

Jaydev P Desai

List of Publications by Year in descending order

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154
papers

5,800
citations

126907

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h-index

85541

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157
all docs

157
docs citations

157
times ranked

4990
citing authors

#	ARTICLE	IF	CITATIONS
1	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
2	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
3	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
4	Towards FBG-based End-Effector Force Estimation for a Steerable Continuum Robot. , 2022, , .		3
5	Design and Modeling of a Compact Advancement Mechanism for a Modified COAST Guidewire Robot. , 2022, , .		3
6	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
7	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
8	Corrections to “Patient-Specific, Voice-Controlled, Robotic FLEXotendon Glove-II System for Spinal Cord Injury” [Apr 20 898-905]. IEEE Robotics and Automation Letters, 2021, 6, 5080-5080.	5.1	0
9	Review: Hand Exoskeleton Systems, Clinical Rehabilitation Practices, and Future Prospects. IEEE Transactions on Medical Robotics and Bionics, 2021, 3, 606-622.	3.2	28
10	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
11	Design and Control of 5-DoF Robotically Steerable Catheter for the Delivery of the Mitral Valve Implant. , 2021, , .		5
12	FLEXotendon Glove-III: Soft Robotic Hand Rehabilitation Exoskeleton for Spinal Cord Injury. , 2021, , .		1
13	Automated Motion Control of the COAST Robotic Guidewire under Fluoroscopic Guidance. , 2021, , .		6
14	Design, Modeling, and Control of a Coaxially Aligned Steerable (COAST) Guidewire Robot. IEEE Robotics and Automation Letters, 2020, 5, 4947-4954.	5.1	28
15	Miniature Force Sensor Based on Dual-Photointerrupter With High Linearity and Disturbance Compensation. IEEE Sensors Journal, 2020, 20, 5855-5864.	4.7	6
16	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
17	Design and Kinematics Analysis of a Robotic Pediatric Neuroendoscope Tool Body. IEEE/ASME Transactions on Mechatronics, 2020, 25, 985-995.	5.8	36
18	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

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19	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
20	Image guided mitral valve replacement: registration of 3D ultrasound and 2D x-ray images. , 2020, 11315, .		2
21	Design and Analysis of a Bidirectional Notch Joint for a Robotic Pediatric Neuroendoscope. Springer Proceedings in Advanced Robotics, 2020, , 24-33.	1.3	7
22	Micro-scale Viscoelastic Characterization of Human Skin Tissues as a Biomarker for Melanoma. , 2020, , .		3
23	Forward-viewing, robotically-steerable guidewire system for peripheral chronic total occlusions: Transducer and imaging system development. , 2020, , .		1
24	Towards the Development of a Robotic Transcatheter Delivery System for Mitral Valve Implant. , 2020, , .		6
25	Towards the Development of an Ultrasound-Guided Robotically Steerable Guidewire. , 2020, , .		5
26	Capacitive Two-dimensional Force Sensing Microcantilever with a Conductive Tip for Characterization of Biological Samples. , 2020, , .		1
27	Pose-aware C-Arm Calibration and Image Distortion Correction for Guidewire Tracking and Image Reconstruction. , 2020, , .		6
28	A Large-Deflection FBG Bending Sensor for SMA Bending Modules for Steerable Surgical Robots. , 2019, , .		9
29	Modular FBG Bending Sensor for Continuum Neurosurgical Robot. IEEE Robotics and Automation Letters, 2019, 4, 1424-1430.	5.1	30
30	Robotic Artificial Muscles: Current Progress and Future Perspectives. IEEE Transactions on Robotics, 2019, 35, 761-781.	10.3	225
31	Multi-walled Carbon Nanotube (MWCNT)/PDMS-based Flexible Sensor for Medical Applications. , 2019, , .		8
32	Towards the development of a voice-controlled exoskeleton system for restoring hand function. , 2019, , .		8
33	Toward Patient-Specific 3D-Printed Robotic Systems for Surgical Interventions. IEEE Transactions on Medical Robotics and Bionics, 2019, 1, 77-87.	3.2	23
34	Towards the Design and Development of a Pediatric Neuroendoscope Tool. , 2019, , .		7
35	Voice-Controlled Flexible Exotendon (FLEXotendon) Glove For Hand Rehabilitation. , 2019, , .		7
36	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

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37	Design, Analysis, and Evaluation of a Remotely Actuated MRI-Compatible Neurosurgical Robot. IEEE Robotics and Automation Letters, 2018, 3, 2144-2151.	5.1	11
38	A highly compact fiberoptic rotation sensor for a neurosurgical robot. , 2018, , .		1
39	Development of a Mesoscale Fiberoptic Rotation Sensor for a Torsion Actuator. IEEE Robotics and Automation Letters, 2018, 3, 537-543.	5.1	4
40	Electromechanical Coupling Factor of Breast Tissue as a Biomarker for Breast Cancer. IEEE Transactions on Biomedical Engineering, 2018, 65, 96-103.	4.2	24
41	Active Stiffness Tuning of a Spring-Based Continuum Robot for MRI-Guided Neurosurgery. IEEE Transactions on Robotics, 2018, 34, 18-28.	10.3	59
42	Towards Real-Time SMA Control for a Neurosurgical Robot: MINIR-II. Springer Proceedings in Advanced Robotics, 2018, , 187-200.	1.3	4
43	Design, Modeling and Control of a 2-DoF Robotic Guidewire. , 2018, , .		29
44	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
45	FLEXIBLE MESO-SCALE ROBOTS FOR SURGERY. , 2018, , 245-280.		0
46	MICROSCALE SENSORS FOR BREAST CANCER DIAGNOSIS. , 2018, , 275-310.		2
47	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
48	New Actuation Mechanism for Actively Cooled SMA Springs in a Neurosurgical Robot. IEEE Transactions on Robotics, 2017, 33, 986-993.	10.3	47
49	MEMS-Based Flexible Force Sensor for Tri-Axial Catheter Contact Force Measurement. Journal of Microelectromechanical Systems, 2017, 26, 264-272.	2.5	23
50	Development of a Meso-Scale SMA-Based Torsion Actuator for Image-Guided Procedures. IEEE Transactions on Robotics, 2017, 33, 240-248.	10.3	29
51	Machine learning approach for breast cancer localization. , 2017, , .		7
52	Toward the Development of a Flexible Mesoscale MRI-Compatible Neurosurgical Continuum Robot. IEEE Transactions on Robotics, 2017, 33, 1386-1397.	10.3	92
53	A skull-mounted robotic headframe for a neurosurgical robot. , 2017, , .		2
54	Design and analysis of a remotely-actuated cable-driven neurosurgical robot. , 2017, , .		11

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55	Micropositioning and Control of an Underactuated Platform for Microscopic Applications. IEEE/ASME Transactions on Mechatronics, 2016, 21, 2635-2646.	5.8	12
56	Towards a tri-axial flexible force sensor for catheter contact force measurement. , 2016, , .		7
57	Versatile Passive Grasping for Manipulation. IEEE/ASME Transactions on Mechatronics, 2016, 21, 1293-1302.	5.8	10
58	Toward a Portable Cancer Diagnostic Tool Using a Disposable MEMS-Based Biochip. IEEE Transactions on Biomedical Engineering, 2016, 63, 1347-1353.	4.2	31
59	Compact Hand with Passive Grasping. Springer Tracts in Advanced Robotics, 2016, , 117-132.	0.4	2
60	Towards high frequency actuation of SMA spring for the neurosurgical robot - MINIR-II. , 2015, , .		6
61	Robot-Guided Atomic Force Microscopy for Mechano-Visual Phenotyping of Cancer Specimens. Microscopy and Microanalysis, 2015, 21, 1224-1235.	0.4	3
62	Design and kinematic analysis of a neurosurgical spring-based continuum robot using SMA spring actuators. , 2015, , .		18
63	Towards a SMA-actuated Neurosurgical Intracerebral Hemorrhage Evacuation (NICHE) robot. , 2015, , .		7
64	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
65	Simultaneous MEMS-based electro-mechanical phenotyping of breast cancer. Lab on A Chip, 2015, 15, 3695-3706.	6.0	16
66	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
67	Design, modeling and characterization of a novel meso-scale SMA-actuated torsion actuator. Smart Materials and Structures, 2015, 24, 105005.	3.5	21
68	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
69	Accurate characterization of benign and cancerous breast tissues: Aspecific patient studies using piezoresistive microcantilevers. Biosensors and Bioelectronics, 2015, 63, 414-424.	10.1	16
70	Accurate in-plane and out-of-plane ultrasound-based tracking of the discretely actuated steerable cannula. , 2014, , .		8
71	Pulse width modulation-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
72	Towards the Development of a Low-Cost Minimally Invasive Highly Articulated MRI-Compatible Neurosurgical Robot. , 2014, , .		0

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73	Special Issue of the Thirteenth International Symposium on Experimental Robotics, 2012. International Journal of Robotics Research, 2014, 33, 487-488.	8.5	0
74	Design, development, and evaluation of a master-slave surgical system for breast biopsy under continuous MRI. International Journal of Robotics Research, 2014, 33, 616-630.	8.5	58
75	MEMS based low cost piezoresistive microcantilever force sensor and sensor module. Materials Science in Semiconductor Processing, 2014, 19, 163-173.	4.0	29
76	Probabilistic Estimation of Mechanical Properties of Biomaterials Using Atomic Force Microscopy. IEEE Transactions on Biomedical Engineering, 2014, 61, 547-556.	4.2	6
77	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
78	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
79	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
80	Towards the Development of a New Tendon-Driven Minimally Invasive Neurosurgical Intracranial Robot. , 2014, , .		2
81	Concurrent Multi-scale Imaging: Optical Coherence Tomography under MRI Guidance for Neurosurgery. , 2013, , .		0
82	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
83	Modeling, characterization and control of antagonistic SMA springs for use in a neurosurgical robot. , 2013, , .		14
84	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
85	Concurrent multiscale imaging with magnetic resonance imaging and optical coherence tomography. Journal of Biomedical Optics, 2013, 18, 1.	2.6	5
86	Towards a discretely actuated steerable cannula for diagnostic and therapeutic procedures. International Journal of Robotics Research, 2012, 31, 588-603.	8.5	89
87	An Error-In-Variables (EIV) based Bayesian probabilistic approach to estimating cell mechanical properties using Atomic Force Microscopy. , 2012, , .		1
88	Motion planning for the discretely actuated steerable cannula. , 2012, , .		2
89	Towards a discretely actuated steerable cannula. , 2012, , .		17
90	Endoscopic Microscopy Using Optical Coherence Tomography. Current Medical Imaging, 2012, 8, 174-193.	0.8	2

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91	Characterization of Antagonistic SMA Spring Actuators for Use in a MRI-Compatible Intracranial Robot. , 2012, , .		1
92	Toward a Meso-Scale SMA-Actuated MRI-Compatible Neurosurgical Robot. IEEE Transactions on Robotics, 2012, 28, 213-222.	10.3	71
93	Towards the development of a SMA-actuated MRI-compatible tendon-driven neurosurgical robot. , 2012, , .		5
94	Real-Time Fiber-Optic Intubation Simulator With Force Feedback. IEEE/ASME Transactions on Mechatronics, 2012, 17, 98-106.	5.8	0
95	Reality-Based Real-Time Cell Indentation Simulator. IEEE/ASME Transactions on Mechatronics, 2012, 17, 239-250.	5.8	20
96	Towards a MR image-guided SMA-actuated neurosurgical robot. , 2011, , .		11
97	Design of Revolute Joints for In-Mold Assembly Using Insert Molding. Journal of Mechanical Design, Transactions of the ASME, 2011, 133, 121010-121010.	2.9	1
98	Design and implementation of a pneumatically-actuated robot for breast biopsy under continuous MRI. , 2011, , .		31
99	Mechanical phenotyping of stem cells. Theriogenology, 2011, 75, 1426-1430.	2.1	12
100	Mechanical Phenotyping of Mouse Embryonic Stem Cells: Increase in Stiffness with Differentiation. Cellular Reprogramming, 2011, 13, 371-380.	0.9	75
101	Triaxial MRI-Compatible Fiber-optic Force Sensor. IEEE Transactions on Robotics, 2011, 27, 65-74.	10.3	52
102	Concurrent Multi-scale Imaging Combining Optical Coherence Tomography with MRI. , 2011, , .		0
103	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
104	Development of In Vivo Constitutive Models for Liver: Application to Surgical Simulation. Annals of Biomedical Engineering, 2011, 39, 1060-1073.	2.5	37
105	Towards a soft-tissue cutting simulator using the cohesive zone approach. , 2011, 2011, 6691-4.		1
106	A Self-Sealing Suction Cup Array for Grasping. Journal of Mechanisms and Robotics, 2011, 3, .	2.2	12
107	Estimating zero-strain states of very soft tissue under gravity loading using digital image correlation. Medical Image Analysis, 2010, 14, 126-137.	11.6	63
108	Constitutive Modeling of Liver Tissue: Experiment and Theory. Annals of Biomedical Engineering, 2010, 38, 505-516.	2.5	120

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109	Realistic visual and haptic feedback simulator for real-time cell indentation. , 2010, , .		2
110	Towards a MRI-compatible meso-scale SMA-actuated robot using PWM control. , 2010, , .		17
111	Design and development of a 3-axis MRI-compatible force sensor. , 2010, , .		4
112	Guest Editorial: Introduction to the Focused Section on Healthcare Mechatronics. IEEE/ASME Transactions on Mechatronics, 2010, 15, 165-169.	5.8	2
113	A 3D in-vivo constitutive model for porcine liver: Matching force characteristics and surface deformations. , 2010, , .		1
114	Microarray-facilitated mechanical characterization of breast tissue pathology samples using contact-mode Atomic Force Microscopy (AFM). , 2010, , .		12
115	Real-time, haptics-enabled simulator for probing ex vivo liver tissue. , 2009, 2009, 1196-9.		2
116	Atomic force microscopy-based single-cell indentation: Experimentation and finite element simulation. , 2009, , .		32
117	Characterization of SMA actuator for applications in robotic neurosurgery. , 2009, 2009, 6856-9.		16
118	Guest Editorial to the Special Letters Issue on Biomedical Robotics and Biomechanicsâ€”BioRob. IEEE Transactions on Biomedical Engineering, 2009, 56, 2293-2294.	4.2	0
119	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
120	Semi-automated soft-tissue acquisition and modeling for surgical simulation. , 2009, , .		5
121	Mechanical characterization of mouse embryonic stem cells. , 2009, 2009, 1176-9.		9
122	Mechanical Response of Embryonic Stem Cells Using Haptics-Enabled Atomic Force Microscopy. Springer Tracts in Advanced Robotics, 2009, , 261-269.	0.4	9
123	Towards a needle driver robot for radiofrequency ablation of tumors under continuous MRI. , 2008, , .		6
124	Mechanical characterization of fixed undifferentiated and differentiating mESC. , 2008, , .		6
125	Towards Design and Fabrication of a Miniature MRI-Compatible Robot for Applications in Neurosurgery. , 2008, , .		13
126	A Compact and Modular Laparoscopic Grasper With Tridirectional Force Measurement Capability. Journal of Medical Devices, Transactions of the ASME, 2008, 2, .	0.7	22

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127	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
128	Soft-tissue characterization during monopolar electrocautery procedures. Studies in Health Technology and Informatics, 2008, 132, 254-6.	0.3	2
129	A General-Purpose 7 DOF Haptic Device: Applications Toward Robot-Assisted Surgery. IEEE/ASME Transactions on Mechatronics, 2007, 12, 662-669.	5.8	32
130	A Modular, Automated Laparoscopic Grasper with Three-Dimensional Force Measurement Capability. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	33
131	Engineering Approaches to Biomanipulation. Annual Review of Biomedical Engineering, 2007, 9, 35-53.	12.3	133
132	Evaluating the Effect of Force Feedback in Cell Injection. IEEE Transactions on Automation Science and Engineering, 2007, 4, 322-331.	5.2	106
133	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
134	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
135	Reality-based Haptic Feedback for Needle Puncture - Modeling, Validation, and Simulation. , 2006, , .		0
136	Force Feedback Plays a Significant Role in Minimally Invasive Surgery. Annals of Surgery, 2005, 241, 102-109.	4.2	266
137	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
138	Soft-tissue material properties under large deformation: strain rate effect. , 2004, 2004, 2758-61.		34
139	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
140	Characterization of Soft-Tissue Material Properties: Large Deformation Analysis. Lecture Notes in Computer Science, 2004, , 28-37.	1.3	44
141	Robotic Surgery. Annals of Surgery, 2004, 239, 14-21.	4.2	970
142	On-site three dimensional force sensing capability in a laparoscopic grasper. Industrial Robot, 2004, 31, 509-518.	2.1	26
143	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
144	Measuring Forces in Liver Cutting: New Equipment and Experimental Results. Annals of Biomedical Engineering, 2003, 31, 1372-1382.	2.5	46

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145	Measuring grasping and cutting forces for reality-based haptic modeling. International Congress Series, 2003, 1256, 794-800.	0.2	24
146	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
147	A Biomechanical Model of the Liver for Reality-Based Haptic Feedback. Lecture Notes in Computer Science, 2003, , 75-82.	1.3	17
148	A Graph Theoretic Approach for Modeling Mobile Robot Team Formations. Journal of Field Robotics, 2002, 19, 511-525.	0.7	109
149	A Novel Approach to Robotic Cardiac Surgery Using Haptics and Vision. Cardiovascular Engineering (Dordrecht, Netherlands), 2002, 2, 15-22.	1.0	35
150	Real-Time Haptic Feedback in Laparoscopic Tools for Use in Gastro-Intestinal Surgery*. Lecture Notes in Computer Science, 2002, , 66-74.	1.3	31
151	Modeling and control of formations of nonholonomic mobile robots. IEEE Transactions on Automation Science and Engineering, 2001, 17, 905-908.	2.3	954
152	Visual and haptic collaborative tele-presence. Computers and Graphics, 2001, 25, 789-798.	2.5	22
153	Motion planning for cooperating mobile manipulators. Journal of Field Robotics, 1999, 16, 557-579.	0.7	32
154	Two-arm manipulation tasks with friction-assisted grasping. Advanced Robotics, 1997, 12, 485-507.	1.8	6