Jaydev P Desai

List of Publications by Year
in descending order

154	5,800	126907 33	85541 71
papers	citations	h-index	g-index

157	157	157	4990
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Robotic Surgery. Annals of Surgery, 2004, 239, 14-21.	4.2	970
2	Modeling and control of formations of nonholonomic mobile robots. IEEE Transactions on Automation Science and Engineering, 2001, 17, 905-908.	2.3	954
3	Force Feedback Plays a Significant Role in Minimally Invasive Surgery. Annals of Surgery, 2005, 241, 102-109.	4.2	266
4	Robotic Artificial Muscles: Current Progress and Future Perspectives. IEEE Transactions on Robotics, 2019, 35, 761-781.	10.3	225
5	Engineering Approaches to Biomanipulation. Annual Review of Biomedical Engineering, 2007, 9, 35-53.	12.3	133
6	Constitutive Modeling of Liver Tissue: Experiment and Theory. Annals of Biomedical Engineering, 2010, 38, 505-516.	2.5	120
7	A Graph Theoretic Approach for Modeling Mobile Robot Team Formations. Journal of Field Robotics, 2002, 19, 511-525.	0.7	109
8	Evaluating the Effect of Force Feedback in Cell Injection. IEEE Transactions on Automation Science and Engineering, 2007, 4, 322-331.	5.2	106
9	Modeling and Control of the Mitsubishi PA-10 Robot Arm Harmonic Drive System. IEEE/ASME Transactions on Mechatronics, 2005, 10, 263-274.	5.8	98
10	Toward the Development of a Flexible Mesoscale MRI-Compatible Neurosurgical Continuum Robot. IEEE Transactions on Robotics, 2017, 33, 1386-1397.	10.3	92
11	Towards a discretely actuated steerable cannula for diagnostic and therapeutic procedures. International Journal of Robotics Research, 2012, 31, 588-603.	8.5	89
12	Design and Control of a 1-DOF MRI-Compatible Pneumatically Actuated Robot With Long Transmission Lines. IEEE/ASME Transactions on Mechatronics, 2011, 16, 1040-1048.	5.8	82
13	Mechanical Phenotyping of Mouse Embryonic Stem Cells: Increase in Stiffness with Differentiation. Cellular Reprogramming, 2011, 13, 371-380.	0.9	75
14	Modeling Soft-Tissue Deformation Prior to Cutting for Surgical Simulation: Finite Element Analysis and Study of Cutting Parameters. IEEE Transactions on Biomedical Engineering, 2007, 54, 349-359.	4.2	72
15	Toward a Meso-Scale SMA-Actuated MRI-Compatible Neurosurgical Robot. IEEE Transactions on Robotics, 2012, 28, 213-222.	10.3	71
16	Estimating zero-strain states of very soft tissue under gravity loading using digital image correlationâ˜†â˜†â˜†â˜†â˜†â˜†, Medical Image Analysis, 2010, 14, 126-137.	11.6	63
17	Towards a teleoperated needle driver robot with haptic feedback for RFA of breast tumors under continuous MRI. Medical Image Analysis, 2009, 13, 445-455.	11.6	59
18	Active Stiffness Tuning of a Spring-Based Continuum Robot for MRI-Guided Neurosurgery. IEEE Transactions on Robotics, 2018, 34, 18-28.	10.3	59

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19	A biplanar fluoroscopic approach for the measurement, modeling, and simulation of needle and soft-tissue interaction. Medical Image Analysis, 2007, 11, 62-78.	11.6	58
20	Design, development, and evaluation of a masterâ€“slave surgical system for breast biopsy under continuous MRI. International Journal of Robotics Research, 2014, 33, 616-630.	8.5	58
21	Design, development, and evaluation of an MRI-guided SMA spring-actuated neurosurgical robot. International Journal of Robotics Research, 2015, 34, 1147-1163.	8.5	54
22	Triaxial MRI-Compatible Fiber-optic Force Sensor. IEEE Transactions on Robotics, 2011, 27, 65-74.	10.3	52
23	Design, Development, and Testing of an Automated Laparoscopic Grasper with 3-D Force Measurement Capability. Lecture Notes in Computer Science, 2004, , 38-48.	1.3	51
24	New Actuation Mechanism for Actively Cooled SMA Springs in a Neurosurgical Robot. IEEE Transactions on Robotics, 2017, 33, 986-993.	10.3	47
25	Measuring Forces in Liver Cutting: New Equipment and Experimental Results. Annals of Biomedical Engineering, 2003, 31, 1372-1382.	2.5	46
26	Design and fabrication of a flexible MEMS-based electro-mechanical sensor array for breast cancer diagnosis. Journal of Micromechanics and Microengineering, 2015, 25, 075025.	2.6	46
27	Modeling and characterization of shape memory alloy springs with water cooling strategy in a neurosurgical robot. Journal of Intelligent Material Systems and Structures, 2017, 28, 2167-2183.	2.5	45
28	Characterization of Soft-Tissue Material Properties: Large Deformation Analysis. Lecture Notes in Computer Science, 2004, , 28-37.	1.3	44
29	Development of In Vivo Constitutive Models for Liver: Application to Surgical Simulation. Annals of Biomedical Engineering, 2011, 39, 1060-1073.	2.5	37
30	Design and Kinematics Analysis of a Robotic Pediatric Neuroendoscope Tool Body. IEEE/ASME Transactions on Mechatronics, 2020, 25, 985-995.	5.8	36
31	Towards FBG-Based Shape Sensing for Micro-Scale and Meso-Scale Continuum Robots With Large Deflection. IEEE Robotics and Automation Letters, 2020, 5, 1712-1719.	5.1	36
32	A Novel Approach to Robotic Cardiac Surgery Using Haptics and Vision. Cardiovascular Engineering (Dordrecht, Netherlands), 2002, 2, 15-22.	1.0	35
33	Soft-tissue material properties under large deformation: strain rate effect. , 2004, 2004, 2758-61.		34
34	A Modular, Automated Laparoscopic Grasper with Three-Dimensional Force Measurement Capability. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	33
35	Patient-Specific, Voice-Controlled, Robotic FLEXotendon Glove-II System for Spinal Cord Injury. IEEE Robotics and Automation Letters, 2020, 5, 898-905.	5.1	33
36	Motion planning for cooperating mobile manipulators. Journal of Field Robotics, 1999, 16, 557-579.	0.7	32

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37	A General-Purpose 7 DOF Haptic Device: Applications Toward Robot-Assisted Surgery. IEEE/ASME Transactions on Mechatronics, 2007, 12, 662-669.	5.8	32
38	Atomic force microscopy-based single-cell indentation: Experimentation and finite element simulation. , 2009, , .		32
39	Design and implementation of a pneumatically-actuated robot for breast biopsy under continuous MRI. , 2011, , .		31
40	Toward a Portable Cancer Diagnostic Tool Using a Disposable MEMS-Based Biochip. IEEE Transactions on Biomedical Engineering, 2016, 63, 1347-1353.	4.2	31
41	Viscoelastic Properties of Human Autopsy Brain Tissues as Biomarkers for Alzheimer's Diseases. IEEE Transactions on Biomedical Engineering, 2019, 66, 1705-1713.	4.2	31
42	Real-Time Haptic Feedback in Laparoscopic Tools for Use in Gastro-Intestinal Surgery*. Lecture Notes in Computer Science, 2002, , 66-74.	1.3	31
43	Optical Flow-Based Tracking of Needles and Needle-Tip Localization Using Circular Hough Transform in Ultrasound Images. Annals of Biomedical Engineering, 2015, 43, 1828-1840.	2.5	30
44	Modular FBG Bending Sensor for Continuum Neurosurgical Robot. IEEE Robotics and Automation Letters, 2019, 4, 1424-1430.	5.1	30
45	Modeling and Control of a 2-DoF Meso-Scale Continuum Robotic Tool for Pediatric Neurosurgery. IEEE Transactions on Robotics, 2021, 37, 520-531.	10.3	30
46	MEMS based low cost piezoresistive microcantilever force sensor and sensor module. Materials Science in Semiconductor Processing, 2014, 19, 163-173.	4.0	29
47	Development of a Meso-Scale SMA-Based Torsion Actuator for Image-Guided Procedures. IEEE Transactions on Robotics, 2017, 33, 240-248.	10.3	29
48	Design, Modeling and Control of a 2-DoF Robotic Guidewire. , 2018, , .		29
49	Design, Modeling, and Control of a Coaxially Aligned Steerable (COAST) Guidewire Robot. IEEE Robotics and Automation Letters, 2020, 5, 4947-4954.	5.1	28
50	Review: Hand Exoskeleton Systems, Clinical Rehabilitation Practices, and Future Prospects. IEEE Transactions on Medical Robotics and Bionics, 2021, 3, 606-622.	3.2	28
51	Onâ€site three dimensional force sensing capability in a laparoscopic grasper. Industrial Robot, 2004, 31, 509-518.	2.1	26
52	Measuring grasping and cutting forces for reality-based haptic modeling. International Congress Series, 2003, 1256, 794-800.	0.2	24
53	Electromechanical Coupling Factor of Breast Tissue as a Biomarker for Breast Cancer. IEEE Transactions on Biomedical Engineering, 2018, 65, 96-103.	4.2	24
54	Mechanical phenotyping of breast cancer using MEMS: a method to demarcate benign and cancerous breast tissues. Lab on A Chip, 2014, 14, 4523-4532.	6.0	23

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55	MEMS-Based Flexible Force Sensor for Tri-Axial Catheter Contact Force Measurement. Journal of Microelectromechanical Systems, 2017, 26, 264-272.	2.5	23
56	Toward Patient-Specific 3D-Printed Robotic Systems for Surgical Interventions. IEEE Transactions on Medical Robotics and Bionics, 2019, 1, 77-87.	3.2	23
57	State of the Art and Future Opportunities in MRI-Guided Robot-Assisted Surgery and Interventions. Proceedings of the IEEE, 2022, 110, 968-992.	21.3	23
58	Visual and haptic collaborative tele-presence. Computers and Graphics, 2001, 25, 789-798.	2.5	22
59	A Compact and Modular Laparoscopic Grasper With Tridirectional Force Measurement Capability. Journal of Medical Devices, Transactions of the ASME, 2008, 2, .	0.7	22
60	Towards the Development of a Steerable and MRI-Compatible Cardiac Catheter for Atrial Fibrillation Treatment. IEEE Robotics and Automation Letters, 2018, 3, 4038-4045.	5.1	22
61	Design, modeling and characterization of a novel meso-scale SMA-actuated torsion actuator. Smart Materials and Structures, 2015, 24, 105005.	3.5	21
62	Reality-Based Real-Time Cell Indentation Simulator. IEEE/ASME Transactions on Mechatronics, 2012, 17, 239-250.	5.8	20
63	Pulse width modulationâ€“based temperature tracking for feedback control of a shape memory alloy actuator. Journal of Intelligent Material Systems and Structures, 2014, 25, 720-730.	2.5	18
64	Determination of Mechanical Properties of Spatially Heterogeneous Breast Tissue Specimens Using Contact Mode Atomic Force Microscopy (AFM). Annals of Biomedical Engineering, 2014, 42, 1806-1822.	2.5	18
65	Towards an automated MEMS-based characterization of benign and cancerous breast tissue using bioimpedance measurements. Sensors and Actuators B: Chemical, 2014, 199, 259-268.	7.8	18
66	Design and kinematic analysis of a neurosurgical spring-based continuum robot using SMA spring actuators. , 2015, , .		18
67	A Biomechanical Model of the Liver for Reality-Based Haptic Feedback. Lecture Notes in Computer Science, 2003, , 75-82.	1.3	17
68	Towards a MRI-compatible meso-scale SMA-actuated robot using PWM control. , 2010, , .		17
69	Towards a discretely actuated steerable cannula. , 2012, , .		17
70	Characterization of SMA actuator for applications in robotic neurosurgery. , 2009, 2009, 6856-9.		16
71	A Semi-Automated Positioning System for Contact-Mode Atomic Force Microscopy (AFM). IEEE Transactions on Automation Science and Engineering, 2013, 10, 462-465.	5.2	16
72	Simultaneous MEMS-based electro-mechanical phenotyping of breast cancer. Lab on A Chip, 2015, 15, 3695-3706.	6.0	16

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73	Accurate characterization of benign and cancerous breast tissues: Aspecific patient studies using piezoresistive microcantilevers. Biosensors and Bioelectronics, 2015, 63, 414-424.	10.1	16
74	FLEXotendon Glove-III: Voice-Controlled Soft Robotic Hand Exoskeleton With Novel Fabrication Method and Admittance Grasping Control. IEEE/ASME Transactions on Mechatronics, 2022, 27, 3920-3931.	5.8	15
75	Modeling, characterization and control of antagonistic SMA springs for use in a neurosurgical robot. , 2013, , .		14
76	Towards Design and Fabrication of a Miniature MRI-Compatible Robot for Applications in Neurosurgery. , 2008, , .		13
77	Microarray-facilitated mechanical characterization of breast tissue pathology samples using contact-mode Atomic Force Microscopy (AFM). , 2010, , .		12
78	Mechanical phenotyping of stem cells. Theriogenology, 2011, 75, 1426-1430.	2.1	12
79	A Self-Sealing Suction Cup Array for Grasping. Journal of Mechanisms and Robotics, 2011, 3, .	2.2	12
80	Micropositioning and Control of an Underactuated Platform for Microscopic Applications. IEEE/ASME Transactions on Mechatronics, 2016, 21, 2635-2646.	5.8	12
81	Towards a MR image-guided SMA-actuated neurosurgical robot. , 2011, , .		11
82	Design and analysis of a remotely-actuated cable-driven neurosurgical robot. , 2017, , .		11
83	Design, Analysis, and Evaluation of a Remotely Actuated MRI-Compatible Neurosurgical Robot. IEEE Robotics and Automation Letters, 2018, 3, 2144-2151.	5.1	11
84	Instrumentation for Testing Soft Tissue Undergoing Large Deformation: Ex Vivo and In Vivo Studies. Journal of Medical Devices, Transactions of the ASME, 2008, 2, .	0.7	10
85	Versatile Passive Grasping for Manipulation. IEEE/ASME Transactions on Mechatronics, 2016, 21, 1293-1302.	5.8	10
86	Integration of Self-Sealing Suction Cups on the FLEXotendon Glove-II Robotic Exoskeleton System. IEEE Robotics and Automation Letters, 2020, 5, 867-874.	5.1	10
87	Mechanical characterization of mouse embryonic stem cells. , 2009, 2009, 1176-9.		9
88	A Large-Deflection FBG Bending Sensor for SMA Bending Modules for Steerable Surgical Robots. , 2019, , .		9
89	Mechanical Response of Embryonic Stem Cells Using Haptics-Enabled Atomic Force Microscopy. Springer Tracts in Advanced Robotics, 2009, , 261-269.	0.4	9
90	Accurate in-plane and out-of-plane ultrasound-based tracking of the discretely actuated steerable cannula. , 2014, , .		8

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91	Multi-walled Carbon Nanotube (MWCNT)/PDMS-based Flexible Sensor for Medical Applications. , 2019, , .		8
92	Towards the development of a voice-controlled exoskeleton system for restoring hand function. , 2019, , .		8
93	Towards a SMA-actuated Neurosurgical Intracerebral Hemorrhage Evacuation (NICHE) robot. , 2015, , .		7
94	Towards a tri-axial flexible force sensor for catheter contact force measurement. , 2016, , .		7
95	Machine learning approach for breast cancer localization. , 2017, , .		7
96	Towards the Design and Development of a Pediatric Neuroendoscope Tool. , 2019, , .		7
97	Voice-Controlled Flexible Exotendon (FLEXotendon) Glove For Hand Rehabilitation. , 2019, , .		7
98	Design and Analysis of a Bidirectional Notch Joint for a Robotic Pediatric Neuroendoscope. Springer Proceedings in Advanced Robotics, 2020, , 24-33.	1.3	7
99	Two-arm manipulation tasks with friction-assisted grasping. Advanced Robotics, 1997, 12, 485-507.	1.8	6
100	Towards a needle driver robot for radiofrequency ablation of tumors under continuous MRI. , 2008, , .		6
101	Mechanical characterization of fixed undifferentiated and differentiating mESC. , 2008, , .		6
102	Probabilistic Estimation of Mechanical Properties of Biomaterials Using Atomic Force Microscopy. IEEE Transactions on Biomedical Engineering, 2014, 61, 547-556.	4.2	6
103	Towards high frequency actuation of SMA spring for the neurosurgical robot - MINIR-II. , 2015, , .		6
104	Miniature Force Sensor Based on Dual-Photointerrupter With High Linearity and Disturbance Compensation. IEEE Sensors Journal, 2020, 20, 5855-5864.	4.7	6
105	A Robotically Steerable Guidewire With Forward-Viewing Ultrasound: Development of Technology for Minimally-Invasive Imaging. IEEE Transactions on Biomedical Engineering, 2021, 68, 2222-2232.	4.2	6
106	Towards the Development of a Robotic Transcatheter Delivery System for Mitral Valve Implant. , 2020, , .		6
107	Pose-aware C-Arm Calibration and Image Distortion Correction for Guidewire Tracking and Image Reconstruction. , 2020, , .		6
108	Automated Motion Control of the COAST Robotic Guidewire under Fluoroscopic Guidance. , 2021, , .		6

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109	Evaluating the Role of Vision and Force Feedback in Minimally Invasive Surgery: New Automated Laparoscopic Grasper and A Case Study. Lecture Notes in Computer Science, 2003, , 198-205.	1.3	5
110	Semi-automated soft-tissue acquisition and modeling for surgical simulation. , 2009, , .		5
111	Towards the development of a SMA-actuated MRI-compatible tendon-driven neurosurgical robot. , 2012, , .		5
112	Concurrent multiscale imaging with magnetic resonance imaging and optical coherence tomography. Journal of Biomedical Optics, 2013, 18, 1.	2.6	5
113	Design and Control of 5-DoF Robotically Steerable Catheter for the Delivery of the Mitral Valve Implant. , 2021, , .		5
114	Towards the Development of an Ultrasound-Guided Robotically Steerable Guidewire. , 2020, , .		5
115	Design and development of a 3-axis MRI-compatible force sensor. , 2010, , .		4
116	Development of a Mesoscale Fiberoptic Rotation Sensor for a Torsion Actuator. IEEE Robotics and Automation Letters, 2018, 3, 537-543.	5.1	4
117	Towards Real-Time SMA Control for a Neurosurgical Robot: MINIR-II. Springer Proceedings in Advanced Robotics, 2018, , 187-200.	1.3	4
118	Towards the Development of a Master-Slave Surgical System for Breast Biopsy under Continuous MRI. Springer Tracts in Advanced Robotics, 2013, , 565-577.	0.4	3
119	Robot-Guided Atomic Force Microscopy for Mechano-Visual Phenotyping of Cancer Specimens. Microscopy and Microanalysis, 2015, 21, 1224-1235.	0.4	3
120	Toward Real-Time Pose Estimation of the Mitral Valve Robot Under C-Arm X-Ray Fluoroscopy. IEEE Transactions on Medical Robotics and Bionics, 2021, 3, 928-935.	3.2	3
121	Micro-scale Viscoelastic Characterization of Human Skin Tissues as a Biomarker for Melanoma. , 2020, , .		3
122	Towards FBG-based End-Effector Force Estimation for a Steerable Continuum Robot. , 2022, , .		3
123	Design and Modeling of a Compact Advancement Mechanism for a Modified COAST Guidewire Robot. , 2022, , .		3
124	Real-time, haptics-enabled simulator for probing ex vivo liver tissue. , 2009, 2009, 1196-9.		2
125	Realistic visual and haptic feedback simulator for real-time cell indentation. , 2010, , .		2
126	Guest Editorial: Introduction to the Focused Section on Healthcare Mechatronics. IEEE/ASME Transactions on Mechatronics, 2010, 15, 165-169.	5.8	2

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127	Motion planning for the discretely actuated steerable cannula. , 2012, , .		2
128	Endoscopic Microscopy Using Optical Coherence Tomography. Current Medical Imaging, 2012, 8, 174-193.	0.8	2
129	Towards the Development of a New Tendon-Driven Minimally Invasive Neurosurgical Intracranial Robot. , 2014, , .		2
130	A skull-mounted robotic headframe for a neurosurgical robot. , 2017, , .		2
131	Compact Hand with Passive Grasping. Springer Tracts in Advanced Robotics, 2016, , 117-132.	0.4	2
132	MICROSCALE SENSORS FOR BREAST CANCER DIAGNOSIS. , 2018, , 275-310.		2
133	Image guided mitral valve replacement: registration of 3D ultrasound and 2D x-ray images. , 2020, 11315, .		2
134	Dual-Resonance (16/32 MHz) Piezoelectric Transducer With a Single Electrical Connection for Forward-Viewing Robotic Guidewire. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2022, 69, 1428-1441.	3.0	2
135	Soft-tissue characterization during monopolar electrocautery procedures. Studies in Health Technology and Informatics, 2008, 132, 254-6.	0.3	2
136	A 3D in-vivo constitutive model for porcine liver: Matching force characteristics and surface deformations. , 2010, , .		1
137	Design of Revolute Joints for In-Mold Assembly Using Insert Molding. Journal of Mechanical Design, Transactions of the ASME, 2011, 133, 121010-12101010.	2.9	1
138	Towards a soft-tissue cutting simulator using the cohesive zone approach. , 2011, 2011, 6691-4.		1
139	An Error-In-Variables (EIV) based Bayesian probabilistic approach to estimating cell mechanical properties using Atomic Force Microscopy. , 2012, , .		1
140	Characterization of Antagonistic SMA Spring Actuators for Use in a MRI-Compatible Intracranial Robot. , 2012, , .		1
141	A highly compact fiberoptic rotation sensor for a neurosurgical robot. , 2018, , .		1
142	FLEXotendon Glove-III: Soft Robotic Hand Rehabilitation Exoskeleton for Spinal Cord Injury. , 2021, , .		1
143	Forward-viewing, robotically-steerable guidewire system for peripheral chronic total occlusions: Transducer and imaging system development. , 2020, , .		1
144	Capacitive Two-dimensional Force Sensing Microcantilever with a Conductive Tip for Characterization of Biological Samples. , 2020, , .		1

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145	A Framework for Kinematic and Dynamic Motion Planning for a Formation of Mobile Robots. Intelligent Automation and Soft Computing, 2004, 10, 307-322.	2.1	0
146	Reality-based Haptic Feedback for Needle Puncture - Modeling, Validation, and Simulation. , 2006, , .		0
147	Guest Editorial to the Special Letters Issue on Biomedical Robotics and Biomechatronicsâ€"BioRob. IEEE Transactions on Biomedical Engineering, 2009, 56, 2293-2294.	4.2	0
148	Concurrent Multi-scale Imaging Combining Optical Coherence Tomography with MRI. , 2011, , .		0
149	Real-Time Fiber-Optic Intubation Simulator With Force Feedback. IEEE/ASME Transactions on Mechatronics, 2012, 17, 98-106.	5.8	0
150	Concurrent Multi-scale Imaging: Optical Coherence Tomography under MRI Guidance for Neurosurgery. , 2013, , .		0
151	Towards the Development of a Low-Cost Minimally Invasive Highly Articulated MRI-Compatible Neurosurgical Robot. , 2014, , .		0
152	Special Issue of the Thirteenth International Symposium on Experimental Robotics, 2012. International Journal of Robotics Research, 2014, 33, 487-488.	8.5	0
153	Corrections to â€œPatient-Specific, Voice-Controlled, Robotic FLEXotendon Glove-II System for Spinal Cord Injuryâ€•[Apr 20 898-905]. IEEE Robotics and Automation Letters, 2021, 6, 5080-5080.	5.1	0
154	FLEXIBLE MESO-SCALE ROBOTS FOR SURGERY. , 2018, , 245-280.		0