Xinyu Liu

List of Publications by Year
in descending order

146 papers	5,383 citations	87723 38 h-index	91712 69 g-index
173 all docs	173 docs citations	173 times ranked	5895 citing authors

#	Article	IF	Citations
1	Integration of paper-based microfluidic devices with commercial electrochemical readers. Lab on A Chip, 2010, 10, 3163.	3.1	452
2	Nanonewton force-controlled manipulation of biological cells using a monolithic MEMS microgripper with two-axis force feedback. Journal of Micromechanics and Microengineering, 2008, 18, 055013.	1.5	259
3	Proprioceptive Coupling within Motor Neurons Drives C.Âelegans Forward Locomotion. Neuron, 2012, 76, 750-761.	3.8	219
4	A Fully Automated Robotic System for Microinjection of Zebrafish Embryos. PLoS ONE, 2007, 2, e862.	1.1	217
5	Paper-based piezoresistive MEMS sensors. Lab on A Chip, 2011, 11, 2189.	3.1	212
6	Autonomous Robotic Pick-and-Place of Microobjects. IEEE Transactions on Robotics, 2010, 26, 200-207.	7.3	159
7	Fabrication of Low-Cost Paper-Based Microfluidic Devices by Embossing or Cut-and-Stack Methods. Chemistry of Materials, 2014, 26, 4230-4237.	3.2	140
8	An Antiâ€Freezing, Ambientâ€Stable and Highly Stretchable Ionic Skin with Strong Surface Adhesion for Wearable Sensing and Soft Robotics. Advanced Functional Materials, 2021, 31, 2104665.	7.8	140
9	A microfluidic paper-based electrochemical biosensor array for multiplexed detection of metabolic biomarkers. Science and Technology of Advanced Materials, 2013, 14, 054402.	2.8	132
10	Magnetic timing valves for fluid control in paper-based microfluidics. Lab on A Chip, 2013, 13, 2609.	3.1	131
11	A paper-based microfluidic biosensor integrating zinc oxide nanowires for electrochemical glucose detection. Microsystems and Nanoengineering, 2015, 1, .	3.4	131
12	Orientation Control of Biological Cells Under Inverted Microscopy. IEEE/ASME Transactions on Mechatronics, 2011, 16, 918-924.	3.7	123
13	Nanonewton Force Sensing and Control in Microrobotic Cell Manipulation. International Journal of Robotics Research, 2009, 28, 1065-1076.	5.8	118
14	An ambient-stable and stretchable ionic skin with multimodal sensation. Materials Horizons, 2020, 7, 477-488.	6.4	103
15	Skin-like hydrogel devices for wearable sensing, soft robotics and beyond. IScience, 2021, 24, 103174.	1.9	103
16	Enhancing the performance of paper-based electrochemical impedance spectroscopy nanobiosensors: An experimental approach. Biosensors and Bioelectronics, 2021, 177, 112672.	5.3	100
17	Piezoresistivity Characterization of Synthetic Silicon Nanowires Using a MEMS Device. Journal of Microelectromechanical Systems, 2011, 20, 959-967.	1.7	91
18	Dynamic evaluation of autofocusing for automated microscopic analysis of blood smear and pap smear. Journal of Microscopy, 2007, 227, 15-23.	0.8	81

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19	Fabrication of three-dimensional microfluidic channels in a single layer of cellulose paper. Microfluidics and Nanofluidics, 2014, 16, 819-827.	1.0	77
20	Fighting COVID-19: Integrated Micro- and Nanosystems for Viral Infection Diagnostics. Matter, 2020, 3, 628-651.	5.0	77
21	A portable paper-based microfluidic platform for multiplexed electrochemical detection of human immunodeficiency virus and hepatitis C virus antibodies in serum. Biomicrofluidics, 2016, 10, 024119.	1.2	70
22	A Microfluidic Paperâ€Based Origami Nanobiosensor for Labelâ€Free, Ultrasensitive Immunoassays. Advanced Healthcare Materials, 2016, 5, 1326-1335.	3.9	69
23	Multifunctional Self-Assembled Supernanoparticles for Deep-Tissue Bimodal Imaging and Amplified Dual-Mode Heating Treatment. ACS Nano, 2019, 13, 408-420.	7.3	68
24	Vision-based cellular force measurement using an elastic microfabricated device. Journal of Micromechanics and Microengineering, 2007, 17, 1281-1288.	1.5	67
25	The more and less of electronic-skin sensors. Science, 2020, 370, 910-911.	6.0	66
26	Contact Detection in Microrobotic Manipulation. International Journal of Robotics Research, 2007, 26, 821-828.	5.8	64
27	A MEMS stage for 3-axis nanopositioning. Journal of Micromechanics and Microengineering, 2007, 17, 1796-1802.	1.5	64
28	In situ mechanical characterization of mouse oocytes using a cell holding device. Lab on A Chip, 2010, 10, 2154.	3.1	64
29	A thread-based wearable sweat nanobiosensor. Biosensors and Bioelectronics, 2021, 188, 113270.	5.3	58
30	Elastic and viscoelastic characterization of microcapsules for drug delivery using a force-feedback MEMS microgripper. Biomedical Microdevices, 2009, 11, 421-427.	1.4	53
31	Paper-Based Piezoelectric Touch Pads with Hydrothermally Grown Zinc Oxide Nanowires. ACS Applied Materials & Interfaces, 2014, 6, 22004-22012.	4.0	53
32	Superior Sensing Properties of Black Phosphorus as Gas Sensors: A Case Study on the Volatile Organic Compounds. Advanced Theory and Simulations, 2019, 2, 1800103.	1.3	53
33	Group III nitride nanomaterials for biosensing. Nanoscale, 2017, 9, 7320-7341.	2.8	51
34	Draw your assay: Fabrication of low-cost paper-based diagnostic and multi-well test zones by drawing on a paper. Talanta, 2015, 144, 289-293.	2.9	50
35	A Paper-Based Piezoelectric Accelerometer. Micromachines, 2018, 9, 19.	1.4	50
36	A paper-based microfluidic platform with shape-memory-polymer-actuated fluid valves for automated multi-step immunoassays. Microsystems and Nanoengineering, 2019, 5, 50.	3.4	49

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37	Elastic and Viscoelastic Characterization of Mouse Oocytes Using Micropipette Indentation. Annals of Biomedical Engineering, 2012, 40, 2122-2130.	1.3	45
38	Reconfigurable multi-component micromachines driven by optoelectronic tweezers. Nature Communications, 2021, 12, 5349.	5.8	41
39	Millimeter-sized nanomanipulator with sub-nanometer positioning resolution and large force output. Smart Materials and Structures, 2007, 16, 1742-1750.	1.8	39
40	Nanoparticles at biointerfaces: Antibacterial activity and nanotoxicology. Colloids and Surfaces B: Biointerfaces, 2019, 184, 110550.	2.5	39
41	An Automated Force-Controlled Robotic Micromanipulation System for Mechanotransduction Studies of Drosophila Larvae. IEEE Transactions on Automation Science and Engineering, 2016, 13, 789-797.	3.4	37
42	MEMS-based platforms for mechanical manipulation and characterization of cells. Journal of Micromechanics and Microengineering, 2017, 27, 123003.	1.5	36
43	Dynamic modelling and analysis of V- and Z-shaped electrothermal microactuators. Microsystem Technologies, 2017, 23, 3775-3789.	1.2	36
44	Automated Microinjection of Recombinant BCL-X into Mouse Zygotes Enhances Embryo Development. PLoS ONE, 2011, 6, e21687.	1.1	36
45	â€œPlug-n-Playâ€•Sensing with Digital Microfluidics. Analytical Chemistry, 2019, 91, 2506-2515.	3.2	35
46	Microfabricated glass devices for rapid single cell immobilization in mouse zygote microinjection. Biomedical Microdevices, 2009, 11, 1169-1174.	1.4	34
47	Closed-form modelling and design analysis of V- and Z-shaped electrothermal microactuators. Journal of Micromechanics and Microengineering, 2017, 27, 015023.	1.5	34
48	Magnetic Photoluminescent Nanoplatform Built from Large-Pore Mesoporous Silica. Chemistry of Materials, 2019, 31, 3201-3210.	3.2	34
49	A portable lab-on-a-chip system for gold-nanoparticle-based colorimetric detection of metal ions in water. Biomicrofluidics, 2014, 8, 052107.	1.2	33
50	Ionotronics Based on Horizontally Aligned Carbon Nanotubes. Advanced Functional Materials, 2020, 30, 2003177.	7.8	33
51	Toward a living soft microrobot through optogenetic locomotion control of <i>Caenorhabditis elegans</i>. Science Robotics, 2021, 6, .	9.9	33
52	SPEEDS: A portable serological testing platform for rapid electrochemical detection of SARS-CoV-2 antibodies. Biosensors and Bioelectronics, 2022, 197, 113762.	5.3	33
53	Cell Contour Tracking and Data Synchronization for Real-Time, High-Accuracy Micropipette Aspiration. IEEE Transactions on Automation Science and Engineering, 2009, 6, 536-543.	3.4	32
54	An Integrated Multifunctional Nanoplatform for Deepâ€•Tissue Dualâ€•Mode Imaging. Advanced Functional Materials, 2018, 28, 1706235.	7.8	32

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55	A microfluidic device for automated, high-speed microinjection of <i>Caenorhabditis elegans</i>. Biomicrofluidics, 2016, 10, 011912.	1.2	28
56	A Nanocelluloseâ€Paperâ€Based SERS Multiwell Plate with High Sensitivity and High Signal Homogeneity. Advanced Materials Interfaces, 2019, 6, 1901346.	1.9	27
57	A comparison model of V- and Z-shaped electrothermal microactuators. , 2015, , .		26
58	A MEMS<i>XY</i>-stage integrating compliant mechanism for nanopositioning at sub-nanometer resolution. Journal of Micromechanics and Microengineering, 2016, 26, 025014.	1.5	25
59	A Fast Colourimetric Assay for Lead Detection Using Label-Free Gold Nanoparticles (AuNPs). Micromachines, 2015, 6, 462-472.	1.4	21
60	Controllable Hydrothermal Growth of ZnO Nanowires on Cellulose Paper for Flexible Sensors and Electronics. IEEE Sensors Journal, 2015, 15, 6100-6107.	2.4	21
61	NanoPADs and nanoFACEs: an optically transparent nanopaper-based device for biomedical applications. Lab on A Chip, 2020, 20, 3322-3333.	3.1	21
62	An Ionic Hydrogel-Based Antifreezing Triboelectric Nanogenerator. ACS Applied Electronic Materials, 2022, 4, 1930-1938.	2.0	21
63	A microfluidic field-effect transistor biosensor with rolled-up indium nitride microtubes. Biosensors and Bioelectronics, 2021, 190, 113264.	5.3	20
64	Switched Fuzzy-PD Control of Contact Forces in Robotic Microbiomanipulation. IEEE Transactions on Biomedical Engineering, 2017, 64, 1169-1177.	2.5	19
65	Microscale Compression and Shear Testing of Soft Materials Using an MEMS Microgripper With Two-Axis Actuators and Force Sensors. IEEE Transactions on Automation Science and Engineering, 2017, 14, 834-843.	3.4	19
66	3D-Printed Strain-Gauge Micro Force Sensors. IEEE Sensors Journal, 2020, 20, 6971-6978.	2.4	18
67	MicroNewton Force-Controlled Manipulation of Biomaterials using a Monolithic MEMS Microgripper with Two-Axis Force Feedback. , 2008, , .		17
68	Flexible physical sensors made from paper substrates integrated with zinc oxide nanostructures. Flexible and Printed Electronics, 2017, 2, 034001.	1.5	17
69	An Automated Microfluidic System for Morphological Measurement and Size-Based Sorting of C. Elegans. IEEE Transactions on Nanobioscience, 2019, 18, 373-380.	2.2	16
70	Rethinking the Design of Low-Cost Point-of-Care Diagnostic Devices. Micromachines, 2017, 8, 317.	1.4	15
71	Understanding Carbon Nanotubeâ€Based Ionic Diodes: Design and Mechanism. Small, 2021, 17, e2100383.	5.2	15
72	A microfluidic device for efficient chemical testing using Caenorhabditis elegans. Biomedical Microdevices, 2015, 17, 38.	1.4	14

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73	Regulating surface traction of a soft robot through electrostatic adhesion control. , 2017, , .		14
74	Assembly of Topographical Micropatterns with Optoelectronic Tweezers. Advanced Optical Materials, 2019, 7, 1900669.	3.6	14
75	Automated Robotic Microinjection of the Nematode Worm Caenorhabditis elegans. IEEE Transactions on Automation Science and Engineering, 2021, 18, 850-859.	3.4	14
76	Quantitative analysis and predictive engineering of self-rolling of nanomembranes under anisotropic mismatch strain. Nanotechnology, 2017, 28, 485302.	1.3	13
77	A Comprehensive Analytical Model and Experimental Validation of Z-shaped Electrothermal Microactuators. Mechanisms and Machine Science, 2015, , 177-187.	0.3	13
78	A portable analytical system for rapid on-site determination of total nitrogen in water. Water Research, 2021, 202, 117410.	5.3	12
79	Microrobotic Swarms for Intracellular Measurement with Enhanced Signal-to-Noise Ratio. ACS Nano, 2022, 16, 10824-10839.	7.3	12
80	A MEMS microgripper with two-axis actuators and force sensors for microscale mechanical characterization of soft materials. , 2015, , .		11
81	Towards understanding the unusual photoluminescence intensity variation of ultrasmall colloidal PbS quantum dots with the formation of a thin CdS shell. Physical Chemistry Chemical Physics, 2016, 18, 31828-31835.	1.3	11
82	Rolled-up SiO x /SiN x microtubes with an enhanced quality factor for sensitive solvent sensing. Nanotechnology, 2018, 29, 415501.	1.3	11
83	Robotic Stimulation of Freely Moving <italic>Drosophila</italic> Larvae Using a 3D-Printed Micro Force Sensor. IEEE Sensors Journal, 2019, 19, 3165-3173.	2.4	11
84	Dynamic electro-thermal modeling of V- and Z-shaped electrothermal microactuator. , 2016, , .		10
85	Experimental comparison of surface chemistries for biomolecule immobilization on paper-based microfluidic devices. Journal of Micromechanics and Microengineering, 2019, 29, 124003.	1.5	10
86	Reprint of 'Draw your assay: Fabrication of low-cost paper-based diagnostic and multi-well test zones by drawing on a paper'. Talanta, 2015, 145, 73-77.	2.9	9
87	Investigating the impact of SEM chamber conditions and imaging parameters on contact resistance of<i>in situ</i>nanoprobing. Nanotechnology, 2017, 28, 345702.	1.3	9
88	A paper-based wall-climbing robot enabled by electrostatic adhesion. , 2018, , .		9
89	Real-Time High-Accuracy Micropipette Aspiration for Characterizing Mechanical Properties of Biological Cells. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	8
90	Mechanical characterization of polymeric microcapsules using a force-feedback MEMS microgripper. , 2008, 2008, 1845-8.		8

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91	Optical Printing of Conductive Silver on Ultrasmooth Nanocellulose Paper for Flexible Electronics. Advanced Engineering Materials, 2022, 24, .	1.6	8
92	MEMS-Based Platforms for Multi-Physical Characterization of Nanomaterials: A Review. IEEE Sensors Journal, 2022, 22, 1827-1841.	2.4	8
93	Effect of topological patterning on self-rolling of nanomembranes. Nanotechnology, 2018, 29, 345301.	1.3	7
94	A Soft Robotic Gripper with Anti-Freezing Ionic Hydrogel-Based Sensors for Learning-Based Object Recognition. , 2021, , .		7
95	An SEM-Based Nanomanipulation System for Multiphysical Characterization of Single InGaN/GaN Nanowires. IEEE Transactions on Automation Science and Engineering, 2023, 20, 233-243.	3.4	7
96	Microfluidicsâ€Based Biosensors: A Microfluidic Paperâ€Based Origami Nanobiosensor for Labelâ€Free, Ultrasensitive Immunoassays (Adv. Healthcare Mater. 11/2016). Advanced Healthcare Materials, 2016, 5, 1378-1378.	3.9	6
97	Onâ€Chip Rotation of <i>Caenorhabditis elegans</i> Using Microfluidic Vortices. Advanced Materials Technologies, 2021, 6, .	3.0	6
98	Force-Controlled Mechanical Stimulation and Single-Neuron Fluorescence Imaging of <i>Drosophila</i> Larvae. IEEE Robotics and Automation Letters, 2021, 6, 3736-3743.	3.3	6
99	Visually Servoed Orientation Control of Biological Cells in Microrobotic Cell Manipulation. Springer Tracts in Advanced Robotics, 2009, , 179-187.	0.3	6
100	Occluded Pedestrian Detection Based on Depth Vision Significance in Biomimetic Binocular. IEEE Sensors Journal, 2019, 19, 11469-11474.	2.4	5
101	Robotic Prototyping of Paper-Based Field-Effect Transistors with Rolled-Up Semiconductor Microtubes. IEEE/ASME Transactions on Mechatronics, 2020, , 1-1.	3.7	5
102	Photoresponsive Biomimetic Soft Robots Enabled by Nearâ€Infraredâ€Driven and Ultrarobust Sandwichâ€Structured Nanocomposite Films. Advanced Intelligent Systems, 2021, 3, 2100012.	3.3	5
103	Automated mouse embryo injection moves toward practical use. , 2009, , .		4
104	Intelligent Prediction of Fan Rotation Stall in Power Plants Based on Pressure Sensor Data Measured In-Situ. Sensors, 2014, 14, 8794-8809.	2.1	4
105	A Model Compensation-Prediction Scheme for Control of Micromanipulation Systems With a Single Feedback Loop. IEEE/ASME Transactions on Mechatronics, 2017, 22, 1973-1982.	3.7	4
106	Characterizing the electrical breakdown properties of single n-i-n-n+:GaN nanowires. Applied Physics Letters, 2018, 113, .	1.5	4
107	Recent Advances on SEM-Based In Situ Multiphysical Characterization of Nanomaterials. Scanning, 2021, 2021, 1-16.	0.7	4
108	A paper-based microfluidic device for multiplexed electrochemical detection of biomarkers. , 2013, , .		3

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109	Switched fuzzy-PD control of contact forces in robotic micromanipulation of Drosophila larvae. , 2015, , .		3
110	An automated robotic system for high-speed microinjection of Caenorhabditis elegans. , 2015, , .		3
111	Design and calibration of 3D-printed micro force sensors. , 2016, , .		3
112	Dynamic Magnetic Field Generation With High Accuracy Modeling Applied to Magnetic Robots. IEEE Transactions on Magnetics, 2021, 57, 1-10.	1.2	3
113	A paper-based piezoelectric touch pad integrating zinc oxide nanowires. , 2014, , .		2
114	A cost-effective microindentation system for soft material characterization. , 2015, , .		2
115	Microfluidic Paper-Based Multiplexing Biosensors for Electrochemical Detection of Metabolic Biomarkers. , 2016, , 205-218.		2
116	Vision-Based Automated Sorting of C. Elegans on a Microfluidic Device. , 2019, , .		2
117	A Novel Stick-Slip Nanopositioning Stage Integrated with a Flexure Hinge-Based Friction Force Adjusting Structure. Micromachines, 2020, 11, 765.	1.4	2
118	Manipulation at the NanoNewton level: Micrograpsing for mechanical characterization of biomaterials. , 2009, , .		1
119	A MEMS tensile testing device for mechanical characterization of individual nanowires. , 2010, , .		1
120	A force-controlled robotic micromanipulation system for mechanotransduction studies of drosophila larvae. , 2014, 2014, 6526-9.		1
121	Hydrothermal growth of ZnO nanowires on paper for flexible electronics. , 2014, , .		1
122	A MEMS XY-stage with sub-nanometer positioning resolution. , 2015, , .		1
123	An electrochemical microfluidic paper-based glucose sensor integrating zinc oxide nanowires. , 2015, , .		1
124	A microfluidic device for automated, high-speed microinjection of Caenorhabditis elegans. , 2015, , .		1
125	A 3D-printed portable microindenter for mechanical characterization of soft materials. , 2016, , .		1
126	Rapid prototyping of paper-based electronics by robotic printing and micromanipulation. , 2017, , .		1

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127	Bioimaging: An Integrated Multifunctional Nanoplatform for Deepâ€Tissue Dualâ€Mode Imaging (Adv.) Tj ETQq1 1 0.784314 rgBT /O	7.8	1
128	Predictive modeling of misfit dislocation induced strain relaxation effect on self-rolling of strain-engineered nanomembranes. Applied Physics Letters, 2018, 113, .	1.5	1
129	Photoresponsive Biomimetic Soft Robots Enabled by Nearâ€Infraredâ€Driven and Ultrarobust Sandwichâ€Structured Nanocomposite Films. Advanced Intelligent Systems, 2021, 3, 2170067.	3.3	1
130	Cellular Force Measurement Using Computer Vision Microscopy and a Polymeric Microdevice. , 2011, , 133-151.		1
131	An SEM-Based Nanomanipulation System for Multi-Physical Characterization of Single InGaN/GaN Nanowires. , 2020, , .		1
132	A Paper-Based Microfluidic Analytical Device with A Highly Integrated On-Chip Valve For Autonomous ELISA. , 2022, , .		1
133	In-situ mechanical characterization of mouse oocytes using a cell holding device. , 2010, , .		0
134	Electrochemical Microfluidic Paper-Based Analytical Devices Using a Glucometer for Point-of-Care Detection of Multiple Analytes. ECS Meeting Abstracts, 2011, , .	0.0	0
135	A portable, paper-based multiplexing immunosensor for detection of HIV and HCV markers in serum. , 2015, , .		0
136	A model compensation-prediction scheme for control of micromanipulation systems with a single feedback loop. , 2016, , .		0
137	Corrections to â€œControllable Hydrothermal Growth of ZnO Nanowires on Cellulose Paper for Flexible Sensors and Electronicsâ€•[Nov 15 6100-6107]. IEEE Sensors Journal, 2016, 16, 6142-6142.	2.4	0
138	Experimental investigation of the impact of SEM chamber conditions on the contact resistance of in-situ nanoprobing. , 2017, , .		0
139	Automated Robotic Stimulation of Freely Moving Drosophila Larvae. , 2018, , .		0
140	Effects of material heterogeneity on self-rolling of strained membranes. Extreme Mechanics Letters, 2019, 29, 100451.	2.0	0
141	Nanopaper: A Nanocelluloseâ€Paperâ€Based SERS Multiwell Plate with High Sensitivity and High Signal Homogeneity (Adv. Mater. Interfaces 24/2019). Advanced Materials Interfaces, 2019, 6, 1970155.	1.9	0
142	Force-controlled robotic systems for mechanical stimulation of Drosophila larvae. , 2021, , 363-379.		0
143	Microfluidic devices for immobilization and micromanipulation of single cells and small organisms. , 2021, , 391-412.		0
144	Robotic and microfluidic systems for single cell injection. , 2021, , 241-260.		0

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145	Microfluidic Vortices: Onâ€Chip Rotation of <i>Caenorhabditis elegans</i> Using Microfluidic Vortices (Adv. Mater. Technol. 1/2021). Advanced Materials Technologies, 2021, 6, 2170002.	3.0	0
146	10.1063/1.5046314.1. , 2018, , .		0