Mitra J Z Hartmann

List of Publications by Year
in descending order

50 papers	1,509 citations	331670 21 h-index	345221 36 g-index
57 all docs	57 docs citations	57 times ranked	969 citing authors

#	Article	IF	Citations
1	Biomechanical Models for Radial Distance Determination by the Rat Vibrissal System. Journal of Neurophysiology, 2007, 98, 2439-2455.	1.8	149
2	The Morphology of the Rat Vibrissal Array: A Model for Quantifying Spatiotemporal Patterns of Whisker-Object Contact. PLoS Computational Biology, 2011, 7, e1001120.	3.2	131
3	The Brain in Its Body: Motor Control and Sensing in a Biomechanical Context. Journal of Neuroscience, 2009, 29, 12807-12814.	3.6	122
4	Mechanical signals at the base of a rat vibrissa: the effect of intrinsic vibrissa curvature and implications for tactile exploration. Journal of Neurophysiology, 2012, 107, 2298-2312.	1.8	79
5	Variability in Velocity Profiles During Free-Air Whisking Behavior of Unrestrained Rats. Journal of Neurophysiology, 2008, 100, 740-752.	1.8	73
6	Modeling Forces and Moments at the Base of a Rat Vibrissa during Noncontact Whisking and Whisking against an Object. Journal of Neuroscience, 2014, 34, 9828-9844.	3.6	66
7	Variation in Young's modulus along the length of a rat vibrissa. Journal of Biomechanics, 2011, 44, 2775-2781.	2.1	61
8	Radial distance determination in the rat vibrissal system and the effects of Weber's law. Philosophical Transactions of the Royal Society B: Biological Sciences, 2011, 366, 3049-3057.	4.0	56
9	Extracting Object Contours with the Sweep of a Robotic Whisker Using Torque Information. International Journal of Robotics Research, 2010, 29, 1233-1245.	8.5	54
10	Whisking mechanics and active sensing. Current Opinion in Neurobiology, 2016, 40, 178-188.	4.2	49
11	Artificial Whiskers Suitable for Array Implementation: Accounting for Lateral Slip and Surface Friction. IEEE Transactions on Robotics, 2008, 24, 1157-1167.	10.3	48
12	Decoupling kinematics and mechanics reveals coding properties of trigeminal ganglion neurons in the rat vibrissal system. ELife, 2016, 5, .	6.0	43
13	A night in the life of a rat: vibrissal mechanics and tactile exploration. Annals of the New York Academy of Sciences, 2011, 1225, 110-118.	3.8	42
14	Tactile Sensing with Whiskers of Various Shapes: Determining the Three-Dimensional Location of Object Contact Based on Mechanical Signals at the Whisker Base. Soft Robotics, 2017, 4, 88-102.	8.0	40
15	Whiskers aid anemotaxis in rats. Science Advances, 2016, 2, e1600716.	10.3	39
16	Spatiotemporal Patterns of Contact Across the Rat Vibrissal Array During Exploratory Behavior. Frontiers in Behavioral Neuroscience, 2015, 9, 356.	2.0	37
17	Mechanical responses of rat vibrissae to airflow. Journal of Experimental Biology, 2016, 219, 937-948.	1.7	36
18	Tactile signals transmitted by the vibrissa during active whisking behavior. Journal of Neurophysiology, 2015, 113, 3511-3518.	1.8	33

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19	Variations in vibrissal geometry across the rat mystacial pad: base diameter, medulla, and taper. Journal of Neurophysiology, 2017, 117, 1807-1820.	1.8	27
20	The search space of the rat during whisking behavior. Journal of Experimental Biology, 2014, 217, 3365-3376.	1.7	25
21	The Cellular and Mechanical Basis for Response Characteristics of Identified Primary Afferents in the Rat Vibrissal System. Current Biology, 2020, 30, 815-826.e5.	3.9	23
22	Using hardware models to quantify sensory data acquisition across the rat vibrissal array. Bioinspiration and Biomimetics, 2007, 2, S135-S145.	2.9	22
23	Defining â€œactive sensingâ€•through an analysis of sensing energetics: homeoactive and alloactive sensing. Journal of Neurophysiology, 2020, 124, 40-48.	1.8	22
24	Probability distributions of whiskerâ€"surface contact: quantifying elements of the rat vibrissotactile natural scene. Journal of Experimental Biology, 2015, 218, 2551-2562.	1.7	21
25	Simulations of a Vibrissa Slipping along a Straight Edge and an Analysis of Frictional Effects during Whisking. IEEE Transactions on Haptics, 2016, 9, 158-169.	2.7	21
26	Ergodic Exploration Using Binary Sensing for Nonparametric Shape Estimation. IEEE Robotics and Automation Letters, 2017, 2, 827-834.	5.1	21
27	A two-dimensional force sensor in the millinewton range for measuring vibrissal contacts. Journal of Neuroscience Methods, 2008, 172, 158-167.	2.5	20
28	Whisking Kinematics Enables Object Localization in Head-Centered Coordinates Based on Tactile Information from a Single Vibrissa. Frontiers in Behavioral Neuroscience, 2016, 10, 145.	2.0	19
29	Active touch, exploratory movements, and sensory prediction. Integrative and Comparative Biology, 2009, 49, 681-690.	2.0	18
30	Evidence for Functional Groupings of Vibrissae across the Rodent Mystacial Pad. PLoS Computational Biology, 2016, 12, e1004109.	3.2	17
31	Sensory prediction on a whiskered robot: a tactile analogy to â€œoptical flowâ€. Frontiers in Neurorobotics, 2012, 6, 9.	2.8	15
32	Quantifying the three-dimensional facial morphology of the laboratory rat with a focus on the vibrissae. PLoS ONE, 2018, 13, e0194981.	2.5	14
33	Whisker Vibrations and the Activity of Trigeminal Primary Afferents in Response to Airflow. Journal of Neuroscience, 2019, 39, 5881-5896.	3.6	9
34	Constraints on the deformation of the vibrissa within the follicle. PLoS Computational Biology, 2021, 17, e1007887.	3.2	9
35	Quantification of vibrissal mechanical properties across the rat mystacial pad. Journal of Neurophysiology, 2019, 121, 1879-1895.	1.8	8
36	WhiskSight: A Reconfigurable, Vision-Based, Optical Whisker Sensing Array for Simultaneous Contact, Airflow, and Inertia Stimulus Detection. IEEE Robotics and Automation Letters, 2021, 6, 3357-3364.	5.1	7

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37	Linear reactive control for efficient 2D and 3D bipedal walking over rough terrain. Adaptive Behavior, 2013, 21, 29-46.	1.9	6
38	Contact-Resistive Sensing of Touch and Airflow Using A Rat Whisker. , 2018, , .		4
39	A dynamical model for generating synthetic data to quantify active tactile sensing behavior in the rat. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	4
40	Representation of Stimulus Speed and Direction in Vibrissal-Sensitive Regions of the Trigeminal Nuclei: A Comparison of Single Unit and Population Responses. PLoS ONE, 2016, 11, e0158399.	2.5	4
41	Tapered Polymer Whiskers to Enable Three-Dimensional Tactile Feature Extraction. Soft Robotics, 2021, 8, 44-58.	8.0	3
42	Continuous, multidimensional coding of 3D complex tactile stimuli by primary sensory neurons of the vibrissal system. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	3
43	Principles and applications of active tactile sensing strategies in the rat vibrissal system. , 2010, , .		2
44	Linear reactive control of three-dimensional bipedal walking in the presence of noise and uncertainty. Adaptive Behavior, 2012, 20, 409-426.	1.9	2
45	Fluid-structure interaction of a flexible cantilever cylinder at low Reynolds numbers. Physical Review Fluids, 2022, 7, .	2.5	2
46	Towards an “early neural circuit simulator”: A FPGA implementation of processing in the rat whisker system. , 2008, , .		1
47	Impaired trigeminal control of ingestive behavior in the Prrxl1-/- mouse is associated with a lemniscal-biased orosensory deafferentation. PLoS ONE, 2022, 17, e0258837.	2.5	1
48	Biology to Technology in Active Touch Sensing â€" Introduction to the Special Section. IEEE Transactions on Haptics, 2016, 9, 155-157.	2.7	0
49	Shaking Paws Is Not the Same as Shaking Hands. Neuron, 2019, 102, 911-913.	8.1	0
50	A novel stimulator to investigate the tuning of multi-whisker responsive neurons for speed and the direction of global motion: Contact-sensitive moving stimulator for multi-whisker stimulation. Journal of Neuroscience Methods, 2022, 374, 109565.	2.5	0