Kaspar Althoefer

List of Publications by Year
in descending order

149 papers	5,241 citations	117625 34 h-index	106344 65 g-index
150 all docs	150 docs citations	150 times ranked	4362 citing authors

#	Article	IF	Citations
1	Tactile sensing for dexterous in-hand manipulation in roboticsâ€”A review. Sensors and Actuators A: Physical, 2011, 167, 171-187.	4.1	634
2	State-of-the-Art in Force and Tactile Sensing for Minimally Invasive Surgery. IEEE Sensors Journal, 2008, 8, 371-381.	4.7	456
3	Soft Robotics Technologies to Address Shortcomings in Today's Minimally Invasive Surgery: The STIFF-FLOP Approach. Soft Robotics, 2014, 1, 122-131.	8.0	411
4	Tendon-Based Stiffening for a Pneumatically Actuated Soft Manipulator. IEEE Robotics and Automation Letters, 2016, 1, 632-637.	5.1	148
5	Implementation of Tactile Sensing for Palpation in Robot-Assisted Minimally Invasive Surgery: A Review. IEEE Sensors Journal, 2014, 14, 2490-2501.	4.7	121
6	MRI-Compatible Fiber-Optic Force Sensors for Catheterization Procedures. IEEE Sensors Journal, 2010, 10, 1598-1608.	4.7	115
7	Design of a variable stiffness flexible manipulator with composite granular jamming and membrane coupling. , 2012, , .		115
8	Macrobend optical sensing for pose measurement in soft robot arms. Smart Materials and Structures, 2015, 24, 125024.	3.5	108
9	Robotic Granular Jamming: Does the Membrane Matter?. Soft Robotics, 2014, 1, 192-201.	8.0	93
10	Shrinkable, stiffness-controllable soft manipulator based on a bio-inspired antagonistic actuation principle. , 2014, , .		93
11	Soft and Stretchable Sensor Using Biocompatible Electrodes and Liquid for Medical Applications. Soft Robotics, 2015, 2, 146-154.	8.0	92
12	Nonparametric Online Learning Control for Soft Continuum Robot: An Enabling Technique for Effective Endoscopic Navigation. Soft Robotics, 2017, 4, 324-337.	8.0	89
13	Novel Tactile-SIFT Descriptor for Object Shape Recognition. IEEE Sensors Journal, 2015, 15, 5001-5009.	4.7	86
14	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.	5.1	80
15	Highly dexterous 2â€module soft robot for intraâ€organ navigation in minimally invasive surgery. International Journal of Medical Robotics and Computer Assisted Surgery, 2018, 14, e1875.	2.3	79
16	Rolling Indentation Probe for Tissue Abnormality Identification During Minimally Invasive Surgery. IEEE Transactions on Robotics, 2011, 27, 450-460.	10.3	75
17	A Novel Continuum Manipulator Design Using Serially Connected Double-Layer Planar Springs. IEEE/ASME Transactions on Mechatronics, 2016, 21, 1281-1292.	5.8	75
18	Tendon and pressure actuation for a bio-inspired manipulator based on an antagonistic principle. , 2015, , .		73

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19	Trackâ€“terrain modelling and traversability prediction for tracked vehicles on soft terrain. Journal of Terramechanics, 2010, 47, 151-160.	3.1	62
20	Finite-Element Modeling of Soft Tissue Rolling Indentation. IEEE Transactions on Biomedical Engineering, 2011, 58, 3319-3327.	4.2	62
21	A Novel Concept for Safe, Stiffness-Controllable Robot Links. Soft Robotics, 2017, 4, 16-22.	8.0	62
22	Total mesorectal excision using a soft and flexible robotic arm: a feasibility study in cadaver models. Surgical Endoscopy and Other Interventional Techniques, 2017, 31, 264-273.	2.4	61
23	Kinematic Control of Continuum Manipulators Using a Fuzzy-Model-Based Approach. IEEE Transactions on Industrial Electronics, 2016, 63, 5022-5035.	7.9	59
24	Anchoring like octopus: biologically inspired soft artificial sucker. Journal of the Royal Society Interface, 2017, 14, 20170395.	3.4	52
25	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.	8.5	52
26	In-Hand Object Pose Estimation Using Covariance-Based Tactile To Geometry Matching. IEEE Robotics and Automation Letters, 2016, 1, 570-577.	5.1	51
27	An Attention-Controlled Hand Exoskeleton for the Rehabilitation of Finger Extension and Flexion Using a Rigid-Soft Combined Mechanism. Frontiers in Neurorobotics, 2019, 13, 34.	2.8	51
28	Finger contact sensing and the application in dexterous hand manipulation. Autonomous Robots, 2015, 39, 25-41.	4.8	48
29	Image-Based Optical Miniaturized Three-Axis Force Sensor for Cardiac Catheterization. IEEE Sensors Journal, 2016, 16, 7924-7932.	4.7	47
30	Palpation force modulation strategies to identify hard regions in soft tissue organs. PLoS ONE, 2017, 12, e0171706.	2.5	45
31	An Optical Tactile Array Probe Head for Tissue Palpation During Minimally Invasive Surgery. IEEE Sensors Journal, 2014, 14, 3283-3291.	4.7	44
32	A Geometry Deformation Model for Braided Continuum Manipulators. Frontiers in Robotics and AI, 2017, 4, .	3.2	43
33	Antagonistic actuation and stiffness control in soft inflatable robots. Nature Reviews Materials, 2018, 3, 76-77.	48.7	43
34	Multi-fingered haptic palpation using pneumatic feedback actuators. Sensors and Actuators A: Physical, 2014, 218, 132-141.	4.1	42
35	Reinforcement learning in a rule-based navigator for robotic manipulators. Neurocomputing, 2001, 37, 51-70.	5.9	41
36	Exploiting Spin Echo Decay in the Detection of Nuclear Quadrupole Resonance Signals. IEEE Transactions on Geoscience and Remote Sensing, 2007, 45, 925-933.	6.3	41

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37	AirExGlove â€" A novel pneumatic exoskeleton glove for adaptive hand rehabilitation in post-stroke patients. , 2018, , .		41
38	An optical curvature sensor for flexible manipulators. , 2013, , .		40
39	Knock-Knock: Acoustic object recognition by using stacked denoising autoencoders. Neurocomputing, 2017, 267, 18-24.	5.9	39
40	Embedded electro-conductive yarn for shape sensing of soft robotic manipulators. , 2015, 2015, 8026-9.		37
41	Soft Biomimetic Prosthetic Hand: Design, Manufacturing and Preliminary Examination. , 2018, , .		36
42	Variable Stiffness Link (VSL): Toward inherently safe robotic manipulators. , 2017, , .		35
43	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.	8.0	35
44	Nitrogen-14 Nuclear Quadrupole Resonance Spectroscopy: A Promising Analytical Methodology for Medicines Authentication and Counterfeit Antimalarial Analysis. Analytical Chemistry, 2013, 85, 2746-2753.	6.5	34
45	Global estimation of an objectâ€™s pose using tactile sensing. Advanced Robotics, 2015, 29, 363-374.	1.8	34
46	Soil parameter identification for wheel-terrain interaction dynamics and traversability prediction. International Journal of Automation and Computing, 2006, 3, 244-251.	4.5	33
47	Using visual cues to enhance haptic feedback for palpation on virtual model of soft tissue. Medical and Biological Engineering and Computing, 2015, 53, 1177-1186.	2.8	33
48	Behavioral Characteristics of Manual Palpation to Localize Hard Nodules in Soft Tissues. IEEE Transactions on Biomedical Engineering, 2014, 61, 1651-1659.	4.2	32
49	Robust Detection of Stochastic Nuclear Quadrupole Resonance Signals. IEEE Transactions on Signal Processing, 2008, 56, 4221-4229.	5.3	31
50	The Role of the Thumb: Study of Finger Motion in Grasping and Reachability Space in Human and Robotic Hands. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2017, 47, 1061-1070.	9.3	31
51	iCLAP: shape recognition by combining proprioception and touch sensing. Autonomous Robots, 2019, 43, 993-1004.	4.8	28
52	Bio-Inspired Octopus Robot Based on Novel Soft Fluidic Actuator. , 2018, , .		27
53	Surface flattening of the human left atrium and proof-of-concept clinical applications. Computerized Medical Imaging and Graphics, 2014, 38, 251-266.	5.8	26
54	A Fiber-Optics-Based Body Contact Sensor for a Flexible Manipulator. IEEE Sensors Journal, 2015, 15, 3543-3550.	4.7	26

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55	Model-Based Pose Control of Inflatable Eversion Robot With Variable Stiffness. IEEE Robotics and Automation Letters, 2020, 5, 3398-3405.	5.1	25
56	Fingertip Fiber Optical Tactile Array with Two-Level Spring Structure. Sensors, 2017, 17, 2337.	3.8	23
57	Plant-Inspired Soft Pneumatic Eversion Robot. , 2018, , .		23
58	Analysis of a Customized Clutch Joint Designed for the Safety Management of an Ultrasound Robot. Applied Sciences (Switzerland), 2019, 9, 1900.	2.5	21
59	A Suite of Robotic Solutions for Nuclear Waste Decommissioning. Robotics, 2021, 10, 112.	3.5	21
60	Robotic Ultrasound: View Planning, Tracking, and Automatic Acquisition of Transesophageal Echocardiography. IEEE Robotics and Automation Magazine, 2016, 23, 118-127.	2.0	20
61	Localized online learning-based control of a soft redundant manipulator under variable loading. Advanced Robotics, 2018, 32, 1168-1183.	1.8	20
62	Object pose estimation and tracking by fusing visual and tactile information. , 2012, , .		19
63	Inverse finite-element modeling for tissue parameter identification using a rolling indentation probe. Medical and Biological Engineering and Computing, 2014, 52, 17-28.	2.8	19
64	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.	5.1	19
65	Soil Parameter Identification and Driving Force Prediction for Wheel-Terrain Interaction. International Journal of Advanced Robotic Systems, 2008, 5, 35.	2.1	18
66	Hybrid Soil Parameter Measurement and Estimation Scheme for Excavation Automation. IEEE Transactions on Instrumentation and Measurement, 2009, 58, 3633-3641.	4.7	18
67	Detecting NQR signals severely polluted by interference. Signal Processing, 2017, 138, 256-264.	3.7	18
68	Air-float Palpation Probe for Tissue Abnormality Identification During Minimally Invasive Surgery. IEEE Transactions on Biomedical Engineering, 2013, 60, 2735-2744.	4.2	17
69	Six-Dimensional Compliance Analysis and Validation of Orthoplanar Springs. Journal of Mechanical Design, Transactions of the ASME, 2016, 138, .	2.9	16
70	Variable weight algorithm for convolutional neural networks and its applications to classification of seizure phases and types. Pattern Recognition, 2022, 121, 108226.	8.1	16
71	Real-time pose estimation and obstacle avoidance for multi-segment continuum manipulator in dynamic environments. , 2016, , .		15
72	Reactive Magnetic-Field-Inspired Navigation Method for Robots in Unknown Convex 3-D Environments. IEEE Robotics and Automation Letters, 2018, 3, 3583-3590.	5.1	15

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73	Virtual Reality based Telerobotics Framework with Depth Cameras. , 2020, , .		15
74	F-TOUCH Sensor: Concurrent Geometry Perception and Multi-Axis Force Measurement. IEEE Sensors Journal, 2021, 21, 4300-4309.	4.7	15
75	Lecture Notes in Computer Science: An Antagonistic Actuation Technique for Simultaneous Stiffness and Position Control. Lecture Notes in Computer Science, 2015, , 164-174.	1.3	15
76	Soft Robot-Assisted Minimally Invasive Surgery and Interventions: Advances and Outlook. Proceedings of the IEEE, 2022, 110, 871-892.	21.3	15
77	Robot Competitions: What Did We Learn? [Competitions]. IEEE Robotics and Automation Magazine, 2016, 23, 16-18.	2.0	14
78	An Elastomer-based Flexible Optical Force and Tactile Sensor. , 2019, , .		14
79	Adaptive Update of Reference Capacitances in Conductive Fabric Based Robotic Skin. IEEE Robotics and Automation Letters, 2019, 4, 2212-2219.	5.1	14
80	The modelling and estimation of driving forces for unmanned ground vehicles in outdoor terrain. International Journal of Modelling, Identification and Control, 2009, 6, 40.	0.2	13
81	A geometry deformation model for compound continuum manipulators with external loading. , 2016, , .		13
82	Static Kinematics for an Antagonistically Actuated Robot Based on a Beam-Mechanics-Based Model. , 2018, , .		13
83	Payload Capabilities and Operational Limits of Eversion Robots. Lecture Notes in Computer Science, 2019, , 383-394.	1.3	13
84	Fusing Dexterity and Perception for Soft Robot-Assisted Minimally Invasive Surgery: What We Learnt from STIFF-FLOP. Applied Sciences (Switzerland), 2021, 11, 6586.	2.5	13
85	Evaluation of Pseudo-Haptic Interactions with Soft Objects in Virtual Environments. PLoS ONE, 2016, 11, e0157681.	2.5	13
86	Pseudo-haptics for rigid tool/soft surface interaction feedback in virtual environments. Mechatronics, 2014, 24, 1092-1100.	3.3	12
87	Evaluation of stiffness feedback for hard nodule identification on a phantom silicone model. PLoS ONE, 2017, 12, e0172703.	2.5	12
88	Quantitative ³⁵Cl Nuclear Quadrupole Resonance in Tablets of the Antidiabetic Medicine Diabinese. Analytical Chemistry, 2009, 81, 5574-5576.	6.5	11
89	Modeling and Optimizing Output Characteristics of Intensity Modulated Optical Fiber-Based Displacement Sensors. IEEE Transactions on Instrumentation and Measurement, 2015, 64, 758-767.	4.7	11
90	Batch-Specific Discrimination Using Nuclear Quadrupole Resonance Spectroscopy. Analytical Chemistry, 2015, 87, 3806-3811.	6.5	11

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91	Three-Dimensional-Printable Thermoactive Helical Interface With Decentralized Morphological Stiffness Control for Continuum Manipulators. IEEE Robotics and Automation Letters, 2018, 3, 2283-2290.	5.1	11
92	Design Analysis of a Fabric Based Lightweight Robotic Gripper. Lecture Notes in Computer Science, 2019, , 16-27.	1.3	10
93	Silicone-based Capacitive E-skin for Exteroception and Proprioception. , 2020, , .		9
94	Stable Grip Control on Soft Objects With Time-Varying Stiffness. IEEE Transactions on Robotics, 2016, 32, 626-637.	10.3	8
95	Reactive Magnetic-Field-Inspired Navigation for Non-Holonomic Mobile Robots in Unknown Environments. , 2018, , .		8
96	A 2-Axis Optical Forceâ€“Torque Fingertip Sensor for Dexterous Grasping Using Linear Polarizers. IEEE Transactions on Instrumentation and Measurement, 2012, 61, 3363-3377.	4.7	7
97	Towards safer obstacle avoidance for continuum-style manipulator in dynamic environments. , 2016, , .		7
98	Real-Time Vision-Based Stiffness Mapping â€. Sensors, 2018, 18, 1347.	3.8	7
99	Design and Implementation of a Bespoke Robotic Manipulator for Extra-corporeal Ultrasound. Journal of Visualized Experiments, 2019, , .	0.3	7
100	A bending sensor insensitive to pressure: soft proprioception based on abraded optical fibres. , 2020, , .		7
101	Modelling of closed-chain manipulators on an excavator vehicle. Mathematical and Computer Modelling of Dynamical Systems, 2006, 12, 329-345.	2.2	6
102	Simplifying grasping complexity through generalization of kinaesthetically learned synergies. , 2014, , .		6
103	Robot guided bolt tensioning tool with adaptive process control for the automated assembly of wind turbine rotor blade bearings. Production Engineering, 2014, 8, 755-764.	2.3	6
104	Dynamic characterization of a masterâ€“slave robotic manipulator using a hybrid grey wolfâ€“whale optimization algorithm. JVC/Journal of Vibration and Control, 2022, 28, 1992-2003.	2.6	6
105	Largeâ€Scale Surface Shape Sensing with Learningâ€Based Computational Mechanics. Advanced Intelligent Systems, 2021, 3, 2100089.	6.1	6
106	Novel Air-float Tactile Array for Stiffness Characterization in Soft Tissue Palpation. Procedia Engineering, 2012, 41, 281-288.	1.2	5
107	Observational Learning: Basis, Experimental Results and Models, and Implications for Robotics. Cognitive Computation, 2013, 5, 340-354.	5.2	5
108	Identification of Haptic Based Guiding Using Hard Reins. PLoS ONE, 2015, 10, e0132020.	2.5	5

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109	Modelling of a Soft Sensor for Exteroception and Proprioception in a Pneumatically Actuated Soft Robot. Lecture Notes in Computer Science, 2019, , 99-110.	1.3	5
110	Kinematic Control and Obstacle Avoidance for Soft Inflatable Manipulator. Lecture Notes in Computer Science, 2019, , 52-64.	1.3	5
111	Automatic Fracture Characterization Using Tactile and Proximity Optical Sensing. Frontiers in Robotics and AI, 2020, 7, 513004.	3.2	5
112	Low cost robotic endoscope design considerations. , 2016, , .		4
113	Ex vivo study of prostate cancer localization using rolling mechanical imaging towards minimally invasive surgery. Medical Engineering and Physics, 2017, 43, 112-117.	1.7	4
114	Magnetic-Field-Inspired Navigation for Robots in Complex and Unknown Environments. Frontiers in Robotics and AI, 2022, 9, 834177.	3.2	4
115	Simulation of ultrasound imaging inside fully charged pipes. Automation in Construction, 2006, 15, 355-364.	9.8	3
116	Plant Bioinspired Ecological Robotics. Frontiers in Robotics and AI, 2020, 7, 79.	3.2	3
117	Attribution of autonomy and its role in robotic language acquisition. AI and Society, 2022, 37, 605-617.	4.6	3
118	Multi-modal robotic visual-tactile localisation and detection of surface cracks. , 2021, , .		3
119	F-TOUCH Sensor for Three-Axis Forces Measurement and Geometry Observation. , 2020, , .		3
120	Workspace Scaling and Rate Mode Control for Virtual Reality based Robot Teleoperation. , 2021, , .		3
121	Curvature and Contact Sensing with Optical Waveguides for Soft Silicone Pneumatic Actuator. , 2022, , .		3
122	Tactile Classification of Object Materials for Virtual Reality based Robot Teleoperation. , 2022, , .		3
123	THE SCIENCE BEHIND HAPTICS IN ROBOTIC UROLOGICAL SURGERY. BJU International, 2009, 104, 433-434.	2.5	2
124	14N NQR, relaxation and molecular dynamics of the explosive TNT. Solid State Nuclear Magnetic Resonance, 2015, 71, 61-66.	2.3	2
125	A compact continuum manipulator system with enhanced steering abilities for robot-assisted surgery. , 2016, , .		2
126	Low cost soft endoscope robotic probe. , 2017, , .		2

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127	Modelling the structure of object-independent human affordances of approaching to grasp for robotic hands. PLoS ONE, 2018, 13, e0208228.	2.5	2
128	Elastomer-Based Touch Sensor: Visualization of Tactile Pressure Distribution. Lecture Notes in Computer Science, 2019, , 87-98.	1.3	2
129	Robotics Responds to the COVID-19 Outbreak [From the Guest Editors]. IEEE Robotics and Automation Magazine, 2021, 28, 16-17.	2.0	2
130	A Two-Fingered Robot Gripper with Variable Stiffness Flexure Hinges Based on Shape Morphing. , 2020, , .		2
131	Observer-based Control of Inflatable Robot with Variable Stiffness. , 2020, , .		2
132	The Validation of Viscosity Induced Chord-wise Undulation on Soft Fin Ray Array Towards a Novel Robotic Manta Ray. , 2022, , .		2
133	A Comparison of Silicone and Fabric Inflatable Actuators for Soft Hand Exoskeletons. , 2022, , .		2
134	A Comparative Study Between an Improved Novel Air-Cushion Sensor and a Wheeled Probe for Minimally Invasive Surgery. Journal of Endourology, 2010, 24, 1155-1159.	2.1	1
135	<scp>MRI</scp>â€safe robots. Why are they not yet routinely used?. BJU International, 2014, 113, 975-976.	2.5	1
136	Off-resonance effects in 14N NQR signals from the pulsed spin-locking (PSL) and three-pulse echo sequence; a study for monoclinic TNT. Solid State Nuclear Magnetic Resonance, 2015, 71, 41-54.	2.3	1
137	Canceling strong and complex interference in NQR-based landmine detection. , 2016, , .		1
138	Light Intensity-Modulated Bending Sensor Fabrication and Performance Test for Shape Sensing. Lecture Notes in Computer Science, 2019, , 126-137.	1.3	1
139	Stiffness Control of Variable Stiffness Link Using a Conductive Fabric Based Proximity Sensor. , 2021, , .		1
140	Soft Robotics Solutions for Minimally Invasive Surgery: The Need for Stiffness Controllability. RSC Soft Matter, 2021, , 684-719.	0.4	1
141	Innovation in the time of SARS-CoV-2: A collaborative journey between NHS clinicians, engineers, academics and industry. Journal of the Royal College of Surgeons of Edinburgh, 2021, 19, e281-e288.	1.8	1
142	Silicone Based Capacitive E-Skin Sensor for Soft Surgical Robots. Lecture Notes in Computer Science, 2020, , 62-65.	1.3	1
143	An Inhomogeneous Structured Eversion Actuator. Lecture Notes in Computer Science, 2020, , 37-48.	1.3	1
144	Real-Time Pressure Estimation and Localisation with Optical Tomography-inspired Soft Skin Sensors. , 2022, , .		1

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145	An Electro-pneumatic Shape Morphing Rolling Robot with Variable Locomotion Modes. , 2022, , .		1
146	Development of an adaptable, soft robot with an aortic diameter sensor to modulate blood flow in an extreme biological environment. , 2018, , .		0
147	Attention Enhancement and Motion Assistance for Virtual Reality-Mediated Upper-Limb Rehabilitation. IEEE Transactions on Medical Robotics and Bionics, 2020, 2, 565-568.	3.2	0
148	Grasping State and Object Estimation of a Flat Shell Gripper by Strain and Proximity Measurement using a Single Capacitance-Based Sensor. , 2022, , .		0
149	Performance Evaluation and Optimisation of Multi-point Waveguide based optical Sensor for Soft Robots. , 2022, , .		0