Riccardo Rovatti

List of Publications by Year
in descending order

145 papers	2,656 citations	201385 27 h-index	214527 47 g-index
155 all docs	155 docs citations	155 times ranked	1714 citing authors

#	Article	IF	Citations
1	Embeddable ADC-based true random number generator for cryptographic applications exploiting nonlinear signal processing and chaos. IEEE Transactions on Signal Processing, 2005, 53, 793-805.	3.2	196
2	Implementation and Testing of High-Speed CMOS True Random Number Generators Based on Chaotic Systems. IEEE Transactions on Circuits and Systems I: Regular Papers, 2010, 57, 3124-3137.	3.5	122
3	On Statistical Tests for Randomness Included in the NIST SP800-22 Test Suite and Based on the Binomial Distribution. IEEE Transactions on Information Forensics and Security, 2012, 7, 491-505.	4.5	117
4	Interference minimisation by auto-correlation shaping in asynchronous DS-CDMA systems: chaos-based spreading is nearly optimal. Electronics Letters, 1999, 35, 1054.	0.5	112
5	EMI Reduction via Spread Spectrum in DC/DC Converters: State of the Art, Optimization, and Tradeoffs. IEEE Access, 2015, 3, 2857-2874.	2.6	107
6	A Pragmatic Look at Some Compressive Sensing Architectures With Saturation and Quantization. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2012, 2, 443-459.	2.7	100
7	Low-Complexity Multiclass Encryption by Compressed Sensing. IEEE Transactions on Signal Processing, 2015, , 1-1.	3.2	90
8	Hardware-Algorithms Co-Design and Implementation of an Analog-to-Information Converter for Biosignals Based on Compressed Sensing. IEEE Transactions on Biomedical Circuits and Systems, 2016, 10, 149-162.	2.7	85
9	Practical Optimization of EMI Reduction in Spread Spectrum Clock Generators With Application to Switching DC/DC Converters. IEEE Transactions on Power Electronics, 2014, 29, 4646-4657.	5.4	84
10	Rakeness in the Design of Analog-to-Information Conversion of Sparse and Localized Signals. IEEE Transactions on Circuits and Systems I: Regular Papers, 2012, 59, 1001-1014.	3.5	82
11	Fuzzy piecewise multilinear and piecewise linear systems as universal approximators in Sobolev norms. IEEE Transactions on Fuzzy Systems, 1998, 6, 235-249.	6.5	81
12	On Known-Plaintext Attacks to a Compressed Sensing-Based Encryption: A Quantitative Analysis. IEEE Transactions on Information Forensics and Security, 2015, 10, 2182-2195.	4.5	75
13	Wireless multi-standard terminals: system analysis and design of a reconfigurable RF front-end. IEEE Circuits and Systems Magazine, 2006, 6, 38-59.	2.6	71
14	Chaos-Based Spreading in DS-UWB Sensor Networks Increases Available Bit Rate. IEEE Transactions on Circuits and Systems Part 1: Regular Papers, 2007, 54, 1327-1339.	0.1	53
15	Rakeness-Based Design of Low-Complexity Compressed Sensing. IEEE Transactions on Circuits and Systems I: Regular Papers, 2017, 64, 1201-1213.	3.5	47
16	Parameter identification for piecewise-affine fuzzy models in noisy environment. International Journal of Approximate Reasoning, 1999, 22, 149-167.	1.9	46
17	A Fast Chaos-based True Random Number Generator for Cryptographic Applications. , 2006, , .		46
18	High-speed DSP-based implementation of piecewise-affine and piecewise-quadratic fuzzy systems. Signal Processing, 2000, 80, 951-963.	2.1	45

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19	First direct implementation of a true random source on programmable hardware. International Journal of Circuit Theory and Applications, 2005, 33, 1-16.	1.3	43
20	Identification of piecewise affine models in noisy environment. International Journal of Control, 2002, 75, 1472-1485.	1.2	42
21	An Analytical Approach for the Design of Class-E Resonant DC–DC Converters. IEEE Transactions on Power Electronics, 2016, 31, 7701-7713.	5.4	42
22	Fuzzy sets of rules for system identification. IEEE Transactions on Fuzzy Systems, 1996, 4, 89-102.	6.5	41
23	A 3-GHz Serial ATA Spread-Spectrum Clock Generator Employing a Chaotic PAM Modulation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2010, 57, 2577-2587.	3.5	37
24	An enhanced two-level Boolean synthesis methodology for fuzzy rules minimization. IEEE Transactions on Fuzzy Systems, 1995, 3, 288-299.	6.5	35
25	A geometric approach to maximum-speed n-dimensional continuous linear interpolation in rectangular grids. IEEE Transactions on Computers, 1998, 47, 894-899.	2.4	35
26	Memory-m antipodal processes: Spectral analysis and synthesis. IEEE Transactions on Circuits and Systems I: Regular Papers, 2009, 56, 156-167.	3.5	33
27	A Case Study in Low-Complexity ECG Signal Encoding: How Compressing is Compressed Sensing?. IEEE Signal Processing Letters, 2015, 22, 1743-1747.	2.1	33
28	Performance of Chaos-Based Asynchronous DS-CDMA With Different Pulse Shapes. IEEE Communications Letters, 2004, 8, 416-418.	2.5	32
29	Low-Cost Security of IoT Sensor Nodes With Rakeness-Based Compressed Sensing: Statistical and Known-Plaintext Attacks. IEEE Transactions on Information Forensics and Security, 2018, 13, 327-340.	4.5	28
30	Short-term Optimized Spread Spectrum Clock Generator for EMI Reduction in Switching DC/DC Converters. IEEE Transactions on Circuits and Systems I: Regular Papers, 2014, 61, 3044-3053.	3.5	27
31	Energy Analysis of Decoders for Rakeness-Based Compressed Sensing of ECG Signals. IEEE Transactions on Biomedical Circuits and Systems, 2017, 11, 1278-1289.	2.7	27
32	Second-level NIST Randomness Tests for Improving Test Reliability. , 2007, , .		25
33	A rakeness-based design flow for Analog-to-Information conversion by Compressive Sensing. , 2013, , .		25
34	Energy-Aware Bio-Signal Compressed Sensing Reconstruction on the WBSN-Gateway. IEEE Transactions on Emerging Topics in Computing, 2018, 6, 370-381.	3.2	23
35	A Low-Power Architecture for Punctured Compressed Sensing and Estimation in Wireless Sensor-Nodes. IEEE Transactions on Circuits and Systems I: Regular Papers, 2015, 62, 1296-1305.	3.5	20
36	Analog synthesis of nonlinear functions based on fuzzy logic. IEEE Journal of Solid-State Circuits, 1998, 33, 885-895.	3.5	19

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37	Chip Pulse Shaping in Asynchronous Chaos-Based DS-CDMA. IEEE Transactions on Circuits and Systems Part 1: Regular Papers, 2007, 54, 2299-2314.	0.1	19
38	An Ultra-Low Power Dual-mode ECG Monitor for Healthcare and Wellness. , 2015, , .		18
39	On the Approximate Solution of a Class of Large Discrete Quadratic Programming Problems by $\Delta\Sigma$ Modulation: The Case of Circulant Quadratic Forms. IEEE Transactions on Signal Processing, 2010, 58, 6126-6139.	3.2	17
40	Chained Compressed Sensing: A Blockchain-Inspired Approach for Low-Cost Security in IoT Sensing. IEEE Internet of Things Journal, 2019, 6, 6465-6475.	5.5	17
41	A silicon compiler of analog fuzzy controllers: from behavioral specifications to layout. IEEE Transactions on Fuzzy Systems, 1996, 4, 418-428.	6.5	16
42	Analog-to-information conversion of sparse and non-white signals: Statistical design of sensing waveforms. , 2011, , .		16
43	Zeroing for HW-efficient compressed sensing architectures targeting data compression in wireless sensor networks. Microprocessors and Microsystems, 2017, 48, 69-79.	1.8	16
44	Generation of Antipodal Random Vectors With Prescribed Non-Stationary 2-nd Order Statistics. IEEE Transactions on Signal Processing, 2014, 62, 1603-1612.	3.2	15
45	Rakeness-based approach to compressed sensing of ECGs. , 2011, , .		14
46	Exploiting Non-Linear Chirp and sparse deconvolution to enhance the performance of pulse-compression ultrasonic NDT. , 2012, , .		14
47	A fully CMOS true random number generator based on hidden attractor hyperchaotic system. Nonlinear Dynamics, 2020, 102, 2887-2904.	2.7	14
48	Deep Neural Oracles for Short-window Optimized Compressed Sensing of Biosignals. IEEE Transactions on Biomedical Circuits and Systems, 2020, 14, 1-1.	2.7	14
49	Adapted Compressed Sensing for Effective Hardware Implementations. , 2018, , .		14
50	Subspace Energy Monitoring for Anomaly Detection @Sensor or @Edge. IEEE Internet of Things Journal, 2020, 7, 7575-7589.	5.5	13
51	Automatic synthesis of analog fuzzy controllers: a hardware and software approach. IEEE Transactions on Industrial Electronics, 1996, 43, 217-225.	5.2	12
52	Power analysis of a chaos-based Random Number Generator for cryptographic security. , 2009, , .		12
53	Compressive sensing of localized signals: Application to Analog-to-Information conversion. , 2010, , .		12
54	Optimistic MILP modeling of non-linear optimization problems. European Journal of Operational Research, 2014, 239, 32-45.	3.5	12

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55	Energy-Aware Bio-signal Compressed Sensing Reconstruction: FOCUSS on the WBSN-Gateway. , 2015, , .		11
56	A Unified Design Theory for Class-E Resonant DC–DC Converter Topologies. IEEE Access, 2019, 7, 83825-83838.	2.6	11
57	Adapted Compressed Sensing: A Game Worth Playing. IEEE Circuits and Systems Magazine, 2020, 20, 40-60.	2.6	11
58	On the Performance of Chaos-Based Multicode DS-CDMA Systems. Circuits, Systems, and Signal Processing, 2005, 24, 475-495.	1.2	10
59	Adaptive Matrix Design for Boosting Compressed Sensing. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 1016-1027.	3.5	9
60	Fuzzy systems with overlapping Gaussian concepts: Approximation properties in Sobolev norms. Fuzzy Sets and Systems, 2002, 130, 137-145.	1.6	8
61	An architecture for 1-bit localized compressive sensing with applications to EEG. , 2011, , .		8
62	Rakeness-based compressed sensing on ultra-low power multi-core biomedical processors. , 2014, , .		8
63	Ripple-based power-line communication in switching DC-DC converters exploiting switching frequency modulation. , 2015, , .		8
64	Rakeness-Based Compressed Sensing of Multiple-Graph Signals for IoT Applications. IEEE Transactions on Circuits and Systems II: Express Briefs, 2018, 65, 682-686.	2.2	8
65	From chirps to random-FM excitations in pulse compression ultrasound systems. , 2012, , .		7
66	Coping with saturating projection stages in RMPI-based Compressive Sensing. , 2012, , .		7
67	Function approximation using non-normalized SISO fuzzy systems. International Journal of Approximate Reasoning, 2001, 26, 211-231.	1.9	6
68	Linear probability feedback processes. , 2008, , .		6
69	Adaptive Time-Interleaved ADC Offset Compensation by Nonwhite Data Chopping. IEEE Transactions on Circuits and Systems II: Express Briefs, 2009, 56, 820-824.	2.2	6
70	Low-power EEG monitor based on compressed sensing with compressed domain noise rejection. , 2016, , .		6
71	Deep Neural Oracle With Support Identification in the Compressed Domain. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2020, 10, 458-468.	2.7	6
72	Algorithmic fairness through group parities? The case of COMPAS-SAPMOC. AI and Society, 2023, 38, 459-478.	3.1	6

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73	A 3 GHz Spread Spectrum Clock Generator for SATA applications using chaotic PAM modulation. , 2008, , .		5
74	Correlation tuning in compressive sensing based on rakeness: A case study. , 2013, , .		5
75	Administering Quality-Energy Trade-Off in IoT Sensing Applications by Means of Adapted Compressed Sensing. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2018, 8, 895-907.	2.7	5
76	Rakeness-Based Compressed Sensing and Hub Spreading to Administer Short/Long-Range Communication Tradeoff in IoT Settings. IEEE Internet of Things Journal, 2018, 5, 2220-2233.	5.5	5
77	Algorithmic ADC Offset Compensation by Nonwhite Data Chopping: System Model and Basic Theoretical Results. IEEE Transactions on Circuits and Systems I: Regular Papers, 2008, 55, 1615-1627.	3.5	4
78	On the synthesis of periodic signals by discrete pulse-trains and optimisation techniques. , 2009, , .		4
79	STATISTICAL TESTING OF A CHAOS BASED CMOS TRUE-RANDOM NUMBER GENERATOR. Journal of Circuits, Systems and Computers, 2010, 19, 897-910.	1.0	4
80	An Energy-Efficient Multi-Sensor Compressed Sensing System Employing Time-Mode Signal Processing Techniques. , 2019, , .		4
81	Low-power ECG acquisition by Compressed Sensing with Deep Neural Oracles. , 2020, , .		4
82	Peer-to-Peer Distribution on Asymmetric Channels. IEEE Communications Letters, 2008, 12, 699-701.	2.5	3
83	Narrowband interference reduction in UWB systems based on spreading sequence spectrum shaping. , 2010, , .		3
84	Maximum entropy hadamard sensing of sparse and localized signals. , 2014, , .		3
85	A new semi-analytic approach for class-E resonant DC-DC converter design. , 2015, , .		3
86	Average recovery performances of non-perfectly informed compressed sensing: With applications to multiclass encryption. , 2015, , .		3
87	A first implementation of a semi-analytically designed class-E resonant DC-DC converter. , 2015, , .		3
88	Security analysis of rakeness-based compressed sensing. , 2016, , .		3
89	Sparse sensing matrix based compressed sensing in low-power ECG sensor nodes. , 2017, , .		3
90	Class-E Isolated DCâ€“DC Converter With High-Rate and Cost-Effective Bidirectional Data Channel. IEEE Transactions on Power Electronics, 2020, 35, 5304-5318.	5.4	3

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91	A Methodology for Practical Design and Optimization of Class-E DC-DC Resonant Converters. IEEE Access, 2020, 8, 205568-205589.	2.6	3
92	A passive and low-complexity Compressed Sensing architecture based on a charge-redistribution SAR ADC. The Integration VLSI Journal, 2020, 75, 40-51.	1.3	3
93	Practical Solution of Periodic Filtered Approximation as a Convex Quadratic Integer Program. , 2010, , 149-160.		3
94	Analog fuzzy implementation of a perceptual classifier for videophone sequences. IEEE Transactions on Consumer Electronics, 1996, 42, 787-794.	3.0	2
95	Queue system analytical study with self-similar chaos-based traffic. Electronics Letters, 2001, 37, 169.	0.5	2
96	On the convergence to regime of ADC-based true random number generators. , 2007, , .		2
97	A UWB CMOS 0.13Î¼m low-noise amplifier with dual loop negative feedback. , 2008, , .		2
98	Representation of PWM signals through time warping. , 2012, , .		2
99	Leakage compensation in analog random modulation pre-integration architectures for biosignal acquisition. , 2014, , .		2
100	Application of spread-spectrum techniques to class-E DC/DC converters: some preliminary results. , 2015, , .		2
101	Rakeness-based Compressed Sensing of Surface ElectroMyoGraphy for Improved Hand Movement Recognition in the Compressed Domain. , 2018, , .		2
102	Low-Power Fixed-Point Compressed Sensing Decoder with Support Oracle. , 2020, , .		2
103	Quantized norms and generalized relational composition on dense universes. International Journal of Approximate Reasoning, 1998, 19, 299-314.	1.9	1
104	Consistent Sobolev regression via fuzzy systems with overlapping concepts. Fuzzy Sets and Systems, 2006, 157, 1075-1091.	1.6	1
105	A Generalized Modulation Law for Generating Constant-Envelope Signals Via Frequency Modulation. Nonlinear Dynamics, 2006, 44, 285-292.	2.7	1
106	PERIODICITY AS CONDITION TO NOISE ROBUSTNESS FOR CHAOTIC MAPS WITH PIECEWISE CONSTANT INVARIANT DENSITY. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2006, 16, 3391-3400.	0.7	1
107	Second-level testing revisited and applications to NIST SP800-22. , 2007, , .		1
108	On the Nearest Neighbor of the Nearest Neighbor in Multidimensional Continuous and Quantized Space. IEEE Transactions on Information Theory, 2008, 54, 4069-4080.	1.5	1

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109	Randomly-Flipped Linear Feedback Shift Registers: Spectral Analysis and Conjectures. , 2008, , .		1
110	On the approximation errors in the frequency test included in the NIST SP800-22 statistical test suite. , 2008, , .		1
111	Circuits and Systems for the Synthesis of Chaotic Signals in Engineering Applications. Studies in Computational Intelligence, 2009, , 173-196.	0.7	1
112	Spectral shaping of spreading sequences as a mean to address the trade-off between narrowband and multi-access interferences in UWB systems. Nonlinear Theory and Its Applications IEICE, 2011, 2, 386-399.	0.4	1
113	Theoretic Bounds to Information Transmission Through Electrical Circuits. IEEE Transactions on Circuits and Systems I: Regular Papers, 2013, 60, 2474-2487.	3.5	1
114	Joint analog-to-information conversion of heterogeneous biosignals. , 2013, , .		1
115	An architecture for low-power compressed sensing and estimation in wireless sensor nodes. , 2014, , .		1
116	Compressed sensing based on rakeness for surface ElectroMyoGraphy. , 2014, , .		1
117	A Soft-Defined Pulse Width Modulation Approach—Part I: Principles. IEEE Transactions on Circuits and Systems I: Regular Papers, 2015, 62, 2280-2289.	3.5	1
118	A Soft-Defined Pulse Width Modulation Approach—Part II: System Modeling. IEEE Transactions on Circuits and Systems I: Regular Papers, 2015, 62, 2290-2300.	3.5	1
119	Low-complexity greedy algorithm in compressed sensing for the adapted decoding of ECGs. , 2017, , .		1
120	Countering the false myth of democracy: Boosting compressed sensing performance with maximum-energy approach. , 2017, , .		1
121	Disturbance Rejection With Rakeness-based Compressed Sensing: Method and Application to Baseline/Powerline Mitigation in ECGs. , 2018, , .		1
122	Rakeness-Based Compressed Sensing of Atrial Electrograms for the Diagnosis of Atrial Fibrillation. , 2019, , .		1
123	Tuning a Resonant DC/DC Converter on the Second Harmonic for Improving Performance: A Case Study. , 2019, , .		1
124	Chained Compressed Sensing for Iot Node Security. , 2019, , .		1
125	Through-The-Barrier Communications in Isolated Class-E Converters Embedding a Low-K Transformer. , 2020, , .		1
126	Analog-to-Information Conversion. , 2018, , 169-210.		1

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127	Low-Complexity Biosignal Compression Using Compressed Sensing. , 2018, , 211-254.		1
128	Implementation of Low EMI Spread Spectrum Clock Generators Exploiting a Chaos-Based Jitter. Studies in Computational Intelligence, 2009, , 145-171.	0.7	1
129	An MCU Implementation of PCA/PSA Streaming Algorithms for EEG Features Extraction. , 2021, , .		1
130	A Deep Learning Method for Optimal Undersampling Patterns and Image Recovery for MRI Exploiting Losses and Projections. IEEE Journal on Selected Topics in Signal Processing, 2022, 16, 713-724.	7.3	1
131	MULTIMODE TIME-MARKOV SYSTEMS: RECURSIVE TENSOR-BASED ANALYSIS, CHAOTIC GENERATION, LOCALLY LOOPING PROCESSES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2006, 16, 961-988.	0.7	0
132	RADS converter: An approach to Analog to Information conversion. , 2012, , .		0
133	Combined topological indices for distributed generation planning. , 2014, , .		0
134	Rakeness and beyond in zero-complexity digital compressed sensing: A down-to-bits case study. , 2016, , .		0
135	Resource Redistribution in Internet of Things applications by Compressed Sensing: A Survey. , 2018, , .		0
136	Impact of the Spread-Spectrum Technique on the Higher-Order Harmonics and Radiated Emissions of a Synchronous Buck Converter. , 2018, , .		0
137	Projected-Gradient-Descent in Rakeness-Based Compressed Sensing with Disturbance Rejection. , 2018, , .		0
138	Compressed Sensing of $DeltaSigma$ Streams. , 2019, , .		0
139	A Comparison between Class-E DC-DC Design Methodologies for Wireless Power Transfer. , 2021, , .		0
140	Introduction to Compressed Sensing: Fundamentals and Guarantees. , 2018, , 1-28.		0
141	Architectures for Compressed Sensing. , 2018, , 139-167.		0
142	Security at the Analog-to-Information Interface Using Compressed Sensing. , 2018, , 255-319.		0
143	From Universal to Adapted Acquisition: Rake That Signal!. , 2018, , 57-82.		0
144	An architecture for ultra-low-voltage ultra-low-power compressed sensing-based acquisition systems. , 2021, , .		0

#	ARTICLE	IF	CITATIONS
145	Compressed Sensing Inspired Neural Decoder for Undersampled MRI with Self-Assessment. , 2021, , .		0