

Jean-Jacques E Slotine

List of Publications by Year in descending order

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103
papers

13,906
citations

87723

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60497

81
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106
all docs

106
docs citations

106
times ranked

7555
citing authors

#	ARTICLE	IF	CITATIONS
1	Universal Adaptive Control of Nonlinear Systems. , 2022, 6, 1826-1830.		13
2	Generalization of the Multiplicative and Additive Compounds of Square Matrices and Contraction Theory in the Hausdorff Dimension. IEEE Transactions on Automatic Control, 2022, 67, 4629-4644.	3.6	9
3	Learning stabilizable nonlinear dynamics with contraction-based regularization. International Journal of Robotics Research, 2021, 40, 1123-1150.	5.8	10
4	Contraction Analysis of Nonlinear DAE Systems. IEEE Transactions on Automatic Control, 2021, 66, 429-436.	3.6	4
5	Adaptive Nonlinear Control With Contraction Metrics. , 2021, 5, 205-210.		20
6	Robust Adaptive Control Barrier Functions: An Adaptive and Data-Driven Approach to Safety. , 2021, 5, 1031-1036.		83
7	Decentralized Adaptive Control for Collaborative Manipulation of Rigid Bodies. IEEE Transactions on Robotics, 2021, 37, 1906-1920.	7.3	31
8	Implicit Regularization and Momentum Algorithms in Nonlinearly Parameterized Adaptive Control and Prediction. Neural Computation, 2021, 33, 590-673.	1.3	18
9	Neural Stochastic Contraction Metrics for Learning-based Control and Estimation. , 2021, , .		0
10	Neural Stochastic Contraction Metrics for Learning-Based Control and Estimation. , 2021, 5, 1825-1830.		17
11	Contraction theory for nonlinear stability analysis and learning-based control: A tutorial overview. Annual Reviews in Control, 2021, 52, 135-169.	4.4	37
12	Safe Motion Planning with Tubes and Contraction Metrics. , 2021, , .		4
13	Learning-based Adaptive Control using Contraction Theory. , 2021, , .		5
14	A Theoretical Overview of Neural Contraction Metrics for Learning-based Control with Guaranteed Stability. , 2021, , .		4
15	Serial interconnections of 1-contracting and 2-contracting systems. , 2021, , .		4
16	A Continuous-Time Analysis of Distributed Stochastic Gradient. Neural Computation, 2020, 32, 36-96.	1.3	5
17	Beyond convexityâ€”Contraction and global convergence of gradient descent. PLoS ONE, 2020, 15, e0236661.	1.1	19
18	Achieving stable dynamics in neural circuits. PLoS Computational Biology, 2020, 16, e1007659.	1.5	17

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19	Diffusion Maps Kalman Filter for a Class of Systems With Gradient Flows. IEEE Transactions on Signal Processing, 2020, 68, 2739-2753.	3.2	9
20	Learning Stabilizable Dynamical Systems via Control Contraction Metrics. Springer Proceedings in Advanced Robotics, 2020, , 179-195.	0.9	2
21	Avoidance of Convex and Concave Obstacles With Convergence Ensured Through Contraction. IEEE Robotics and Automation Letters, 2019, 4, 1462-1469.	3.3	49
22	Inverse Stability Problem and Applications to Renewables Integration. , 2018, 2, 133-138.		6
23	Solving Constraint-Satisfaction Problems with Distributed Neocortical-Like Neuronal Networks. Neural Computation, 2018, 30, 1359-1393.	1.3	12
24	Robust and adaptive control of coexisting attractors in nonlinear vibratory energy harvesters. JVC/Journal of Vibration and Control, 2018, 24, 2532-2541.	1.5	17
25	Linear Matrix Inequalities for Physically Consistent Inertial Parameter Identification: A Statistical Perspective on the Mass Distribution. IEEE Robotics and Automation Letters, 2018, 3, 60-67.	3.3	76
26	Analytical SLAM Without Linearization. Springer Proceedings in Advanced Robotics, 2018, , 89-105.	0.9	4
27	Unifying Robot Trajectory Tracking with Control Contraction Metrics. Springer Proceedings in Advanced Robotics, 2018, , 403-418.	0.9	15
28	Robust Powered Descent with Control Contraction Metrics. , 2018, , .		2
29	Particle observers for state estimation and adaptation in deterministic systems with random piecewise constant inputs. , 2018, , .		1
30	Cooperative Adaptive Control for Cloud-Based Robotics. , 2018, , .		11
31	The UNAV, a Wind-Powered UAV for Ocean Monitoring: Performance, Control and Validation. , 2018, , .		0
32	Robust Collision Avoidance via Sliding Control. , 2018, , .		8
33	Robust Control Contraction Metrics: A Convex Approach to Nonlinear State-Feedback \mathcal{H}^∞ Control. , 2018, 2, 333-338.		32
34	Contraction and Robustness of Continuous Time Primal-Dual Dynamics. , 2018, 2, 755-760.		14
35	Control Contraction Metrics: Convex and Intrinsic Criteria for Nonlinear Feedback Design. IEEE Transactions on Automatic Control, 2017, 62, 3046-3053.	3.6	132
36	Analytical SLAM without linearization. International Journal of Robotics Research, 2017, 36, 1554-1578.	5.8	8

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37	Optimal dynamic soaring consists of successive shallow arcs. Journal of the Royal Society Interface, 2017, 14, 20170496.	1.5	37
38	Robust online motion planning via contraction theory and convex optimization. , 2017, , .		106
39	Manifold Learning With Contracting Observers for Data-Driven Time-Series Analysis. IEEE Transactions on Signal Processing, 2017, 65, 904-918.	3.2	15
40	Qualitative Stability of Nonlinear Networked Systems. IEEE Transactions on Automatic Control, 2017, 62, 4080-4085.	3.6	7
41	On Existence of Separable Contraction Metrics for Monotone Nonlinear Systems * **This work was supported by the Australian Research Council.. IFAC-PapersOnLine, 2017, 50, 8226-8231.	0.5	6
42	Sparse Control for Dynamic Movement Primitives. IFAC-PapersOnLine, 2017, 50, 10114-10121.	0.5	8
43	Control of a flexible, surface-piercing hydrofoil for high-speed, small-scale applications. , 2017, , .		3
44	Robotic manipulation of micro/nanoparticles using optical tweezers with velocity constraints and stochastic perturbations. , 2015, , .		7
45	Network motifs emerge from interconnections that favour stability. Nature Physics, 2015, 11, 848-852.	6.5	16
46	Computation in Dynamically Bounded Asymmetric Systems. PLoS Computational Biology, 2015, 11, e1004039.	1.5	13
47	Intrinsic dynamics induce global symmetry in network controllability. Scientific Reports, 2015, 5, 8422.	1.6	42
48	Spectrum of controlling and observing complex networks. Nature Physics, 2015, 11, 779-786.	6.5	212
49	Transverse contraction criteria for existence, stability, and robustness of a limit cycle. Systems and Control Letters, 2014, 63, 32-38.	1.3	51
50	A model of stimulus induced epileptic spike-wave discharges. , 2013, , .		19
51	Dynamically stable control of articulated crowds. Journal of Computational Science, 2013, 4, 304-310.	1.5	10
52	Observability of complex systems. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 2460-2465.	3.3	407
53	A Contraction Theory Approach to Singularly Perturbed Systems. IEEE Transactions on Automatic Control, 2013, 58, 752-757.	3.6	53
54	Does a quorum sensing mechanism direct the behavior of immune cells?. Comptes Rendus - Biologies, 2013, 336, 13-16.	0.1	8

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55	Composite adaptive posicast control for a class of LTI plants with known delay. <i>Automatica</i> , 2013, 49, 1914-1924.	3.0	25
56	Competition Through Selective Inhibitory Synchrony. <i>Neural Computation</i> , 2012, 24, 2033-2052.	1.3	16
57	A Graphical Approach to Prove Contraction of Nonlinear Circuits and Systems. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2011, 58, 336-348.	3.5	30
58	Collective Stability of Networks of Winner-Take-All Circuits. <i>Neural Computation</i> , 2011, 23, 735-773.	1.3	51
59	Synchronization and Redundancy: Implications for Robustness of Neural Learning and Decision Making. <i>Neural Computation</i> , 2011, 23, 2915-2941.	1.3	8
60	Controllability of complex networks. <i>Nature</i> , 2011, 473, 167-173.	13.7	2,633
61	A contraction theory approach to singularly perturbed systems with application to retroactivity attenuation. , 2011, , .		7
62	Liu et al. reply. <i>Nature</i> , 2011, 478, E4-E5.	13.7	17
63	Unifying geometric, probabilistic, and potential field approaches to multi-robot deployment. <i>International Journal of Robotics Research</i> , 2011, 30, 371-383.	5.8	106
64	CPG-based control of a turtle-like underwater vehicle. <i>Autonomous Robots</i> , 2010, 28, 247-269.	3.2	113
65	How Synchronization Protects from Noise. <i>PLoS Computational Biology</i> , 2010, 6, e1000637.	1.5	78
66	Decentralized, Adaptive Coverage Control for Networked Robots. <i>International Journal of Robotics Research</i> , 2009, 28, 357-375.	5.8	346
67	Application of Synchronization to Formation Flying Spacecraft: Lagrangian Approach. <i>Journal of Guidance, Control, and Dynamics</i> , 2009, 32, 512-526.	1.6	245
68	A Contraction Theory Approach to Stochastic Incremental Stability. <i>IEEE Transactions on Automatic Control</i> , 2009, 54, 816-820.	3.6	115
69	Visual Grouping by Neural Oscillator Networks. <i>IEEE Transactions on Neural Networks</i> , 2009, 20, 1871-1884.	4.8	20
70	Stability and robustness analysis of nonlinear systems via contraction metrics and SOS programming. <i>Automatica</i> , 2008, 44, 2163-2170.	3.0	130
71	Adaptive task-space regulation of rigid-link flexible-joint robots with uncertain kinematics. <i>Automatica</i> , 2008, 44, 1806-1814.	3.0	43
72	Does the brain make waves to improve stability?. <i>Brain Research Bulletin</i> , 2008, 75, 717-722.	1.4	3

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73	Absolute Stability and Complete Synchronization in a Class of Neural Fields Models. SIAM Journal on Applied Mathematics, 2008, 69, 205-250.	0.8	38
74	Propellant-Free Control of Tethered Formation Flight, Part 2: Nonlinear Underactuated Control. Journal of Guidance, Control, and Dynamics, 2008, 31, 1437-1446.	1.6	15
75	Cooperative robot control and synchronization of Lagrangian systems. , 2007, , .		24
76	Models for Global Synchronization in CPG-based Locomotion. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	19
77	Nonlinear Model Reduction and Decentralized Control of Tethered Formation Flight. Journal of Guidance, Control, and Dynamics, 2007, 30, 390-400.	1.6	46
78	Geometry of the superior colliculus mapping and efficient oculomotor computation. Biological Cybernetics, 2007, 97, 279-292.	0.6	33
79	Adaptive Jacobian tracking control of rigid-link electrically driven robots based on visual task-space information. Automatica, 2006, 42, 1491-1501.	3.0	60
80	Fast computation with neural oscillators. Neurocomputing, 2006, 69, 2320-2326.	3.5	14
81	Robust vibration isolation via frequency-shaped sliding control and modal decomposition. Journal of Sound and Vibration, 2005, 285, 1123-1149.	2.1	48
82	Discrete nonlinear observers for inertial navigation. Systems and Control Letters, 2005, 54, 887-898.	1.3	25
83	On partial contraction analysis for coupled nonlinear oscillators. Biological Cybernetics, 2005, 92, 38-53.	0.6	385
84	Intrinsic Musculoskeletal Properties Stabilize Wiping Movements in the Spinalized Frog. Journal of Neuroscience, 2005, 25, 3181-3191.	1.7	20
85	Modular stability tools for distributed computation and control. International Journal of Adaptive Control and Signal Processing, 2003, 17, 397-416.	2.3	63
86	Nonlinear process control using contraction theory. AIChE Journal, 2000, 46, 588-596.	1.8	81
87	Quantum feedback with weak measurements. Physical Review A, 2000, 62, .	1.0	55
88	On Contraction Analysis for Non-linear Systems. Automatica, 1998, 34, 683-696.	3.0	1,046
89	Analog Quantum Error Correction. Physical Review Letters, 1998, 80, 4088-4091.	2.9	144
90	Structurally dynamic wavelet networks for adaptive control of robotic systems. International Journal of Control, 1998, 70, 405-421.	1.2	56

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91	The intermediate cerebellum may function as a wave-variable processor. Neuroscience Letters, 1996, 215, 60-64.	1.0	31
92	Space-frequency localized basis function networks for nonlinear system estimation and control. Neurocomputing, 1995, 9, 293-342.	3.5	120
93	Stable Adaptive Control of Robot Manipulators Using "Neural" Networks. Neural Computation, 1995, 7, 753-790.	1.3	102
94	Robust input-output feedback linearization. International Journal of Control, 1993, 57, 1133-1139.	1.2	115
95	Gaussian Networks for Direct Adaptive Control. , 1991, , .		992
96	Performance in Adaptive Manipulator Control. International Journal of Robotics Research, 1991, 10, 149-161.	5.8	101
97	Composite adaptive control of robot manipulators. Automatica, 1989, 25, 509-519.	3.0	528
98	An indirect adaptive robot controller. Systems and Control Letters, 1989, 12, 259-266.	1.3	50
99	On the Adaptive Control of Robot Manipulators. International Journal of Robotics Research, 1987, 6, 49-59.	5.8	1,919
100	Robust robot control with bounded input torques. Journal of Field Robotics, 1985, 2, 329-352.	0.7	44
101	The Robust Control of Robot Manipulators. International Journal of Robotics Research, 1985, 4, 49-64.	5.8	481
102	Sliding controller design for non-linear systems. International Journal of Control, 1984, 40, 421-434.	1.2	1,016
103	Adaptive-Control-Oriented Meta-Learning for Nonlinear Systems. , 0, , .		24