

# Zhiwei Zhu

## List of Publications by Year in descending order

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78  
papers

1,960  
citations

218592

26  
h-index

276775

41  
g-index

79  
all docs

79  
docs citations

79  
times ranked

894  
citing authors

#	ARTICLE	IF	CITATIONS
1	A novel hybrid actuation mechanism based XY nanopositioning stage with totally decoupled kinematics. <i>Mechanical Systems and Signal Processing</i> , 2018, 99, 747-759.	4.4	117
2	Development of a piezoelectrically actuated two-degree-of-freedom fast tool servo with decoupled motions for micro-/nanomachining. <i>Precision Engineering</i> , 2014, 38, 809-820.	1.8	111
3	Theoretical and experimental investigation on the novel end-fly-cutting-servo diamond machining of hierarchical micro-nanostructures. <i>International Journal of Machine Tools and Manufacture</i> , 2015, 94, 15-25.	6.2	77
4	Large-scale fabrication of micro-lens array by novel end-fly-cutting-servo diamond machining. <i>Optics Express</i> , 2015, 23, 20593.	1.7	75
5	Cutting forces in fast-/slow tool servo diamond turning of micro-structured surfaces. <i>International Journal of Machine Tools and Manufacture</i> , 2019, 136, 62-75.	6.2	74
6	Design, modeling, analysis and testing of a novel piezo-actuated XY compliant mechanism for large workspace nano-positioning. <i>Smart Materials and Structures</i> , 2016, 25, 115033.	1.8	68
7	A new diamond machining approach for extendable fabrication of micro-freeform lens array. <i>International Journal of Machine Tools and Manufacture</i> , 2018, 124, 134-148.	6.2	68
8	Optimum Design of a Piezo-Actuated Triaxial Compliant Mechanism for Nanocutting. <i>IEEE Transactions on Industrial Electronics</i> , 2018, 65, 6362-6371.	5.2	64
9	Development of a Novel 2-D Vibration-Assisted Compliant Cutting System for Surface Texturing. <i>IEEE/ASME Transactions on Mechatronics</i> , 2017, 22, 1796-1806.	3.7	61
10	Design and Adaptive Terminal Sliding Mode Control of a Fast Tool Servo System for Diamond Machining of Freeform Surfaces. <i>IEEE Transactions on Industrial Electronics</i> , 2019, 66, 4912-4922.	5.2	55
11	Design, Analysis, and Realization of a Novel Piezoelectrically Actuated Rotary Spatial Vibration System for Micro-/Nanomachining. <i>IEEE/ASME Transactions on Mechatronics</i> , 2017, 22, 1227-1237.	3.7	54
12	Adaptive tool servo diamond turning for enhancing machining efficiency and surface quality of freeform optics. <i>Optics Express</i> , 2015, 23, 20234.	1.7	50
13	Design and Control of a Piezoelectrically Actuated Fast Tool Servo for Diamond Turning of Microstructured Surfaces. <i>IEEE Transactions on Industrial Electronics</i> , 2020, 67, 6688-6697.	5.2	49
14	Development of a piezoelectrically actuated dual-stage fast tool servo. <i>Mechanical Systems and Signal Processing</i> , 2020, 144, 106873.	4.4	47
15	A simple compliance modeling method for flexure hinges. <i>Science China Technological Sciences</i> , 2015, 58, 56-63.	2.0	46
16	Rotary spatial vibration-assisted diamond cutting of brittle materials. <i>Precision Engineering</i> , 2016, 44, 211-219.	1.8	45
17	Development of a novel sort of exponent-sine-shaped flexure hinges. <i>Review of Scientific Instruments</i> , 2013, 84, 095008.	0.6	43
18	Development of pseudo-random diamond turning method for fabricating freeform optics with scattering homogenization. <i>Optics Express</i> , 2013, 21, 28469.	1.7	43

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19	Deterioration of form accuracy induced by servo dynamics errors and real-time compensation for slow tool servo diamond turning of complex-shaped optics. <i>International Journal of Machine Tools and Manufacture</i> , 2020, 154, 103556.	6.2	41
20	Multi-objective optimum design of fast tool servo based on improved differential evolution algorithm. <i>Journal of Mechanical Science and Technology</i> , 2011, 25, 3141-3149.	0.7	34
21	Effects of eco-friendly cooling strategy on machining performance in micro-scale diamond turning of TiAl <sub>4</sub> V. <i>Journal of Cleaner Production</i> , 2020, 243, 118526.	4.6	32
22	Feasibility study of the novel quasi-elliptical tool servo for vibration suppression in the turning of micro-lens arrays. <i>International Journal of Machine Tools and Manufacture</i> , 2017, 122, 98-105.	6.2	31
23	Design and Trajectory Tracking of a Nanometric Ultra-Fast Tool Servo. <i>IEEE Transactions on Industrial Electronics</i> , 2020, 67, 432-441.	5.2	31
24	Virtual spindle based tool servo diamond turning of discontinuously structured microoptics arrays. <i>CIRP Annals - Manufacturing Technology</i> , 2016, 65, 475-478.	1.7	30
25	Novel end-fly-cutting-servo system for deterministic generation of hierarchical micro-nanostructures. <i>CIRP Annals - Manufacturing Technology</i> , 2015, 64, 133-136.	1.7	29
26	A novel piezoelectrically actuated 2-DoF compliant micro/nano-positioning stage with multi-level amplification. <i>Review of Scientific Instruments</i> , 2016, 87, 105006.	0.6	28
27	A Resonant Magnetic Field Sensor With High Quality Factor Based on Quartz Crystal Resonator and Magnetostrictive Stress Coupling. <i>IEEE Transactions on Electron Devices</i> , 2018, 65, 2585-2591.	1.6	27
28	External force estimation of a piezo-actuated compliant mechanism based on a fractional order hysteresis model. <i>Mechanical Systems and Signal Processing</i> , 2018, 110, 296-306.	4.4	27
29	A theoretical and experimental investigation of cutting forces and spring back behaviour of Ti6Al4V alloy in ultraprecision machining of microgrooves. <i>International Journal of Mechanical Sciences</i> , 2020, 169, 105315.	3.6	25
30	Redundantly piezo-actuated $XYZ$ compliant mechanism for nano-positioning featuring simple kinematics, bi-directional motion and enlarged workspace. <i>Smart Materials and Structures</i> , 2016, 25, 125002.	1.8	23
31	An ultrafast 2-D non-resonant cutting tool for texturing micro-structured surfaces. <i>Journal of Manufacturing Processes</i> , 2019, 48, 86-97.	2.8	23
32	Theoretical and Experimental Investigation on Inclined Ultrasonic Elliptical Vibration Cutting of Alumina Ceramics. <i>Journal of Manufacturing Science and Engineering, Transactions of the ASME</i> , 2016, 138, .	1.3	20
33	Design and analysis of a novel compact XYZ parallel precision positioning stage. <i>Microsystem Technologies</i> , 2021, 27, 1925-1932.	1.2	20
34	A novel diamond micro-/nano-machining process for the generation of hierarchical micro-/nano-structures. <i>Journal of Micromechanics and Microengineering</i> , 2016, 26, 035009.	1.5	19
35	Triaxial Fast Tool Servo Using Hybrid Electromagnetic-Piezoelectric Actuation for Diamond Turning. <i>IEEE Transactions on Industrial Electronics</i> , 2022, 69, 1728-1738.	5.2	19
36	Active control of residual tool marks for freeform optics functionalization by novel biaxial servo assisted fly cutting. <i>Applied Optics</i> , 2015, 54, 7656.	2.1	18

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37	On ductile-regime elliptical vibration cutting of silicon with identifying the lower bound of practicable nominal cutting velocity. <i>Journal of Materials Processing Technology</i> , 2020, 283, 116720.	3.1	18
38	Tuned diamond turning of micro-structured surfaces on brittle materials for the improvement of machining efficiency. <i>CIRP Annals - Manufacturing Technology</i> , 2019, 68, 559-562.	1.7	17
39	Fabrication of Micro-Structured Surfaces on Bulk Metallic Glasses Based on Fast Tool Servo Assisted Diamond Turning. <i>Science of Advanced Materials</i> , 2012, 4, 906-911.	0.1	17
40	An Improved Adaptive Feedforward Cancellation for Trajectory Tracking of Fast Tool Servo Based on Fractional Calculus. <i>Procedia Engineering</i> , 2011, 15, 315-320.	1.2	15
41	A Novel Fractional Order Model for the Dynamic Hysteresis of Piezoelectrically Actuated Fast Tool Servo. <i>Materials</i> , 2012, 5, 2465-2485.	1.3	15
42	Development of a novel type of hybrid non-symmetric flexure hinges. <i>Review of Scientific Instruments</i> , 2015, 86, 085003.	0.6	15
43	Design and application of a flexure-based oscillation mechanism for surface texturing. <i>Journal of Manufacturing Processes</i> , 2018, 32, 298-306.	2.8	14
44	Development of a High-Performance Force Sensing Fast Tool Servo. <i>IEEE Transactions on Industrial Informatics</i> , 2022, 18, 35-45.	7.2	14
45	Compliant linear-rotation motion transduction element based on novel spatial helical flexure hinge. <i>Mechanism and Machine Theory</i> , 2015, 92, 330-337.	2.7	12
46	Modeling of the effects of phase shift on cutting performance in elliptical vibration cutting. <i>International Journal of Advanced Manufacturing Technology</i> , 2017, 92, 3103-3115.	1.5	12
47	Modulated diamond cutting for the generation of complicated micro/nanofluidic channels. <i>Precision Engineering</i> , 2019, 56, 136-142.	1.8	12
48	Material removal energy in ultraprecision machining of micro-lens arrays on single crystal silicon by slow tool servo. <i>Journal of Cleaner Production</i> , 2022, 335, 130295.	4.6	10
49	Microstructured surface generation and cutting force prediction of pure titanium TA2. <i>Precision Engineering</i> , 2022, 75, 101-110.	1.8	10
50	Modeling, design and control of normal-stressed electromagnetic actuated fast tool servos. <i>Mechanical Systems and Signal Processing</i> , 2022, 178, 109304.	4.4	10
51	High-Throughput Generation of Hierarchical Micro/Nanostructures by Spatial Vibration-Assisted Diamond Cutting. <i>Advanced Materials Interfaces</i> , 2016, 3, 1500477.	1.9	9
52	Tracking Control of Nanopositioning Stages Using Parallel Resonant Controllers for High-Speed Nonraster Sequential Scanning. <i>IEEE Transactions on Automation Science and Engineering</i> , 2021, 18, 1218-1228.	3.4	9
53	Development of a 2-degree-of-freedom decoupled flexural mechanism for micro/nanomachining. <i>Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture</i> , 2015, 229, 1900-1911.	1.5	8
54	Diamond turning of micro-lens array on the roller featuring high aspect ratio. <i>International Journal of Advanced Manufacturing Technology</i> , 2018, 96, 2463-2469.	1.5	8

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55	Development of a Highly Flexible Lattice-Structure-Based Force Sensing Mechanism. IEEE Transactions on Industrial Informatics, 2019, 15, 5943-5953.	7.2	8
56	Design, Assessment, and Trajectory Control of a Novel Decoupled Robotic Nanomanipulator. IEEE/ASME Transactions on Mechatronics, 2022, 27, 3999-4010.	3.7	8
57	Ultraprecision tool-servo cutting of pure nickel for fabricating micro/nanostructure arrays. Materials and Design, 2022, 221, 110913.	3.3	8
58	Development and assessment of a novel two-degree-of-freedom vibration generator for generating and hiding optical information. Mechanical Systems and Signal Processing, 2022, 181, 109470.	4.4	8
59	Characterization of Spatial Parasitic Motions of Compliant Mechanisms Induced by Manufacturing Errors. Journal of Mechanisms and Robotics, 2016, 8, .	1.5	7
60	Modeling and analysis of uncertainty in on-machine form characterization of diamond-machined optical micro-structured surfaces. Measurement Science and Technology, 2016, 27, 125017.	1.4	7
61	Development of a two-degree-of-freedom vibration generator for fabricating optical microstructure arrays. Optics Express, 2021, 29, 25903.	1.7	7
62	Low-Cost Volumetric 3D Printing of High-Precision Miniature Lenses in Seconds. Advanced Optical Materials, 2022, 10, .	3.6	7
63	Identification of the critical depth-of-cut through a 2D image of the cutting region resulting from taper cutting of brittle materials. Measurement Science and Technology, 2018, 29, 055003.	1.4	6
64	Development of a New Compliant Active-Force Support System. IEEE/ASME Transactions on Mechatronics, 2022, 27, 372-382.	3.7	6
65	Robust high-bandwidth control of nano-positioning stages with Kalman filter based extended state observer and $H_\infty$ control. Review of Scientific Instruments, 2021, 92, 065003.	0.6	6
66	Simultaneous damping and tracking control of a normal-stressed electromagnetic actuated nano-positioning stage. Sensors and Actuators A: Physical, 2022, 338, 113467.	2.0	6
67	Evolutionary diamond turning of optics for error correction covering a wide spatial spectrum. Optical Engineering, 2015, 54, 015103.	0.5	5
68	A Novel Compliant Nanopositioning Stage Driven by a Normal-Stressed Electromagnetic Actuator. IEEE Transactions on Automation Science and Engineering, 2022, 19, 3039-3048.	3.4	5
69	Evolution of Workpiece Microstructure and Cutting Force During Ultraprecision Vibration Assisted Machining. Journal of Computational and Theoretical Nanoscience, 2013, 10, 78-85.	0.4	4
70	Modeling and Compensation for Hysteresis Nonlinearity of a Piezoelectrically Actuated Fast Tool Servo Based on a Novel Linear Model. ISRN Mechanical Engineering, 2012, 2012, 1-8.	0.9	3
71	A novel hybrid control strategy for trajectory tracking of fast tool servo. , 2010, , .		2
72	A Quasiphysics Intelligent Model for a Long Range Fast Tool Servo. Scientific World Journal, The, 2013, 2013, 1-12.	0.8	2

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73	Resonant magneto-electronic effect with isolated magnetomechanical damping in meta-composite of quartz crystal resonator and magnetosensitive alloy. <i>Smart Materials and Structures</i> , 2019, 28, 035022.	1.8	2
74	Multiscale Analysis of Cutting Force During Nano-Scale Vibration Assisted Machining. <i>Nanoscience and Nanotechnology Letters</i> , 2011, 3, 749-754.	0.4	2
75	Dual-Axial Tool Servo Diamond Turning of Hierarchical Micro-Nano-Structured Surfaces. <i>Journal of Manufacturing and Materials Processing</i> , 2021, 5, 58.	1.0	1
76	Multi-Physical Design and Resonant Controller Based Trajectory Tracking of the Electromagnetically Driven Fast Tool Servo. <i>Actuators</i> , 2020, 9, 28.	1.2	0
77	Gravity-Controlled and Boundary-Constrained High-Throughput Fabrication of Polymeric Miniature Lens Arrays. <i>Macromolecular Materials and Engineering</i> , 0, , 2100840.	1.7	0
78	重力控制及边界约束下的高吞吐量聚meric微型透镜阵列的制备. <i>中国科学: 技术科学</i> /Scientia Technologica, 2021, 51(12), 2100840.		