Shuang Song

List of Publications by Year in descending order

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134 papers	2,587 citations	218677 26 h-index	214800 47 g-index
134 all docs	134 docs citations	134 times ranked	1784 citing authors

#	Article	IF	Citations
1	Shape Sensing Techniques for Continuum Robots in Minimally Invasive Surgery: A Survey. IEEE Transactions on Biomedical Engineering, 2017, 64, 1665-1678.	4.2	262
2	A Cubic 3-Axis Magnetic Sensor Array for Wirelessly Tracking Magnet Position and Orientation. IEEE Sensors Journal, 2010, 10, 903-913.	4.7	183
3	A Novel Positioning and Orientation System Based on Three-Axis Magnetic Coils. IEEE Transactions on Magnetics, 2012, 48, 2211-2219.	2.1	94
4	Electromagnetic Positioning for Tip Tracking and Shape Sensing of Flexible Robots. IEEE Sensors Journal, 2015, 15, 4565-4575.	4.7	94
5	6-D Magnetic Localization and Orientation Method for an Annular Magnet Based on a Closed-Form Analytical Model. IEEE Transactions on Magnetics, 2014, 50, 1-11.	2.1	90
6	A New Tracking System for Three Magnetic Objectives. IEEE Transactions on Magnetics, 2010, 46, 4023-4029.	2.1	87
7	A Miniature Soft Robotic Manipulator Based on Novel Fabrication Methods. IEEE Robotics and Automation Letters, 2016, 1, 617-623.	5.1	83
8	Real-Time Shape Estimation for Wire-Driven Flexible Robots With Multiple Bending Sections Based on Quadratic BÃ©zier Curves. IEEE Sensors Journal, 2015, 15, 6326-6334.	4.7	82
9	A Six-Dimensional Magnetic Localization Algorithm for a Rectangular Magnet Objective Based on a Particle Swarm Optimizer. IEEE Transactions on Magnetics, 2009, 45, 3092-3099.	2.1	76
10	Computer-Assisted Transoral Surgery with Flexible Robotics and Navigation Technologies: A Review of Recent Progress and Research Challenges. Critical Reviews in Biomedical Engineering, 2013, 41, 365-391.	0.9	71
11	Shape reconstruction for wire-driven flexible robots based on BÃ©zier curve and electromagnetic positioning. Mechatronics, 2015, 29, 28-35.	3.3	71
12	An Electromagnetic Localization and Orientation Method Based on Rotating Magnetic Dipole. IEEE Transactions on Magnetics, 2013, 49, 1274-1277.	2.1	59
13	Multiple Objects Positioning and Identification Method Based on Magnetic Localization System. IEEE Transactions on Magnetics, 2016, 52, 1-4.	2.1	52
14	Locating Intra-Body Capsule Object by Three-Magnet Sensing System. IEEE Sensors Journal, 2016, 16, 5167-5176.	4.7	52
15	Development of a compact continuum tubular robotic system for nasopharyngeal biopsy. Medical and Biological Engineering and Computing, 2017, 55, 403-417.	2.8	51
16	An Efficient Magnetic Tracking Method Using Uniaxial Sensing Coil. IEEE Transactions on Magnetics, 2014, 50, 1-7.	2.1	50
17	Design and Optimization Strategy of Sensor Array Layout for Magnetic Localization System. IEEE Sensors Journal, 2017, 17, 1849-1857.	4.7	43
18	Design and Optimization of a Joint Torque Sensor for Robot Collision Detection. IEEE Sensors Journal, 2019, 19, 6618-6627.	4.7	39

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19	Heart Rate Extraction Based on Near-Infrared Camera: Towards Driver State Monitoring. IEEE Access, 2018, 6, 33076-33087.	4.2	37
20	An Improved Calibration Method for a Rotating 2D LIDAR System. Sensors, 2018, 18, 497.	3.8	36
21	6-D Electromagnetic Tracking Approach Using Uniaxial Transmitting Coil and Tri-Axial Magneto-Resistive Sensor. IEEE Sensors Journal, 2018, 18, 1178-1186.	4.7	32
22	Surgical Instrument Tracking By Multiple Monocular Modules and a Sensor Fusion Approach. IEEE Transactions on Automation Science and Engineering, 2019, 16, 629-639.	5.2	32
23	Safety-Enhanced Motion Planning for Flexible Surgical Manipulator Using Neural Dynamics. IEEE Transactions on Control Systems Technology, 2017, 25, 1711-1723.	5.2	30
24	Safety-Enhanced Model-Free Visual Servoing for Continuum Tubular Robots Through Singularity Avoidance in Confined Environments. IEEE Access, 2019, 7, 21539-21558.	4.2	30
25	Positioning Accuracy Improvement of Automated Guided Vehicles Based on a Novel Magnetic Tracking Approach. IEEE Intelligent Transportation Systems Magazine, 2020, 12, 138-148.	3.8	30
26	Magnetic Tracking of Wireless Capsule Endoscope in Mobile Setup Based on Differential Signals. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-8.	4.7	28
27	An Improved 6-D Pose Detection Method Based on Opposing-Magnet Pair System and Constraint Multiple Magnets Tracking Algorithm. IEEE Sensors Journal, 2017, 17, 6752-6759.	4.7	26
28	Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. IEEE Transactions on Instrumentation and Measurement, 2019, 68, 3379-3386.	4.7	25
29	Design of a multi-arm concentric-tube robot system for transnasal surgery. Medical and Biological Engineering and Computing, 2020, 58, 497-508.	2.8	25
30	Multipoint Simultaneous Tracking of Wireless Capsule Endoscope Using Magnetic Sensor Array. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-10.	4.7	25
31	A Novel Relative Position Estimation Method for Capsule Robot Moving in Gastrointestinal Tract. Sensors, 2019, 19, 2746.	3.8	24
32	Robust Generalized Point Cloud Registration with Expectation Maximization Considering Anisotropic Positional Uncertainties. , 2018, , .		23
33	A Novel 6-D Tracking Method by Fusion of 5-D Magnetic Tracking and 3-D Inertial Sensing. IEEE Sensors Journal, 2018, 18, 9640-9648.	4.7	22
34	A Novel Magnetic Tracking Approach for Intrabody Objects. IEEE Sensors Journal, 2020, 20, 4976-4984.	4.7	22
35	Two-magnet-based 6D-localization and orientation for wireless capsule endoscope. , 2009, , .		21
36	An Improved Magnetic Tracking Method Using Rotating Uniaxial Coil With Sparse Points and Closed Form Analytic Solution. IEEE Sensors Journal, 2014, 14, 3585-3592.	4.7	21

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37	Preliminary study on magnetic tracking-based planar shape sensing and navigation for flexible surgical robots in transoral surgery: methods and phantom experiments. International Journal of Computer Assisted Radiology and Surgery, 2018, 13, 241-251.	2.8	20
38	A new calibration method for magnetic sensor array for tracking capsule endoscope. , 2009, , .		19
39	An Optically Aided Magnetic Tracking Approach for Magnetically Actuated Capsule Robot. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-9.	4.7	19
40	Design and Optimization of Concentric Tube Robots Based on Surgical Tasks, Anatomical Constraints and Follow-the-Leader Deployment. IEEE Access, 2019, 7, 173612-173625.	4.2	18
41	Motion Control of Magnetic Microrobot Using Uniform Magnetic Field. IEEE Access, 2020, 8, 71083-71092.	4.2	18
42	System Design and Balance Control of a Bipedal Leg-wheeled Robot. , 2019, , .		17
43	Prior Knowledge-Based Optimization Method for the Reconstruction Model of Multicamera Optical Tracking System. IEEE Transactions on Automation Science and Engineering, 2020, 17, 2074-2084.	5.2	16
44	Feasibility Study of Permanent Magnet-Based Tumor Tracking Technique for Precise Lung Cancer Radiotherapy. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-10.	4.7	16
45	Real time algorithm for magnet's localization in capsule endoscope. , 2009, , .		15
46	Real-Time Tracking and Navigation for Magnetically Manipulated Untethered Robot. IEEE Access, 2016, 4, 7104-7110.	4.2	15
47	RectMag3D: A Magnetic Actuation System for Steering Milli/Microrobots Based on Rectangular Electromagnetic Coils. Applied Sciences (Switzerland), 2020, 10, 2677.	2.5	13
48	Integrated Design and Decoupled Control of Anchoring and Drug Release for Wireless Capsule Robots. IEEE/ASME Transactions on Mechatronics, 2022, 27, 2897-2907.	5.8	13
49	A Novel Frequency-Domain Approach for the Exact Range of Imaginary Spectra and the Stability Analysis of LTI Systems With Two Delays. IEEE Access, 2020, 8, 36595-36601.	4.2	12
50	Dynamic Height Balance Control for Bipedal Wheeled Robot Based on ROS-Gazebo. , 2019, , .		11
51	Risk-Aware Path Planning Under Uncertainty in Dynamic Environments. Journal of Intelligent and Robotic Systems: Theory and Applications, 2021, 101, 1.	3.4	11
52	Kinematic Modeling of Magnetically-Actuated Robotic Catheter in Nonlinearly-Coupled Multi-Field. IEEE Robotics and Automation Letters, 2021, 6, 8189-8196.	5.1	11
53	Reliable Hybrid Mixture Model for Generalized Point Set Registration. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-10.	4.7	11
54	Cognitive tracking of surgical instruments based on stereo vision and depth sensing. , 2013, , .		10

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55	Precise motion control of concentric-tube robot based on visual servoing. , 2017, , .		10
56	A novel method of 6-DoF electromagnetic navigation system for surgical robot. , 2010, , .		9
57	The extraction technology of weak coupling AC signal in an electromagnetic localization system. , 2010, , .		9
58	A real-time tracking method for the rectangular magnet based on parallel Levenberg-Marquardt algorithm. International Journal of Applied Electromagnetics and Mechanics, 2011, 37, 241-251.	0.6	9
59	The implementation of augmented reality in a robotic teleoperation system. , 2016, , .		9
60	Pilot study on shape sensing for continuum tubular robot with multi-magnet tracking algorithm. , 2017, , .		9
61	Design and Fabrication of a Novel Force Sensor for Robot Grippers. IEEE Sensors Journal, 2018, 18, 1410-1418.	4.7	9
62	A Modular Lockable Mechanism for Tendon-Driven Robots: Design, Modeling and Characterization. IEEE Robotics and Automation Letters, 2022, 7, 2023-2030.	5.1	9
63	Design of A Novel Electromagnetic Actuation System for Actuating Magnetic Capsule Robot. , 2019, , .		8
64	Electromagnetic actuation system using stationary six-pair coils for three-dimensional wireless locomotive microrobot. , 2017, , .		7
65	A novel intestinal microcapsule endoscope robot with biopsy function. , 2018, , .		7
66	Magnetically Driven Wireless Capsule Robot with Targeting Biopsy Function. , 2019, , .		7
67	Design of A Novel Biopsy Capsule Robot with Anchoring Function for Intestinal Tract. , 2019, , .		7
68	RGB-Thermal Fusion Network for Leakage Detection of Crude Oil Transmission Pipes. , 2019, , .		7
69	Dynamic wheeled motion control of wheel-biped transformable robots. Biomimetic Intelligence and Robotics, 2022, 2, 100027.	2.0	7
70	Wearable Surgical Optical Tracking System Based on Multi-Modular Sensor Fusion. IEEE Transactions on Instrumentation and Measurement, 2022, 71, 1-11.	4.7	7
71	Calibration-by-Pivoting: A Simple and Accurate Calibration Method for Magnetic Tracking System. IEEE Transactions on Instrumentation and Measurement, 2022, 71, 1-9.	4.7	7
72	Recovering Amplitudes and Phases From Saturated Multifrequency Sinusoid Signals. IEEE Sensors Journal, 2013, 13, 4569-4575.	4.7	6

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73	A Novel 6-D Pose Detection Method Using Opposing-Magnet Pair System. IEEE Sensors Journal, 2017, 17, 2642-2643.	4.7	6
74	Real-Time Multi-Object Magnetic Tracking for Multi-Arm Continuum Robots. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-9.	4.7	6
75	Multi-Magnet Tracking Method using Extended Kalman Filter. , 2021, , .		6
76	Design and Kinematic Modeling of In-Situ Torsionally-Steerable Flexible Surgical Robots. IEEE Robotics and Automation Letters, 2022, 7, 1864-1871.	5.1	6
77	Dexterity Analysis and Motion Optimization of In-Situ Torsionally-Steerable Flexible Surgical Robots. IEEE Robotics and Automation Letters, 2022, 7, 8347-8354.	5.1	6
78	Human-Aware Path Planning With Improved Virtual Doppler Method in Highly Dynamic Environments. IEEE Transactions on Automation Science and Engineering, 2023, 20, 1304-1321.	5.2	6
79	Detection of weak magnetic signal for magnetic localization and orientation in capsule endoscope. , 2009, , .		5
80	Study on mathematic magnetic field model of rectangular coils for magnetic actuation. , 2015, , .		5
81	Shape tracking and navigation for continuum surgical robot based on magnetic tracking. , 2017, , .		5
82	A Simplified Magnetic Positioning Approach Based on Analytical Method and Data Fusion for Automated Guided Vehicles. IEEE/ASME Transactions on Mechatronics, 2022, 27, 3065-3075.	5.8	5
83	Model-Free and Uncalibrated Eye-in-Hand Visual Servoing Approach for Concentric-Tube Robots. IEEE Transactions on Instrumentation and Measurement, 2022, 71, 1-11.	4.7	5
84	Towards Terrain Adaptablity: In Situ Transformation of Wheel-Biped Robots. IEEE Robotics and Automation Letters, 2022, 7, 3819-3826.	5.1	5
85	Study on magnetic field model of independent circular coils for wireless manipulation of microrobots. , 2017, , .		4
86	A New Solution for the Inverse Kinematics of Concentric-Tube Robots. , 2018, , .		4
87	A Full Span Magnetic Localization Algorithm. , 2019, , .		4
88	REAL-TIME SHAPE ESTIMATION OF CURVILINEAR FLEXIBLE SURGICAL ROBOTS: METHODS, EXPERIMENTS AND ANALYSIS. International Journal of Robotics and Automation, 2018, 33, .	0.1	4
89	Modeling and Control of an Untethered Magnetic Gripper. , 2021, , .		4
90	Detection of lymphangiectasia disease from wireless capsule endoscopy images with adaptive threshold. , 2010, , .		3

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91	Wireless magnetic sensor node for vehicle detection using finite element simulation. , 2013, , .		3
92	Preliminary design towards a magnetic actuated drug delivery system. , 2015, , .		3
93	Preliminary study on magnetic tracking based navigation for wire-driven flexible robot. , 2017, , .		3
94	RRT*-smooth Algorithm Applied to Motion Planning of Concentric Tube Robots. , 2018, , .		3
95	An Improved Simultaneously Magnetic Actuation and Localization Method based on Magnetic Sensor Array. , 2019, , .		3
96	3D Reconstruction of Dense Model based on the Sparse Frames using RGBD Camera. , 2019, , .		3
97	Tip Estimation Method in Phantoms for Curved Needle Using 2D Transverse Ultrasound Images. Applied Sciences (Switzerland), 2019, 9, 5305.	2.5	3
98	Dynamic tracking for microrobot with active magnetic sensor array. , 2021, , .		3
99	Eye-In-Hand Uncalibrated Visual Servoing of Concentric Tube Robot. , 2020, , .		3
100	Noninvasive estimation of aortic pressure waveform based on simplified Kalman filter and dual peripheral artery pressure waveforms. Computer Methods and Programs in Biomedicine, 2022, 219, 106760.	4.7	3
101	Motion Planning of Manipulator by Points-Guided Sampling Network. IEEE Transactions on Automation Science and Engineering, 2023, 20, 821-831.	5.2	3
102	Design of a data acquisition system on magnetic signal for magnetic localization and orientation system. , 2010, , .		2
103	Endoscopes shape reconstruction based on electromagnetic localization and curve fitting. , 2012, , .		2
104	On the singular problem in linear algorithm for the magnetic dipole positioning. , 2012, , .		2
105	An analytic algorithm based electromagnetic localization method. , 2013, , .		2
106	Heartbeat classification system based on modified stacked denoising autoencoders and neural networks. , 2017, , .		2
107	Adaptive Sampling for Human-aware Path Planning in Dynamic Environments. , 2019, , .		2
108	Tip estimation approach for concentric tube robots using 2D ultrasound images and kinematic model. Medical and Biological Engineering and Computing, 2021, 59, 1461-1473.	2.8	2

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109	A Preliminary Study on Fast Calibration Method for Magnetic Positioning Sensor Array. , 2021, , .		2
110	An improved method and algorithm for electromagnetic localization. , 2011, , .		1
111	A preliminary study on mathematic modeling of annular magnets in magnetic tracking systems. , 2014, , .		1
112	A novel method for recognizing fruits with plastic packing. , 2016, , .		1
113	An improved 6D pose detection method based on multiple magnets tracking. , 2017, , .		1
114	An analytic algorithm based position and orientation detection using a tri-axial magnetoresistive sensor. , 2017, , .		1
115	Magnetic Tracking in Medical Robotics. Series in Bioengineering, 2018, , 141-162.	0.6	1
116	Heart Rate Variability Parameters Extraction Based on Facial Video*. , 2018, , .		1
117	Design of a Magnetically-Driven Untethered Micro-Gripper for Drug Delivery. , 2019, , .		1
118	Instantaneous Velocity Estimation of Magnetic Microrobots with Visual Tracking *. , 2019, , .		1
119	Design, Control and Analysis of a Dual-arm Continuum Flexible Robot System. , 2019, , .		1
120	Design of a Legged and Clamper-Based Capsule Robot With Active Locomotion Function. Journal of Medical Devices, Transactions of the ASME, 2021, 15, .	0.7	1
121	A Magnetic Tracking Method using Active Uniaxial Sensor and Variable Step Size Searching Strategy. , 2013, , .		1
122	Towards Tracking by 2D-target Registration for Surgical Optical Tracking System. , 2021, , .		1
123	RectMag: An accurate magnetic field model based actuation system. , 2016, , .		0
124	An adjusted dipole model for rectangular electromagnetic coils. , 2016, , .		0
125	Robust visual inertial monocular using nonlinear optimization. , 2017, , .		0
126	Mobile robot manipulation system design in given environments. , 2017, , .		0

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127	Intraoperative neurological monitoring system for robot assisted minimally invasive spine surgery using electromyography. , 2017, , .		0
128	Design, Simulation and Fabrication of the Leg of Capsule Endoscopy. , 2018, , .		0
129	A 3DoF Pose Estimation Method for Multi-Trolley from a Single RGB Image. , 2019, , .		0
130	Mobile Sensor Array Tracking Approach for Electromagnetic Driven Capsule Robot. , 2021, , .		0
131	Visual Servoing Control of Concentric-tube Robot with Jacobian Matrix Estimation. , 2021, , .		0
132	Design and Analysis of a Multi-Section Wire-driven Continuum Robot System with Variable Structures. , 2021, , .		0
133	Design Optimization of Y-Shaped Transmission System for Dual-Arm Concentric-Tube Robots. , 2021, , .		0
134	Towards Components-of-Interest Feedback Control and State Estimation of Robotic Manipulator. , 2021, , .		0