 34, 1390-1405.	2.6	3
98	Sequential tests and biologically grounded multi-alternative decision making. BMC Neuroscience, 2011, 12, .	1.9	1
99	CrunchBot: A Mobile Whiskered Robot Platform. Lecture Notes in Computer Science, 2011, , 102-113.	1.3	7
100	A General Classifier of Whisker Data Using Stationary Naive Bayes: Application to BIOTACT Robots. Lecture Notes in Computer Science, 2011, , 13-23.	1.3	7
101	Sensing with Artificial Tactile Sensors: An Investigation of Spatio-temporal Inference. Lecture Notes in Computer Science, 2011, , 253-264.	1.3	1
102	Nonlinear Dynamic Modeling of Isometric Force Production in Primate Eye Muscle. IEEE Transactions on Biomedical Engineering, 2010, 57, 1554-1567.	4.2	27
103	Sensory Prediction or Motor Control? Application of Marrâ€“Albus Type Models of Cerebellar Function to Classical Conditioning. Frontiers in Computational Neuroscience, 2010, 4, 140.	2.1	48
104	Naive Bayes novelty detection for a moving robot with whiskers. , 2010, , .		12
105	Whisker-object contact speed affects radial distance estimation. , 2010, , .		18
106	Naive Bayes texture classification applied to whisker data from a moving robot. , 2010, , .		39
107	Capturing dopaminergic modulation and bimodal membrane behaviour of striatal medium spiny neurons in accurate, reduced models. Frontiers in Computational Neuroscience, 2009, 3, 26.	2.1	59
108	Recruitment in Retractor Bulbi Muscle During Eyeblink Conditioning: EMG Analysis and Common-Drive Model. Journal of Neurophysiology, 2009, 102, 2498-2513.	1.8	11

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109	Efficient current-based optimization techniques for parameter estimation in multi-compartment neuronal models. BMC Neuroscience, 2009, 10, .	1.9	1
110	Evidence From Retractor Bulbi EMG for Linearized Motor Control of Conditioned Nictitating Membrane Responses. Journal of Neurophysiology, 2007, 98, 2074-2088.	1.8	12
111	Response linearity determined by recruitment strategy in detailed model of nictitating membrane control. Biological Cybernetics, 2007, 96, 39-57.	1.3	10
112	Some simpler analogues of the dual standard model and their relation to Bais' generalisation of the Montonenâ€“Olive conjecture. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2002, 524, 383-388.	4.1	0
113	Embedded monopoles. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2002, 533, 131-137.	4.1	1
114	Some problems with calculating the quantum corrections to the classical 't Hooftâ€“Polyakov monopole. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2002, 536, 338-343.	4.1	0
115	Asymptotically embedded defects. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2002, 541, 362-368.	4.1	3
116	Gauge unification within the dual standard model. Journal of High Energy Physics, 2000, 2000, 036-036.	4.7	6
117	Gauge interactions in the dual standard model. Journal of High Energy Physics, 2000, 2000, 037-037.	4.7	7
118	Electroweak vacuum geometry. Journal of High Energy Physics, 1999, 1999, 027-027.	4.7	5
119	Vacuum geometry. Journal of High Energy Physics, 1999, 1999, 034-034.	4.7	4
120	Classifying vortex solutions to gauge theories. Physical Review D, 1999, 59, .	4.7	4
121	Embedded vortices. Physical Review D, 1998, 58, .	4.7	6
122	Examples of embedded defects (in particle physics and condensed matter). Physical Review D, 1998, 58, .	4.7	7
123	Embedded defects and symmetry breaking in flipped SU(5). Physical Review D, 1995, 52, 7265-7275.	4.7	9
124	Active Bayesian Perception for Simultaneous Object Localization and Identification. , 0, , .		24