Eric Barth

List of Publications by Year
in descending order

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86	1,037	567144 15	501076 28
papers	citations	h-index	g-index

86	86	86	840
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Design and energetic characterization of a liquid-propellant-powered actuator for self-powered robots. IEEE/ASME Transactions on Mechatronics, 2003, 8, 254-262.	3.7	103
2	Fiber Optic Shape Sensing for Soft Robotics. Soft Robotics, 2019, 6, 671-684.	4.6	93
3	A Globally Stable, Load-Independent Pressure Observer for the Servo Control of Pneumatic Actuators. IEEE/ASME Transactions on Mechatronics, 2009, 14, 295-306.	3.7	78
4	Nonlinear Model-Based Control of Pulse Width Modulated Pneumatic Servo Systems. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2006, 128, 663-669.	0.9	71
5	Design, Additive Manufacture, and Control of a Pneumatic MR-Compatible Needle Driver. IEEE Transactions on Robotics, 2016, 32, 138-149.	7.3	50
6	Modal-Based Kinematics and Contact Detection of Soft Robots. Soft Robotics, 2021, 8, 298-309.	4.6	47
7	Dynamic Constraint-Based Energy-Saving Control of Pneumatic Servo Systems. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2006, 128, 655-662.	0.9	34
8	Design and Control of an Magnetic Resonance Compatible Precision Pneumatic Active Cannula Robot. Journal of Medical Devices, Transactions of the ASME, 2014, 8, .	0.4	33
9	Control Design for Relative Stability in a PWM-Controlled Pneumatic System. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2003, 125, 504-508.	0.9	31
10	MR-conditional steerable needle robot for intracerebral hemorrhage removal. International Journal of Computer Assisted Radiology and Surgery, 2019, 14, 105-115.	1.7	29
11	Control-based design of free-piston stirling engines. , 2008, , .		27
12	Energy conservation in industrial pneumatics: A state model for predicting energetic savings using a novel pneumatic strain energy accumulator. Applied Energy, 2017, 198, 239-249.	5.1	27
13	Characterization and Control of a Pneumatic Motor for MR-Conditional Robotic Applications. IEEE/ASME Transactions on Mechatronics, 2017, 22, 2780-2789.	3.7	27
14	On the Observability of Pressure in a Pneumatic Servo Actuator. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2004, 126, 921-924.	0.9	23
15	Optimization of Curvilinear Needle Trajectories for Transforamenal Hippocampotomy. Operative Neurosurgery, 2017, 13, 15-22.	0.4	22
16	Design, Dynamic Modeling, and Experimental Validation of A Novel Alternating Flow Variable Displacement Hydraulic Pump. IEEE/ASME Transactions on Mechatronics, 2019, 24, 1294-1305.	3.7	20
17	A Unified Force Controller for a Proportional-Injector Direct-Injection Monopropellant-Powered Actuator. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2006, 128, 159-164.	0.9	17
18	Comparing the accuracy of the da Vinci Xi and da Vinci Si for image guidance and automation. International Journal of Medical Robotics and Computer Assisted Surgery, 2020, 16, 1-10.	1.2	14

#	Article	IF	Citations
19	Real-time Dynamic Path Planning for Dubins' Nonholonomic Robot. , 2006, , .		13
20	Accurate Sub-Millimeter Servo-Pneumatic Tracking using Model Reference Adaptive Control (MRAC). International Journal of Fluid Power, 2010, 11, 43-55.	0.7	12
21	Range-Finding Sensor Degradation in Gamma Radiation Environments. IEEE Sensors Journal, 2014, , 1-1.	2.4	12
22	Passivity-Based Impact and Force Control of a Pneumatic Actuator. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2008, 130, .	0.9	11
23	Analytical Tools for Investigating Stability and Power Generation of Electromagnetic Vibration Energy Harvesters. IEEE/ASME Transactions on Mechatronics, 2016, 21, 717-726.	3.7	11
24	The Design and Modeling of a Liquid-Propellant-Powered Actuator for Energetically Autonomous Robots. , 2002, , .		11
25	Design and Validation of a High Energy Density Elastic Accumulator Using Polyurethane. , 2009, , .		10
26	Design and Precision Control of an MR-Compatible Flexible Fluidic Actuator. , 2013, , .		10
27	The Horsepower Reserve Formulation of Driveability for a Vehicle Fitted With a Continuously Variable Transmission. Vehicle System Dynamics, 2004, 41, 157-180.	2.2	9
28	A Multi-Objective Sliding Mode Approach for the Energy Saving Control of Pneumatic Servo Systems. , 2003, , 133.		8
29	A Free Piston Compressor as a Pneumatic Mobile Robot Power Supply: Design, Characterization and Experimental Operation. International Journal of Fluid Power, 2007, 8, 17-28.	0.7	8
30	Modeling and Validation of Free-Piston Stirling Engines Using Impedance Controlled Hardware-in-the-Loop. , 2011, , .		8
31	Radiation Response and Adaptive Control-Based Degradation Mitigation of MEMS Accelerometers in Ionizing Dose Environments. IEEE Sensors Journal, 2017, 17, 1132-1143.	2.4	8
32	A Control Design Method for Switching Systems With Application to Pneumatic Servo Systems. , 2002, , .		8
33	Design, Fabrication, and Evaluation of a Distributed Piston Strain-Energy Accumulator. International Journal of Fluid Power, 2013, 14, 47-56.	0.7	7
34	Patient-specific, touch-based registration during robotic, image-guided partial nephrectomy. World Journal of Urology, 2022, 40, 671-677.	1.2	7
35	Dynamic Characteristics of a Free Piston Compressor. , 2004, , 47.		6
36	Design and Analysis of a Resonating Free Liquid-Piston Engine Compressor. , 2007, , 239.		6

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37	Dynamic Modeling and Design of a Bulk-Loaded Liquid Monopropellant Powered Rifle. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2008, 130, .	0.9	6
38	Accuracy of Touch-Based Registration During Robotic Image-Guided Partial Nephrectomy Before and After Tumor Resection in Validated Phantoms. Journal of Endourology, 2021, 35, 362-368.	1.1	6
39	Self-sustaining Wireless Acoustic Emission Sensor System for Bridge Monitoring. Lecture Notes in Electrical Engineering, 2011, , 15-39.	0.3	5
40	Design of a Stirling Thermocompressor for a Pneumatically Actuated Ankle-Foot Orthosis. , 2013, , .		5
41	Bayesian Inference Modeling of Total Ionizing Dose Effects on System Performance. IEEE Transactions on Nuclear Science, 2015, 62, 2517-2524.	1.2	5
42	Treating Epilepsy via Thermal Ablation: Initial Experiments With an MRI-Guided Concentric Tube Robot. , 2017, , .		5
43	Predictive Control for Time-Delayed Switching Control Systems. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2006, 128, 999-1004.	0.9	4
44	A Lumped-Parameter Dynamic Model of a Thermal Regenerator for Free-Piston Stirling Engines. , 2009, , .		4
45	A Control Approach for Broadening the Operating Frequency Range of a Bridge Vibration Energy Harvester. , 2011, , .		4
46	Precision Position Tracking of MR-Compatible Pneumatic Piston-Cylinder Using Sliding Mode Control. , 2011, , .		4
47	Dynamic Simulation and Experimental Validation of a Single Stage Thermocompressor for a Pneumatic Ankle-Foot Orthosis. , 2013, , .		4
48	The High Inertance Free Piston Engine Compressorâ€"Part II: Design and Experimental Evaluation. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2013, 135, .	0.9	4
49	The High Inertance Free Piston Engine Compressorâ€"Part I: Dynamic Modeling. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2013, 135, .	0.9	4
50	Total-Ionizing-Dose Induced Timing Window Violations in CMOS Microcontrollers. IEEE Transactions on Nuclear Science, 2014, 61, 2979-2984.	1.2	4
51	An Investigation of Stiffness Modulation Limits in a Pneumatically Actuated Parallel Robot With Actuation Redundancy. , 2015, , .		4
52	Experimental evaluation of the efficiency of a pneumatic strain energy accumulator. International Journal of Fluid Power, 2017, 18, 167-180.	0.7	4
53	Assessing Stability and Predicting Power Generation of Electromagnetic Vibration Energy Harvesters Using Bridge Vibration Data. IEEE/ASME Transactions on Mechatronics, 2017, 22, 269-279.	3.7	4
54	Circulatory loop design and components introduce artifacts impacting inÂvitro evaluation of ventricular assist device thrombogenicity: A call for caution. Artificial Organs, 2020, 44, E226-E237.	1.0	4

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55	Toward Practical and Accurate Touch-Based Image Guidance for Robotic Partial Nephrectomy. IEEE Transactions on Medical Robotics and Bionics, 2020, 2, 196-205.	2.1	4
56	Dynamic Modeling of a Monopropellant-Based Chemofluidic Actuation System. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2007, 129, 435-445.	0.9	3
57	Follow-the-Leader Deployment of Steerable Needles Using a Magnetic Resonance-Compatible Robot With Stepper Actuators1. Journal of Medical Devices, Transactions of the ASME, 2016, 10, .	0.4	3
58	Design, Model, and Experimental Validation of a Pneumatic Boost Converter. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2019, 141, .	0.9	3
59	Design and Characterization of a Rotary Actuated Hot Gas Servovalve. , 2004, , .		3
60	An Energetic Control Methodology for Exploiting the Passive Dynamics of Pneumatically Actuated Hopping. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2008, 130, .	0.9	2
61	MRIâ€“Compatible Fluid-Powered Medical Devices. Mechanical Engineering, 2013, 135, S13-S16.	0.0	2
62	Advanced Strain Energy Accumulator: Materials, Modeling and Manufacturing. , 2014, , .		2
63	Modeling of a Pneumatic Strain Energy Accumulator for Variable System Configurations With Quantified Projections of Energy Efficiency Increases. , 2015, , .		2
64	System Health Awareness in Total-Ionizing Dose Environments. IEEE Transactions on Nuclear Science, 2015, 62, 1674-1681.	1.2	2
65	Methodology for Identifying Radiation Effects in Robotic Systems With Mechanical and Control Performance Variations. IEEE Transactions on Nuclear Science, 2019, 66, 184-189.	1.2	2
66	Design and Characterization of a Miniature Hydraulic Power Supply for High-Bandwidth Control of Soft Robotics. , 2020, , .		2
67	The Vanderbilt Open-Source Ventilator: From Napkin Sketch to Ready to Save Lives in Three Weeks. IEEE Robotics and Automation Magazine, 2021, 28, 101-114.	2.2	2
68	A Compressible Fluid Power Dynamic Model of a Liquid Propellant Powered Rifle. , 2004, , .		2
69	Predictive Pressure Control of a Monopropellant Powered Actuator. , 2003, , .		2
70	Experimental Research Platform for Structural Health Monitoring. Smart Sensors, Measurement and Instrumentation, 2013, , 43-68.	0.4	2
71	Targeting Epilepsy Through the Foremen Ovale: How Many Helical Needles are Needed?. Annals of Biomedical Engineering, 2022, 50, 499-506.	1.3	2
72	Experimental Operation and Characterization of a Free Piston Compressor. , 2005, , 175.		1

#	Article	IF	Citations
73	Pneumatic Strain Energy Accumulators for Exhaust Gas Recycling. , 2013, , .		1
74	Dynamic Equivalence of Pneumatic and Electrical Boost Converters for Exhaust Gas Energy Reclamation. , 2016, , .		1
75	Design, Modeling, and Experimental Characterization of A Valveless Pulsatile Flow Mechanical Circulatory Support Device. Journal of Medical Devices, Transactions of the ASME, 2021, 15, .	0.4	1
76	Modeling and Control of a High Pressure Combined Air/Fuel Injection System. , 2009, , .		1
77	Design of a Hot Gas Vane Motor. , 2004, , .		1
78	The Limited Coupling Approximation with Application to CMAC Networks. International Journal of Smart Engineering System Design, 2002, 4, 195-204.	0.2	0
79	Reducing Piston Mass in a Free Piston Engine Compressor by Exploiting the Inertance of a Liquid Piston. , 2009, , .		0
80	A Virtual-Cam Control Methodology for Free-Piston Engines. , 2011, , .		0
81	Broad Frequency Vibration Energy Harvesting Control Approach Based on the Maximum Power Transfer Theorem. , 2013, , .		0
82	System Dynamic Model and Design of a Stirling Pump. , 2014, , .		0
83	Stirling Power Unit: Impact of a Controlled Displacer Piston on Efficiency and Power Output. , 2015, , .		0
84	Planar Peg-in-Hole Insertion Using a Stiffness Controllable Pneumatic Manipulator. , 2005, , .		0
85	Energy-Based Control of a Pneumatic Oscillator With Application to Energy Efficient Hopping Robots. , 2006, , .		0
86	Bond Graph Modeling of Mechanical Circulatory Support Deviceâ€"Cardiovascular System Interactions. Journal of Biomechanical Engineering, 2020, 142, .	0.6	0