Kam K Leang

List of Publications by Year
in descending order

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112 papers	4,323 citations	126858 33 h-index	110317 64 g-index
114 all docs	114 docs citations	114 times ranked	2555 citing authors

#	Article	IF	Citations
1	Invited Review Article: High-speed flexure-guided nanopositioning: Mechanical design and control issues. Review of Scientific Instruments, 2012, 83, 121101.	0.6	399
2	Feedback-Linearized Inverse Feedforward for Creep, Hysteresis, and Vibration Compensation in AFM Piezoactuators. IEEE Transactions on Control Systems Technology, 2007, 15, 927-935.	3.2	342
3	A Review of Feedforward Control Approaches in Nanopositioning for High-Speed SPM. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2009, 131, .	0.9	329
4	Design and Control of a Three-Axis Serial-Kinematic High-Bandwidth Nanopositioner. IEEE/ASME Transactions on Mechatronics, 2012, 17, 356-369.	3.7	309
5	Feedforward control of piezoactuators in atomic force microscope systems. IEEE Control Systems, 2009, 29, 70-82.	1.0	237
6	Design of hysteresis-compensating iterative learning control for piezo-positioners: Application to atomic force microscopes. Mechatronics, 2006, 16, 141-158.	2.0	153
7	Design, Modeling and Control of Nanopositioning Systems. Advances in Industrial Control, 2014, , .	0.4	137
8	Fused filament 3D printing of ionic polymer-metal composites (IPMCs). Smart Materials and Structures, 2015, 24, 125021.	1.8	109
9	Highâ€speed serialâ€kinematic SPM scanner: design and drive considerations. Asian Journal of Control, 2009, 11, 144-153.	1.9	104
10	Integrated strain and force feedback for high-performance control of piezoelectric actuators. Sensors and Actuators A: Physical, 2010, 161, 256-265.	2.0	104
11	An IPMC-enabled bio-inspired bending/twisting fin for underwater applications. Smart Materials and Structures, 2013, 22, 014003.	1.8	97
12	Bridging the gap between conventional and video-speed scanning probe microscopes. Ultramicroscopy, 2010, 110, 1205-1214.	0.8	96
13	Accounting for hysteresis in repetitive control design: Nanopositioning example. Automatica, 2012, 48, 1751-1758.	3.0	93
14	Monolithic IPMC Fins for Propulsion and Maneuvering in Bioinspired Underwater Robotics. IEEE Journal of Oceanic Engineering, 2014, 39, 540-551.	2.1	93
15	CONTROL ISSUES IN HIGHâ€SPEED AFM FOR BIOLOGICAL APPLICATIONS: COLLAGEN IMAGING EXAMPLE. Asian Journal of Control, 2004, 6, 164-178.	1.9	90
16	Charge drives for scanning probe microscope positioning stages. Ultramicroscopy, 2008, 108, 1551-1557.	0.8	85
17	Design and Analysis of Discrete-Time Repetitive Control for Scanning Probe Microscopes. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2009, 131, .	0.9	77
18	Compact ultra-fast vertical nanopositioner for improving scanning probe microscope scan speed. Review of Scientific Instruments, 2011, 82, 123703.	0.6	77

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19	Cyclic energy harvesting from pyroelectric materials. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2011, 58, 10-17.	1.7	76
20	Performance of Thin Piezoelectric Materials for Pyroelectric Energy Harvesting. Journal of Intelligent Material Systems and Structures, 2010, 21, 243-249.	1.4	63
21	Integrated Sensing for IPMC Actuators Using Strain Gages for Underwater Applications. IEEE/ASME Transactions on Mechatronics, 2012, 17, 345-355.	3.7	60
22	Nanothorn electrodes for ionic polymer-metal composite artificial muscles. Scientific Reports, 2014, 4, 6176.	1.6	60
23	Eye-in-Hand Tracking Control of a Free-Floating Space Manipulator. IEEE Transactions on Aerospace and Electronic Systems, 2017, 53, 1855-1865.	2.6	58
24	A comprehensive review of select smart polymeric and gel actuators for soft mechatronics and robotics applications: fundamentals, freeform fabrication, and motion control. International Journal of Smart and Nano Materials, 2017, 8, 144-213.	2.0	58
25	Design and Control for High-Speed Nanopositioning: Serial-Kinematic Nanopositioners and Repetitive Control for Nanofabrication. IEEE Control Systems, 2013, 33, 86-105.	1.0	55
26	Dual-stage repetitive control with Prandtlâ€“Ishlinskii hysteresis inversion for piezo-based nanopositioning. Mechatronics, 2012, 22, 271-281.	2.0	46
27	3D-Printing and Machine Learning Control of Soft Ionic Polymer-Metal Composite Actuators. Scientific Reports, 2019, 9, 17482.	1.6	46
28	Emerging Challenges of Microactuators for Nanoscale Positioning, Assembly, and Manipulation. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2010, 132, .	1.3	43
29	Near-Optimal Area-Coverage Path Planning of Energy-Constrained Aerial Robots With Application in Autonomous Environmental Monitoring. IEEE Transactions on Automation Science and Engineering, 2021, 18, 1453-1468.	3.4	40
30	Coordinated Bayesian-Based Bioinspired Plume Source Term Estimation and Source Seeking for Mobile Robots. IEEE Transactions on Robotics, 2019, 35, 967-986.	7.3	39
31	A Twistable Ionic Polymer-Metal Composite Artificial Muscle for Marine Applications. Marine Technology Society Journal, 2011, 45, 83-98.	0.3	39
32	Mitigating IPMC back relaxation through feedforward and feedback control of patterned electrodes. Smart Materials and Structures, 2012, 21, 085002.	1.8	37
33	Low-Cost IR Reflective Sensors for Submicrolevel Position Measurement and Control. IEEE/ASME Transactions on Mechatronics, 2008, 13, 700-709.	3.7	36
34	3D-printed ionic polymer-metal composite soft crawling robot. , 2017, , .		36
35	Autonomous Chemical-Sensing Aerial Robot for Urban/Suburban Environmental Monitoring. IEEE Systems Journal, 2019, 13, 3524-3535.	2.9	32
36	Frequency-weighted feedforward control for dynamic compensation in ionic polymerâ€“metal composite actuators. Smart Materials and Structures, 2009, 18, 125016.	1.8	30

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37	In-Ground-Effect Modeling and Nonlinear-Disturbance Observer for Multirotor Unmanned Aerial Vehicle Control. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2019, 141, .	0.9	29
38	Optimal Output Transitions for Dual-Stage Systems. IEEE Transactions on Control Systems Technology, 2008, 16, 869-881.	3.2	27
39	High-speed serial-kinematic AFM scanner: Design and drive considerations. , 2008, , .		22
40	Low-order continuous-time robust repetitive control: Application in nanopositioning. Mechatronics, 2015, 30, 231-243.	2.0	22
41	Fused filament 3D printing of ionic polymer-metal composites for soft robotics. Proceedings of SPIE, 2017, , .	0.8	21
42	Repetitive control with Prandtl-Ishlinskii hysteresis inverse for piezo-based nanopositioning. , 2009, , .		20
43	On-board model-based automatic collision avoidance: application in remotely-piloted unmanned aerial vehicles. Autonomous Robots, 2017, 41, 1539-1554.	3.2	19
44	A micro spherical rolling and flying robot. , 2015, , .		18
45	Soft Endoluminal Robots Propelled by Rotating Magnetic Dipole Fields. IEEE Transactions on Medical Robotics and Bionics, 2020, 2, 598-607.	2.1	18
46	Decentralized Multi-agent information-theoretic control for target estimation and localization: finding gas leaks. International Journal of Robotics Research, 2020, 39, 1525-1548.	5.8	18
47	Closed-Loop Range-Based Control of Dual-Stage Nanopositioning Systems. IEEE/ASME Transactions on Mechatronics, 2021, 26, 1412-1421.	3.7	17
48	Range-based control of dual-stage nanopositioning systems. Review of Scientific Instruments, 2014, 85, 045003.	0.6	16
49	Image-Based Estimation, Planning, and Control of a Cable-Suspended Payload for Package Delivery. IEEE Robotics and Automation Letters, 2020, 5, 2698-2705.	3.3	16
50	Design, characterization, and control of a monolithic three-axis high-bandwidth nanopositioning stage. , 2010, , .		15
51	Open-sector rapid-reactive collision avoidance: Application in aerial robot navigation through outdoor unstructured environments. Robotics and Autonomous Systems, 2019, 112, 211-220.	3.0	15
52	Master-slave control with hysteresis inversion for dual-stage nanopositioning systems. , 2016, , .		14
53	Evaluation of charge drives for scanning probe microscope positioning stages. , 2008, , .		13
54	Slender tube-shaped and square rod-shaped IPMC actuators with integrated sensing for soft mechatronics. Meccanica, 2015, 50, 2781-2795.	1.2	13

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55	Dynamic underactuated flying-walking (DUCK) robot. , 2016, , .		13
56	Spatial-Temporal Trajectory Redesign for Dual-Stage Nanopositioning Systems With Application in AFM. IEEE/ASME Transactions on Mechatronics, 2020, 25, 558-569.	3.7	13
57	Particle swarm optimization for source localization in realistic complex urban environments. Atmospheric Environment, 2021, 262, 118636.	1.9	13
58	Image-based estimation, planning, and control for high-speed flying through multiple openings. International Journal of Robotics Research, 2020, 39, 1122-1137.	5.8	12
59	Nonlinear Vision-Based Observer for Visual Servo Control of an Aerial Robot in Global Positioning System Denied Environments. Journal of Mechanisms and Robotics, 2018, 10, .	1.5	10
60	Ionic polymer metal composite compression sensors with 3D-structured interfaces. Smart Materials and Structures, 2021, 30, 125027.	1.8	9
61	Modeling and Analysis of a Soft Endoluminal Inchworm Robot Propelled by a Rotating Magnetic Dipole Field. Journal of Mechanisms and Robotics, 2022, 14, .	1.5	9
62	Iterative and Feedback Control for Hysteresis Compensation in SMA. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2009, 131, .	0.9	8
63	Stochastic automatic collision avoidance for tele-operated unmanned aerial vehicles. , 2015, , .		8
64	Mechanical Design of High-Speed Nanopositioning Systems. , 2016, , 61-121.		8
65	Robust damping PI repetitive control for nanopositioning. , 2012, , .		7
66	A 3D-printed 3-DOF tripedal microrobotic platform for unconstrained and omnidirectional sample positioning. International Journal of Intelligent Robotics and Applications, 2018, 2, 425-435.	1.6	7
67	Analysis and experimental comparison of range-based control for dual-stage nanopositioners. Mechatronics, 2020, 69, 102371.	2.0	6
68	Gaussian-Based Kernel for Multi-Agent Aerial Chemical-Plume Mapping. , 2019, , .		6
69	Hysteresis Compensation for High-Precision Positioning of a Shape Memory Alloy Actuator using Integrated Iterative-Feedforward and Feedback Inputs. Proceedings of the American Control Conference, 2007, , .	0.0	5
70	Low-Order Damping and Tracking Control for Scanning Probe Systems. Frontiers in Mechanical Engineering, 2015, 1, .	0.8	5
71	Toward Magneto-Electroactive Endoluminal Soft (MEESo) Robots. , 2019, , .		5
72	Adaptive repetitive visual-servo control of a low-flying unmanned aerial vehicle with an uncalibrated high-flying camera. , 2016, , .		4

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73	Adaptive-Repetitive Visual-Servo Control of Low-Flying Aerial Robots via Uncalibrated High-Flying Cameras. Journal of Nonlinear Science, 2017, 27, 1235-1256.	1.0	4
74	Spatial-temporal trajectory redesign for dual-stage nanopositioning systems. , 2017, , .		4
75	Spatial Filter Design for Dual-Stage Systems. , 2017, , .		4
76	Low-Coupling Hybrid Parallel-Serial-Kinematic Nanopositioner with Nonorthogonal Flexure: Nonlinear Design and Control. IEEE/ASME Transactions on Mechatronics, 2022, 27, 3683-3693.	3.7	4
77	Sectored Tube-Shaped Ionic Polymer-Metal Composite Actuator With Integrated Sensor. , 2013, , .		3
78	Chapter 11. Precision Feedback and Feedforward Control of Ionic Polymer Metal Composite Actuators. RSC Smart Materials, 2015, , 354-385.	0.1	3
79	High Performance Nanopositioning with Integrated Strain and Force Feedback. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 117-124.	0.4	2
80	Teaching Modules on Modeling and Control of Piezoactuators for System Dynamics, Controls, and Mechatronics Courses. IEEE Transactions on Education, 2010, 53, 372-383.	2.0	2
81	Tracking control of oscillatory motion in IPMC actuators for underwater applications. , 2010, , .		2
82	An Experiment for Teaching Students About Control at the Nanoscale [Focus on Education]. IEEE Control Systems, 2012, 32, 66-68.	1.0	2
83	Short Online Videos to Excite and Engage Students About Control [Focus on Education]. IEEE Control Systems, 2012, 32, 70-71.	1.0	2
84	Teaching the Difference Between Stiffness and Damping [Lecture Notes]. IEEE Control Systems, 2012, 32, 95-97.	1.0	2
85	An experimental comparison of PI, inversion, and damping control for high performance nanopositioning. , 2013, , .		2
86	Analog Robust Repetitive Control for Nanopositioning Using Bucket Brigade Devices. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 1126-1133.	0.4	2
87	Design and Analysis of Scanning Probe Microscopy Cantilevers With Microthermal Actuation. Journal of Microelectromechanical Systems, 2015, 24, 1768-1781.	1.7	2
88	Mutual Information Control for Target Acquisition: A Method to Localize a Gas/Chemical Plume Source Using a Mobile Sensor. , 2017, , .		2
89	Robust Sliding-Mode Control for Dual-Stage Nanopositioning Systems. , 2019, , .		2
90	Hysteresis Modeling and Control. Advances in Industrial Control, 2014, , 299-316.	0.4	2

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91	Tracking Control for Nanopositioning Systems. , 2016, , 213-244.		2
92	Introduction to the themed articles on ionic polymerâ€“metal composites. International Journal of Smart and Nano Materials, 2012, 3, 183-187.	2.0	1
93	Matlab Tricks and Tips [Focus on Education]. IEEE Control Systems, 2013, 33, 39-40.	1.0	1
94	Study of improved pilot performance using automatic collision avoidance for tele-operated unmanned aerial vehicles. , 2016, , .		1
95	IPMCs as EAPs: How to Start Experimenting with Them. , 2016, , 215-233.		1
96	Design and Characterization of a Dual Piezo-bimorph Micro Flapping Wing. , 2020, , .		1
97	Comparison of Two Optimization-Based Controllers for Feature Tracking SPM Scanning in Dual-Stage Nanopositioners. , 2021, , .		1
98	Manufacturing for the Masses: A Novel Concept for Consumer 3D Printer Networks in the Context of Crisis Relief. Advanced Intelligent Systems, 0, , 2100121.	3.3	1
99	Mechanical Design: Flexure-Based Nanopositioners. Advances in Industrial Control, 2014, , 57-102.	0.4	1
100	Dual-Stage Repetitive Control for High-Speed Nanopositioning. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 105-110.	0.4	0
101	Development of dimensionally scalable IPMC materials. , 2010, , .		0
102	Introduction to part 2 of the themed articles on ionic polymerâ€“metal composites. International Journal of Smart and Nano Materials, 2012, 3, 243-243.	2.0	0
103	Spatial-temporal control of dual-stage nanpositioners. , 2012, , .		0
104	IPMCs as EAPs: How to Start Experimenting with Them. , 2016, , 1-19.		0
105	Position Sensors for Nanopositioning. , 2016, , 245-294.		0
106	Guest editorial: Focused section on advances in soft robotics. International Journal of Intelligent Robotics and Applications, 2017, 1, 121-123.	1.6	0
107	Discrete-Time Repetitive Control with a Range-Based Filter for Dual-Stage Systems. , 2020, , .		0
108	Mechanical Design and Control for Speed and Precision. , 2021, , 1202-1209.		0

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109	Charge Drives. Advances in Industrial Control, 2014, , 317-336.	0.4	0
110	Noise in Nanopositioning Systems. Advances in Industrial Control, 2014, , 337-393.	0.4	0
111	Feedforward Control. Advances in Industrial Control, 2014, , 251-273.	0.4	0
112	Command Shaping. Advances in Industrial Control, 2014, , 275-298.	0.4	0