

Marco Storace

List of Publications by Year in descending order

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149
papers

1,711
citations

361045

20
h-index

377514

34
g-index

150
all docs

150
docs citations

150
times ranked

1130
citing authors

#	ARTICLE	IF	CITATIONS
1	The Hindmarsh-Rose neuron model: Bifurcation analysis and piecewise-linear approximations. <i>Chaos</i> , 2008, 18, 033128.	1.0	188
2	Ultra-Fast Stabilizing Model Predictive Control via Canonical Piecewise Affine Approximations. <i>IEEE Transactions on Automatic Control</i> , 2011, 56, 2883-2897.	3.6	98
3	Piecewise-Linear Approximation of Nonlinear Dynamical Systems. <i>IEEE Transactions on Circuits and Systems Part 1: Regular Papers</i> , 2004, 51, 830-842.	0.1	72
4	Accurate and Fast Simulation of Channel Noise in Conductance-Based Model Neurons by Diffusion Approximation. <i>PLoS Computational Biology</i> , 2011, 7, e1001102.	1.5	68
5	Digital architectures realizing piecewise-linear multivariate functions: Two FPGA implementations. <i>International Journal of Circuit Theory and Applications</i> , 2011, 39, 1-15.	1.3	44
6	Codimension-Two Homoclinic Bifurcations Underlying Spike Adding in the Hindmarsh-Rose Burster. <i>SIAM Journal on Applied Dynamical Systems</i> , 2012, 11, 939-962.	0.7	44
7	A modular supervised algorithm for vessel segmentation in red-free retinal images. <i>Computers in Biology and Medicine</i> , 2008, 38, 913-922.	3.9	41
8	A Power-Loss-Dependent Inductance Model for Ferrite-Core Power Inductors in Switch-Mode Power Supplies. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2019, 66, 2394-2402.	3.5	35
9	A method for the approximate synthesis of cellular non-linear networks?Part 1: Circuit definition. <i>International Journal of Circuit Theory and Applications</i> , 2003, 31, 277-297.	1.3	33
10	A Switched Predictive Controller for an Electrical Powertrain System With Backlash. <i>IEEE Transactions on Power Electronics</i> , 2017, 32, 4036-4047.	5.4	31
11	Model-Based Compensation of Rate-Dependent Hysteresis in a Piezoresistive Strain Sensor. <i>IEEE Transactions on Industrial Electronics</i> , 2019, 66, 8205-8213.	5.2	31
12	Synthesis of nonlinear multiport resistors: a PWL approach. <i>IEEE Transactions on Circuits and Systems Part 1: Regular Papers</i> , 2002, 49, 1138-1149.	0.1	30
13	A PWL ladder circuit which exhibits hysteresis. <i>International Journal of Circuit Theory and Applications</i> , 1994, 22, 513-526.	1.3	29
14	Synthesis of multiport resistors with piecewise-linear characteristics: a mixed-signal architecture. <i>International Journal of Circuit Theory and Applications</i> , 2005, 33, 307-319.	1.3	27
15	Circuit implementation of piecewise-affine functions based on a binary search tree. , 2009, , .		25
16	Two FPGA-Oriented High-Speed Irradiance Virtual Sensors for Photovoltaic Plants. <i>IEEE Transactions on Industrial Informatics</i> , 2017, 13, 157-165.	7.2	25
17	An MPC-Based Approach for Emergency Control Ensuring Transient Stability in Power Grids With Steam Plants. <i>IEEE Transactions on Industrial Electronics</i> , 2019, 66, 5412-5422.	5.2	25
18	Design Principles for Central Pattern Generators With Preset Rhythms. <i>IEEE Transactions on Neural Networks and Learning Systems</i> , 2020, 31, 3658-3669.	7.2	24

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19	Experimental bifurcation diagram of a circuit-implemented neuron model. Physics Letters, Section A: General, Atomic and Solid State Physics, 2010, 374, 4589-4593.	0.9	21
20	FPGA Implementations of Piecewise Affine Functions Based on Multi-Resolution Hyperrectangular Partitions. IEEE Transactions on Circuits and Systems I: Regular Papers, 2012, 59, 2920-2933.	3.5	21
21	Open-Loop Compensation of Hysteresis and Creep Through a Power-Law Circuit Model. IEEE Transactions on Circuits and Systems I: Regular Papers, 2016, 63, 413-422.	3.5	21
22	Accurate Modeling of Inductors Working in Nonlinear Region in Switch-Mode Power Supplies with Different Load Currents. , 2018, , .		21
23	Towards analog implementations of PWL two-dimensional non-linear functions. International Journal of Circuit Theory and Applications, 2005, 33, 147-160.	1.3	20
24	Digital Circuit Realization of Piecewise-Affine Functions With Nonuniform Resolution: Theory and FPGA Implementation. IEEE Transactions on Circuits and Systems II: Express Briefs, 2010, 57, 131-135.	2.2	20
25	A hysteresis-based chaotic circuit: dynamics and applications. International Journal of Circuit Theory and Applications, 1999, 27, 527-542.	1.3	19
26	Nonlinear behavioural model of charge pump PLLs. International Journal of Circuit Theory and Applications, 2013, 41, 1027-1046.	1.3	19
27	Improving power grids transient stability via Model Predictive Control. , 2014, , .		19
28	A method for the approximate synthesis of cellular non-linear networks?Part 2: Circuit reduction. International Journal of Circuit Theory and Applications, 2003, 31, 299-313.	1.3	18
29	FPGA implementation of optimal and approximate model predictive control for a buck-boost DC-DC converter. , 2012, , .		18
30	Analyzing synchronized clusters in neuron networks. Scientific Reports, 2020, 10, 16336.	1.6	17
31	Simple realisation of hysteresis chaos generator. Electronics Letters, 1998, 34, 10.	0.5	16
32	High-Speed Piecewise Affine Virtual Sensors. IEEE Transactions on Industrial Electronics, 2012, 59, 1228-1237.	5.2	16
33	Ferrite inductor models for switch-mode power supplies analysis and design. , 2017, , .		16
34	Piecewise linear implementation of nonlinear dynamical systems: from theory to practice. Electronics Letters, 2009, 45, 966.	0.5	15
35	Static and dynamic hysteretic features in a PWL circuit. International Journal of Circuit Theory and Applications, 1996, 24, 183-199.	1.3	14
36	Inferring Network Dynamics and Neuron Properties from Population Recordings. Frontiers in Computational Neuroscience, 2011, 5, 43.	1.2	14

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37	Memory characteristics of hysteresis and creep in multi-layer piezoelectric actuators: An experimental analysis. <i>Physica B: Condensed Matter</i> , 2014, 435, 40-43.	1.3	14
38	Integrated circuit implementation of multi-dimensional piecewise-linear functions. , 2010, 20, 1723-1732.		13
39	Hardware-in-the-loop simulations of circuit architectures for the computation of exact and approximate explicit MPC control functions. , 2012, , .		13
40	Dimensional reduction in networks of non-Markovian spiking neurons: Equivalence of synaptic filtering and heterogeneous propagation delays. <i>PLoS Computational Biology</i> , 2019, 15, e1007404.	1.5	13
41	A Nonlinear Inductance Model Able to Reproduce Thermal Transient in SMPS Simulations. , 2019, , .		13
42	One-way dependent clusters and stability of cluster synchronization in directed networks. <i>Nature Communications</i> , 2021, 12, 4073.	5.8	13
43	Piecewise-Linear Identification of Nonlinear Dynamical Systems in View of Their Circuit Implementations. <i>IEEE Transactions on Circuits and Systems Part 1: Regular Papers</i> , 2007, 54, 1542-1554.	0.1	12
44	A Circuit Model of Hysteresis and Creep. <i>IEEE Transactions on Circuits and Systems II: Express Briefs</i> , 2015, 62, 501-505.	2.2	12
45	Behavioral Models for Ferrite-Core Inductors in Switch-Mode DC-DC Power Supplies: A Survey. , 2019, , .		12
46	Nonlinear models of power inductors: A survey. <i>International Journal of Circuit Theory and Applications</i> , 2022, 50, 2.	1.3	12
47	Design of Synthetic Central Pattern Generators Producing Desired Quadruped Gaits. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2018, 65, 1028-1039.	3.5	11
48	A Nonlinear Behavioral Ferrite-Core Inductance Model Able to Reproduce Thermal Transients in Switch-Mode Power Supplies. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2020, 67, 1255-1263.	3.5	11
49	Simulations of the behavior of synaptically driven neurons via time-invariant circuit models. <i>IEEE Transactions on Biomedical Engineering</i> , 1997, 44, 1282-1287.	2.5	10
50	Discontinuities in a one-dimensional map describing a hysteretic chaotic circuit. <i>Nonlinear Analysis: Theory, Methods & Applications</i> , 2001, 47, 5253-5264.	0.6	10
51	MOBY-DIC: A MATLAB Toolbox for Circuit-Oriented Design of Explicit MPC. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2012, 45, 218-225.	0.4	10
52	Accurate and Efficient PSD Computation in Mixed-Signal Circuits: A Time-Domain Approach. <i>IEEE Transactions on Circuits and Systems II: Express Briefs</i> , 2014, 61, 905-909.	2.2	10
53	Basic bifurcation analysis of a hysteresis oscillator. <i>International Journal of Circuit Theory and Applications</i> , 2001, 29, 343-366.	1.3	9
54	TWO-DIMENSIONAL BIFURCATION DIAGRAMS OF A CHAOTIC CIRCUIT BASED ON HYSTERESIS. <i>International Journal of Bifurcation and Chaos in Applied Sciences and Engineering</i> , 2002, 12, 43-69.	0.7	9

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55	A Simplicial PWL Integrated Circuit Realization. , 2007, , .		9
56	Towards Accurate PWL Approximations of Parameter-Dependent Nonlinear Dynamical Systems With Equilibria and Limit Cycles. IEEE Transactions on Circuits and Systems Part 1: Regular Papers, 2007, 54, 620-631.	0.1	9
57	Low-complexity approximations of PWA functions: A case study on Adaptive Cruise Control. , 2011, , .		9
58	Automatic Domain Partitioning of Piecewise-Affine Simplicial Functions Implementing Model Predictive Controllers. IEEE Transactions on Circuits and Systems II: Express Briefs, 2015, 62, 886-890.	2.2	9
59	Model Reduction for Optimized Online Compensation of Hysteresis and Creep in Piezoelectric Actuators. IEEE Transactions on Circuits and Systems II: Express Briefs, 2018, 65, 1748-1752.	2.2	9
60	Generalized half-center oscillators with short-term synaptic plasticity. Physical Review E, 2020, 102, 032406.	0.8	9
61	On a circuit representation of the Hodgkin and Huxley nerve axon membrane equations. International Journal of Circuit Theory and Applications, 1997, 25, 115-124.	1.3	8
62	RC op-amp implementation of hysteresis chaotic oscillator. Electronics Letters, 2001, 37, 209.	0.5	8
63	PWL approximation of nonlinear dynamical systems, part I: structural stability. Journal of Physics: Conference Series, 2005, 22, 208-221.	0.3	8
64	Bifurcation analysis and its experimental validation for a hysteresis circuit oscillator. IEEE Transactions on Circuits and Systems Part 2: Express Briefs, 2006, 53, 517-521.	2.3	8
65	A Piecewise-Affine Inductance Model for Inductors Working in Nonlinear Region. , 2019, , .		8
66	Cellular non-linear networks for minimization of functionals. Part 1: Theoretical aspects. International Journal of Circuit Theory and Applications, 2001, 29, 151-167.	1.3	7
67	BIFURCATION ANALYSIS OF A PWL CHAOTIC CIRCUIT BASED ON HYSTERESIS THROUGH A ONE-DIMENSIONAL MAP. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2001, 11, 1911-1927.	0.7	7
68	Synthesis of stabilizing model predictive controllers via canonical piecewise affine approximations. , 2010, , .		7
69	Transient dynamics of an adiabatic NEMS. Annalen Der Physik, 2014, 526, 541-554.	0.9	7
70	Low-complexity digital architecture for solving the point location problem in explicit Model Predictive Control. Journal of the Franklin Institute, 2015, 352, 2249-2258.	1.9	7
71	CEPAGE: A toolbox for Central Pattern Generator analysis. , 2017, , .		7
72	On the representation of static hysteresis curves by a PWL ladder circuit. International Journal of Circuit Theory and Applications, 1998, 26, 167-177.	1.3	6

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73	Secure communication by hysteresis-based chaotic circuit. Electronics Letters, 1998, 34, 1077.	0.5	6
74	Cellular non-linear networks for minimization of functionals. Part 2: Examples. International Journal of Circuit Theory and Applications, 2001, 29, 169-184.	1.3	6
75	FPGA implementation of a new scheme for the circuit realization of PWL functions. , 2007, , .		6
76	BIFURCATION ANALYSIS OF AN IMPACT MODEL FOR FOREST FIRE PREDICTION. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2008, 18, 2275-2288.	0.7	6
77	Circuit realization of Markov random fields for analog image processing. International Journal of Circuit Theory and Applications, 1998, 26, 477-498.	1.3	5
78	Dynamic behaviour of hysteresis chaotic circuit. Electronics Letters, 1999, 35, 1896.	0.5	5
79	A procedure for the computation of accurate PWL approximations of non-linear dynamical systems. International Journal of Circuit Theory and Applications, 2006, 34, 237-248.	1.3	5
80	Reliable and efficient phase noise simulation of mixed-mode integer-N Phase-Locked Loops. , 2013, , .		5
81	Hysteresis and creep: Comparison between a power-law model and Kuhnen's model. Physica B: Condensed Matter, 2016, 486, 2-6.	1.3	5
82	Coexistence of attractors in an oscillator based on hysteresis. , 0, , .		4
83	PWL approximation of the Hindmarsh-Rose neuron model in view of its circuit implementation. , 2007, , .		4
84	Piecewise linear approximations of multivariate functions: A multiresolution-based compression algorithm suitable for circuit implementation. Applied Numerical Mathematics, 2010, 60, 924-933.	1.2	4
85	CONTINUATION ANALYSIS OF A PHASE/QUADRATURE ELECTRONIC OSCILLATOR. Journal of Circuits, Systems and Computers, 2010, 19, 773-785.	1.0	4
86	HARMONIC ANALYSIS OF OSCILLATORS THROUGH STANDARD NUMERICAL CONTINUATION TOOLS. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2010, 20, 4029-4037.	0.7	4
87	Low-power wireless accelerometer-based system for wear detection of bandsaw blades. , 2013, , .		4
88	Low-complexity piecewise-affine virtual sensors: theory and design. International Journal of Control, 2014, 87, 622-632.	1.2	4
89	Efficient transient noise analysis of non- ϵ periodic mixed analogue/digital circuits. IET Circuits, Devices and Systems, 2015, 9, 73-80.	0.9	4
90	A method for defining analog circuits for the minimization of discrete functionals: An image processing application. Circuits, Systems, and Signal Processing, 1999, 18, 457-477.	1.2	3

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91	PWL approximation of nonlinear dynamical systems, part II: identification issues. Journal of Physics: Conference Series, 2005, 22, 30-42.	0.3	3
92	Multiresolution PWL approximations. , 0, , .		3
93	A cellular non-linear network for image fusion based on data regularization. International Journal of Circuit Theory and Applications, 2006, 34, 533-546.	1.3	3
94	On the complexity of periodic and nonperiodic behaviors of a hysteresis-based electronic oscillator. Chaos, 2007, 17, 043108.	1.0	3
95	Synchronization properties in networks of Hindmarsh-Rose neurons and their PWL approximations with linear symmetric coupling. , 2009, , .		3
96	Explicit hybrid model predictive control: discontinuous piecewise-affine approximation and FPGA implementation. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 1350-1355.	0.4	3
97	Barriers to transport induced by periodic oscillations in a physical model of the human vitreous chamber. Physical Review E, 2011, 83, 036311.	0.8	3
98	Effects of numerical noise floor on the accuracy of time domain noise analysis in circuit simulators. , 2013, , .		3
99	Low-cost acquisition method for on-line inductor characterization in switched power converters. , 2017, , .		3
100	Application of a low-cost piezoelectric displacement estimation technique based on laser interferometry for hysteresis open-loop compensation in an AFM scanner. Physica B: Condensed Matter, 2018, 549, 43-46.	1.3	3
101	Modeling and compensation of hysteresis and creep: The HysTool toolbox. , 2018, , .		3
102	A low-cost online estimator for switch-mode power supplies with saturating ferrite-core inductors. , 2019, , .		3
103	Embedded Linear Model Predictive Control Through Mesh Adaptive Direct Search Algorithm. , 2019, , .		3
104	An Algorithm for Finding Equitable Clusters in Multi-Layer Networks. , 2020, , .		3
105	Dipole monolayer behaviour in the presence of electrodes. Journal of Electrostatics, 1996, 37, 95-120.	1.0	2
106	Two-Port Ideal Power Transferitors: A Unified Introduction to Ideal Transformer and Gyrator. IEEE Transactions on Circuits and Systems Part 2: Express Briefs, 2004, 51, 426-429.	2.3	2
107	A CNN for biomedical image processing. , 0, , .		2
108	A method based on a genetic algorithm to find PWL approximations of multivariate nonlinear functions. , 2008, , .		2

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109	Piecewise-linear approximation of the Hindmarsh-Rose neuron model. Journal of Physics: Conference Series, 2008, 138, 012011.	0.3	2
110	Design and circuit implementation of approximate switched MPC. , 2013, , .		2
111	A low-complexity circuit model of hysteresis. , 2015, , .		2
112	bal: A library for the brute-force analysis of dynamical systems. Computer Physics Communications, 2016, 201, 126-134.	3.0	2
113	High-speed explicit nonlinear model predictive control. , 2017, , .		2
114	Design of Minimal Synthetic Circuits with Sensory Feedback for Quadruped Locomotion. , 2018, , .		2
115	Pareto-optimal selection of saturating inductors in the design of Switch-Mode Power Supplies. , 2019, , .		2
116	Structurally Stable PWL Approximation of Nonlinear Dynamical Systems Admitting Limit Cycles: An Example. IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences, 2006, E89-A, 2759-2766.	0.2	2
117	Towards more biologically plausible central-pattern-generator models. Physical Review E, 2021, 104, 064405.	0.8	2
118	Dipole monolayers: a model for elementary information processors. , 0, , .		1
119	2-D bifurcation diagram of an oscillator based on PWL hysteresis. , 0, , .		1
120	Towards the circuit implementation of the Hodgkin-Huxley neuron model: A PWL approach. , 0, , .		1
121	Optimal receiver for ergodic chaos shift keying. , 0, , .		1
122	PWL approximation of dynamical systems: an example. , 0, , .		1
123	PWL identification of dynamical systems: some examples. , 0, , .		1
124	BIFURCATION ANALYSIS OF A CIRCUIT-RELATED GENERALIZATION OF THE SHIPMAP. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2006, 16, 2435-2452.	0.7	1
125	DSP implementation of a low-complexity algorithm for real-time automated vessel detection in images of the fundus of the human retina. , 2007, , .		1
126	Piecewise affine direct virtual sensors with Reduced Complexity. , 2012, , .		1

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127	Synchronization: a tool for validating a PWL circuit that approximates the Hindmarsh-Rose neuron model. <i>Nonlinear Theory and Its Applications IEICE</i> , 2012, 3, 165-179.	0.4	1
128	An algorithm for automatic domain partitioning of piecewise-affine model predictive control laws. , 2013, , .		1
129	A mathematical model for the vessel recruitment in coronary microcirculation in the absence of active autoregulation. <i>Microvascular Research</i> , 2016, 104, 38-45.	1.1	1
130	Linear and Nonlinear Circuits: Basic and Advanced Concepts. <i>Lecture Notes in Electrical Engineering</i> , 2020, , .	0.3	1
131	Effects of Parameter Variation on the Accuracy of a Nonlinear Inductor Model for Switch-Mode Power Supplies Applications. , 2020, , .		1
132	Delays induced cluster synchronization in chaotic networks. <i>Chaos</i> , 2020, 30, 121105.	1.0	1
133	MRF-CNN: a nonlinear analog circuit for piecewise constant image synthesis. , 0, , .		0
134	Circuitual Markov random fields for analog edge detection. , 0, , .		0
135	Boundary cells in cellular circuits for the minimisation of continuous functionals. , 0, , .		0
136	A procedure for the piecewise-linear approximation of the resistive part of a cellular nonlinear network. , 0, , .		0
137	CLASSIFICATION OF CHAOTIC SEQUENCES WITH OPEN-LOOP ESTIMATOR " OPTIMAL DESIGN FOR NOISY ENVIRONMENTS. <i>International Journal of Bifurcation and Chaos in Applied Sciences and Engineering</i> , 2004, 14, 3023-3043.	0.7	0
138	Bifurcation analysis of a circuit-related piecewise-affine map. , 0, , .		0
139	SVD-based approximations of bivariate functions. , 0, , .		0
140	Complex links between codimension-2 bifurcations in an electronic oscillator based on hysteresis. <i>Journal of Physics: Conference Series</i> , 2006, 55, 12-27.	0.3	0
141	Experimental validation of the bifurcation analysis of a hysteresis oscillator. , 0, , .		0
142	Bifurcation analysis of a second-order impact model for forest fire prediction through a 1D-map. , 0, , .		0
143	Digital architectures implementing piecewise-affine functions: An overview. , 2010, , .		0
144	A circuit model for open-loop compensation of hysteresis. , 2016, , .		0

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145	Phase analysis method for burst onset prediction. Physical Review E, 2017, 95, 022412.	0.8	0
146	Digital Architecture to Realize Programmable Central Pattern Generators Producing Multiple Gaits. , 2019, , .		0
147	A Toolchain for Open-Loop Compensation of Hysteresis and Creep in Atomic Force Microscopes. , 2019, , .		0
148	Electric Control of Molecular Dipoles: A Paradigm for Information Processing. , 1999, , 93-96.		0
149	Advanced Concepts: Analysis of Nonlinear Oscillators. Lecture Notes in Electrical Engineering, 2020, , 401-473.	0.3	0