

Pablo Varona

List of Publications by Year in descending order

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125
papers

3,247
citations

201674

27
h-index

168389

53
g-index

131
all docs

131
docs citations

131
times ranked

2284
citing authors

#	ARTICLE	IF	CITATIONS
1	Dynamical principles in neuroscience. <i>Reviews of Modern Physics</i> , 2006, 78, 1213-1265.	45.6	645
2	Transient Cognitive Dynamics, Metastability, and Decision Making. <i>PLoS Computational Biology</i> , 2008, 4, e1000072.	3.2	272
3	Synchronous behavior of two coupled electronic neurons. <i>Physical Review E</i> , 2000, 62, 2644-2656.	2.1	160
4	HETEROCLINIC CONTOURS IN NEURAL ENSEMBLES AND THE WINNERLESS COMPETITION PRINCIPLE. <i>International Journal of Bifurcation and Chaos in Applied Sciences and Engineering</i> , 2004, 14, 1195-1208.	1.7	115
5	Robust Transient Dynamics and Brain Functions. <i>Frontiers in Computational Neuroscience</i> , 2011, 5, 24.	2.1	96
6	Information flow dynamics in the brain. <i>Physics of Life Reviews</i> , 2012, 9, 51-73.	2.8	95
7	Interacting biological and electronic neurons generate realistic oscillatory rhythms. <i>NeuroReport</i> , 2000, 11, 563-569.	1.2	89
8	Macroscopic and Subcellular Factors Shaping Population Spikes. <i>Journal of Neurophysiology</i> , 2000, 83, 2192-2208.	1.8	78
9	Chunking dynamics: heteroclinics in mind. <i>Frontiers in Computational Neuroscience</i> , 2014, 8, 22.	2.1	72
10	Artificial intelligence in nanotechnology. <i>Nanotechnology</i> , 2013, 24, 452002.	2.6	70
11	Reliable circuits from irregular neurons: A dynamical approach to understanding central pattern generators. <i>Journal of Physiology (Paris)</i> , 2000, 94, 357-374.	2.1	65
12	Dynamical bridge between brain and mind. <i>Trends in Cognitive Sciences</i> , 2015, 19, 453-461.	7.8	60
13	Dynamics of two electrically coupled chaotic neurons: Experimental observations and model analysis. <i>Biological Cybernetics</i> , 2001, 84, 91-101.	1.3	58
14	Winnerless competition between sensory neurons generates chaos: A possible mechanism for molluscan hunting behavior. <i>Chaos</i> , 2002, 12, 672-677.	2.5	58
15	Heteroclinic Synchronization: Ultrasubharmonic Locking. <i>Physical Review Letters</i> , 2006, 96, 014101.	7.8	50
16	Dual Sensory-Motor Function for a Molluskan Statocyst Network. <i>Journal of Neurophysiology</i> , 2004, 91, 336-345.	1.8	49
17	Regularization mechanisms of spikingâ€bursting neurons. <i>Neural Networks</i> , 2001, 14, 865-875.	5.9	48
18	An active, inverse temperature modulation strategy for single sensor odorant classification. <i>Sensors and Actuators B: Chemical</i> , 2015, 206, 555-563.	7.8	48

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19	Generation and reshaping of sequences in neural systems. <i>Biological Cybernetics</i> , 2006, 95, 519-536.	1.3	45
20	The Role of Sensory Network Dynamics in Generating a Motor Program. <i>Journal of Neuroscience</i> , 2005, 25, 9807-9815.	3.6	43
21	Neural Signatures: Multiple Coding in Spiking Bursting Cells. <i>Biological Cybernetics</i> , 2006, 95, 169-183.	1.3	37
22	Controlling a Smartphone Using Gaze Gestures as the Input Mechanism. <i>Human-Computer Interaction</i> , 2015, 30, 34-63.	4.4	34
23	Heteroclinic binding. <i>Dynamical Systems</i> , 2010, 25, 433-442.	0.4	33
24	Assisted closed-loop optimization of SSVEP-BCI efficiency. <i>Frontiers in Neural Circuits</i> , 2013, 7, 27.	2.8	31
25	Bio-inspired design strategies for central pattern generator control in modular robotics. <i>Bioinspiration and Biomimetics</i> , 2011, 6, 016006.	2.9	30
26	Topology selection by chaotic neurons of a pyloric central pattern generator. <i>Biological Cybernetics</i> , 2001, 84, L1-L8.	1.3	29
27	Structural Inhomogeneities Differentially Modulate Action Currents and Population Spikes Initiated in the Axon or Dendrites. <i>Journal of Neurophysiology</i> , 2002, 88, 2809-2820.	1.8	29
28	Synchronization and coordination of sequences in two neural ensembles. <i>Physical Review E</i> , 2005, 71, 061909.	2.1	27
29	Sequential dynamics of complex networks in mind: Consciousness and creativity. <i>Physics Reports</i> , 2020, 883, 1-32.	25.6	26
30	Hierarchical nonlinear dynamics of human attention. <i>Neuroscience and Biobehavioral Reviews</i> , 2015, 55, 18-35.	6.1	25
31	Discrete Sequential Information Coding: Heteroclinic Cognitive Dynamics. <i>Frontiers in Computational Neuroscience</i> , 2018, 12, 73.	2.1	25
32	Generalization of the Dynamic Clamp Concept in Neurophysiology and Behavior. <i>PLoS ONE</i> , 2012, 7, e40887.	2.5	25
33	Transient dynamics and rhythm coordination of inferior olive spatio-temporal patterns. <i>Frontiers in Neural Circuits</i> , 2013, 7, 138.	2.8	24
34	Neural Dynamics of Attentional Cross-Modality Control. <i>PLoS ONE</i> , 2013, 8, e64406.	2.5	23
35	Gliding and saccadic gaze gesture recognition in real time. <i>ACM Transactions on Interactive Intelligent Systems</i> , 2012, 1, 1-27.	3.7	22
36	Extending the bioinspired hierarchical temporal memory paradigm for sign language recognition. <i>Neurocomputing</i> , 2012, 79, 75-86.	5.9	22

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37	Origin of coherent structures in a discrete chaotic medium. <i>Physical Review E</i> , 1999, 60, R1130-R1133.	2.1	21
38	Transient Dynamics in Complex Systems: Heteroclinic Sequences with Multidimensional Unstable Manifolds. <i>Discontinuity, Nonlinearity, and Complexity</i> , 2013, 2, 21-41.	0.2	20
39	Characterization of a clinical olfactory test with an artificial nose. <i>Frontiers in Neuroengineering</i> , 2011, 5, 1.	4.8	18
40	History-Dependent Excitability as a Single-Cell Substrate of Transient Memory for Information Discrimination. <i>PLoS ONE</i> , 2010, 5, e15023.	2.5	18
41	Effect of individual spiking activity on rhythm generation of central pattern generators. <i>Neurocomputing</i> , 2004, 58-60, 535-540.	5.9	17
42	Real-time control of stepper motors for mechano-sensory stimulation. <i>Journal of Neuroscience Methods</i> , 2008, 172, 105-111.	2.5	17
43	Low cost remote gaze gesture recognition in real time. <i>Applied Soft Computing Journal</i> , 2012, 12, 2072-2084.	7.2	17
44	Competing sensory neurons and motor rhythm coordination. <i>Neurocomputing</i> , 2004, 58-60, 549-554.	5.9	16
45	RTBiomanager: a software platform to expand the applications of real-time technology in neuroscience. <i>BMC Neuroscience</i> , 2009, 10, .	1.9	16
46	Hierarchical dynamics of informational patterns and decision-making. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2016, 283, 20160475.	2.6	16
47	NONLINEAR COOPERATIVE DYNAMICS OF LIVING NEURONS. <i>International Journal of Bifurcation and Chaos in Applied Sciences and Engineering</i> , 2000, 10, 913-933.	1.7	15
48	Signature Neural Networks: Definition and Application to Multidimensional Sorting Problems. <i>IEEE Transactions on Neural Networks</i> , 2011, 22, 8-23.	4.2	15
49	Transformation of Context-dependent Sensory Dynamics into Motor Behavior. <i>PLoS Computational Biology</i> , 2013, 9, e1002908.	3.2	15
50	Interplay between Subthreshold Oscillations and Depressing Synapses in Single Neurons. <i>PLoS ONE</i> , 2016, 11, e0145830.	2.5	14
51	Slow dynamics and regularization phenomena in ensembles of chaotic neurons. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1999, 263, 405-414.	2.6	13
52	An inverse problem solution for undetermined electrostatic force microscopy setups using neural networks. <i>Nanotechnology</i> , 2009, 20, 085702.	2.6	13
53	Characterization of Triphasic Rhythms in Central Pattern Generators (I): Interspike Interval Analysis. <i>Lecture Notes in Computer Science</i> , 2002, , 160-166.	1.3	13
54	Real-time activity-dependent drug microinjection. <i>BMC Neuroscience</i> , 2009, 10, .	1.9	12

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55	Optimizing Hierarchical Temporal Memory for Multivariable Time Series. Lecture Notes in Computer Science, 2010, , 506-518.	1.3	12
56	Asymmetry Factors Shaping Regular and Irregular Bursting Rhythms in Central Pattern Generators. Frontiers in Computational Neuroscience, 2017, 11, 9.	2.1	12
57	Characterization of Triphasic Rhythms in Central Pattern Generators (II): Burst Information Analysis. Lecture Notes in Computer Science, 2002, , 167-173.	1.3	12
58	Spatio-temporal patterns of network activity in the inferior olive. Neurocomputing, 2002, 44-46, 685-690.	5.9	11
59	Subthreshold oscillations and neuronal inputâ€“output relationships. Neurocomputing, 2007, 70, 1611-1614.	5.9	11
60	Generalized Image Charge Method to Calculate Electrostatic Magnitudes at the Nanoscale Powered by Artificial Neural Networks. Journal of Electromagnetic Waves and Applications, 2010, 24, 1145-1155.	1.6	11
61	Closed-loop control of a minimal central pattern generator network. Neurocomputing, 2015, 170, 55-62.	5.9	11
62	Consciousness as Sequential Dynamics, Robustness, and Mental Disorders. JAMA Psychiatry, 2017, 74, 771.	11.0	11
63	RTHybrid: A Standardized and Open-Source Real-Time Software Model Library for Experimental Neuroscience. Frontiers in Neuroinformatics, 2019, 13, 11.	2.5	10
64	Delay-Dependent Response in Weakly Electric Fish under Closed-Loop Pulse Stimulation. PLoS ONE, 2015, 10, e0141007.	2.5	10
65	Event detection, multimodality and non-stationarity: Ordinal patterns, a tool to rule them all?. European Physical Journal: Special Topics, 2013, 222, 457-472.	2.6	9
66	Robust dynamical invariants in sequential neural activity. Scientific Reports, 2019, 9, 9048.	3.3	9
67	A Low-Cost Computational Method for Characterizing Event-Related Potentials for BCI Applications and Beyond. IEEE Access, 2020, 8, 111089-111101.	4.2	9
68	Temporal structure in the bursting activity of the leech heartbeat CPG neurons. Neurocomputing, 2007, 70, 1792-1796.	5.9	8
69	Temporal Code-Driven Stimulation: Definition and Application to Electric Fish Signaling. Frontiers in Neuroinformatics, 2016, 10, 41.	2.5	8
70	An electrode selection approach in P300-based BCIs to address inter- and intra-subject variability. , 2018, , .		8
71	Automatic Adaptation of Model Neurons and Connections to Build Hybrid Circuits with Living Networks. Neuroinformatics, 2020, 18, 377-393.	2.8	8
72	Reaction to neural signatures through excitatory synapses in central pattern generator models. Neurocomputing, 2007, 70, 1797-1801.	5.9	7

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73	Spike timing-dependent plasticity is affected by the interplay of intrinsic and network oscillations. <i>Journal of Physiology (Paris)</i> , 2010, 104, 91-98.	2.1	7
74	Winnerless competition in coupled Lotka-Volterra maps. <i>Physical Review E</i> , 2013, 88, 012709.	2.1	7
75	26th Annual Computational Neuroscience Meeting (CNS*2017): Part 3. <i>BMC Neuroscience</i> , 2017, 18, .	1.9	7
76	Rhythmic control of oscillatory sequential dynamics in heteroclinic motifs. <i>Neurocomputing</i> , 2019, 331, 108-120.	5.9	7
77	Online video tracking for activity-dependent stimulation in neuroethology. <i>BMC Neuroscience</i> , 2011, 12, .	1.9	6
78	Online Event Detection Requirements in Closed-Loop Neuroscience. , 2016, , 81-91.		6
79	Connection Topology Selection in Central Pattern Generators by Maximizing the Gain of Information. <i>Neural Computation</i> , 2007, 19, 974-993.	2.2	5
80	Modeling Biological Neural Networks. , 2012, , 533-564.		5
81	The use of artificial neural networks in electrostatic force microscopy. <i>Nanoscale Research Letters</i> , 2012, 7, 250.	5.7	5
82	Communication by identity discrimination in bio-inspired multi-agent systems. <i>Concurrency Computation Practice and Experience</i> , 2012, 24, 589-603.	2.2	5
83	Gaze Gesture Recognition with Hierarchical Temporal Memory Networks. <i>Lecture Notes in Computer Science</i> , 2011, , 1-8.	1.3	5
84	Networks of neurons that emit and recognize signatures. <i>Neurocomputing</i> , 2004, 58-60, 41-46.	5.9	4
85	Interacting Slow and Fast Dynamics in Precise Spiking-Bursting Neurons. <i>Lecture Notes in Computer Science</i> , 2005, , 106-115.	1.3	3
86	Determining Burst Firing Time Distributions from Multiple Spike Trains. <i>Neural Computation</i> , 2009, 21, 973-990.	2.2	3
87	Behavioral driving through on line monitoring and activity-dependent stimulation in weakly electric fish. <i>BMC Neuroscience</i> , 2013, 14, .	1.9	3
88	Dynamic Clamp Technique. , 2014, , 1-4.		3
89	How to Reduce Classification Error in ERP-Based BCI: Maximum Relative Areas as a Feature for P300 Detection. <i>Lecture Notes in Computer Science</i> , 2017, , 486-497.	1.3	3
90	Analysis of Electroreception with Temporal Code-Driven Stimulation. <i>Lecture Notes in Computer Science</i> , 2017, , 101-111.	1.3	3

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91	Current Source Density analysis as a tool to constrain the parameter space in hippocampal CA1 neuron models. Lecture Notes in Computer Science, 1997, , 82-90.	1.3	2
92	Time-scales in the interplay between calcium and voltage dynamics. Neurocomputing, 2007, 70, 1949-1953.	5.9	2
93	Instability, semantic dynamics and modeling brain data. Physics of Life Reviews, 2012, 9, 80-83.	2.8	2
94	Application of symbolic dynamics to characterize coordinated activity in the context of biological neural networks. Journal of the Franklin Institute, 2013, 350, 2967-2981.	3.4	2
95	Design Principles for Cooperative Robots with Uncertainty-Aware and Resource-Wise Adaptive Behavior. Lecture Notes in Computer Science, 2014, , 108-117.	1.3	2
96	High and low dimensionality in neuroscience and artificial intelligence. Physics of Life Reviews, 2019, 29, 106-107.	2.8	2
97	Temporal discrimination from the interaction between dynamic synapses and intrinsic subthreshold oscillations. Neurocomputing, 2020, 417, 543-557.	5.9	2
98	A Fine Dry-Electrode Selection to Characterize Event-Related Potentials in the Context of BCI. Lecture Notes in Computer Science, 2021, , 230-241.	1.3	2
99	Characterization of interval variability in the sequential activity of a central pattern generator model. Neurocomputing, 2021, 461, 667-678.	5.9	2
100	Introducing XSim: A neural network simulator that incorporates biological parameters. Lecture Notes in Computer Science, 1995, , 650-657.	1.3	2
101	Nonlinear dynamics of creative thinking. Multimodal processes and the interaction of heteroclinic structures. Physics-Uspekhi, 2021, 64, 801-814.	2.2	2
102	Richer Network Dynamics of Intrinsically Non-regular Neurons Measured through Mutual Information. Lecture Notes in Computer Science, 2001, , 490-497.	1.3	2
103	Effects of Locomotive Drift in Scale-Invariant Robotic Search Strategies. Lecture Notes in Computer Science, 2017, , 161-169.	1.3	2
104	Evolutionary Tuning of a Pulse Mormyrid Electromotor Model to Generate Stereotyped Sequences of Electrical Pulse Intervals. Lecture Notes in Computer Science, 2018, , 359-368.	1.3	2
105	Intrinsic and environmental factors modulating autonomous robotic search under high uncertainty. Scientific Reports, 2021, 11, 24509.	3.3	2
106	Binding brain dynamics building up heteroclinic networks. Physics of Life Reviews, 2021, 36, 33-34.	2.8	1
107	Optimal Message Interchange in a Self-organizing Multi-agent System. Studies in Computational Intelligence, 2010, , 131-141.	0.9	1
108	The Dynamical Modeling of Cognitive Robot-Human Centered Interaction. Lecture Notes in Computer Science, 2012, , 228-237.	1.3	1

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109	Modeling the Sequential Pattern Variability of the Electromotor Command System of Pulse Electric Fish. <i>Frontiers in Neuroinformatics</i> , 0, 16, .	2.5	1
110	Neurocomputation with Separatrices. <i>AIP Conference Proceedings</i> , 2003, , .	0.4	0
111	Origin and role of neural signatures in bursting neurons. <i>AIP Conference Proceedings</i> , 2007, , .	0.4	0
112	Temporal structure of bursting patterns as representation of input history. <i>BMC Neuroscience</i> , 2009, 10, .	1.9	0
113	A model study for causal relationships between voltage and calcium dynamics. <i>BMC Neuroscience</i> , 2011, 12, .	1.9	0
114	Assisted closed-loops for brain-computer interfaces. <i>BMC Neuroscience</i> , 2013, 14, .	1.9	0
115	Sensory dynamics transformation into effective motor behavior. <i>BMC Neuroscience</i> , 2013, 14, .	1.9	0
116	Channel-specific input/output transformations arising from the interaction between dynamic synapses and subthreshold oscillations. <i>BMC Neuroscience</i> , 2015, 16, P274.	1.9	0
117	Regularization of a half-center oscillator network by closed-loop control. <i>BMC Neuroscience</i> , 2015, 16, .	1.9	0
118	Effect of Electrical Synapses in the Cycle-by-Cycle Period and Burst Duration of Central Pattern Generators. <i>Lecture Notes in Computer Science</i> , 2021, , 81-92.	1.3	0
119	Stochastic Networks with Subthreshold Oscillations and Spiking Activity. <i>Lecture Notes in Computer Science</i> , 2003, , 32-39.	1.3	0
120	Local Context Discrimination in Signature Neural Networks. <i>Lecture Notes in Computer Science</i> , 2011, , 400-408.	1.3	0
121	Flexible Entrainment in a Bio-inspired Modular Oscillator for Modular Robot Locomotion. <i>Lecture Notes in Computer Science</i> , 2011, , 532-539.	1.3	0
122	Dynamic feature linking in stochastic networks with short range interactions. <i>Lecture Notes in Computer Science</i> , 1996, , 101-106.	1.3	0
123	Dynamic Clamp. , 2015, , 1-11.		0
124	Dynamic Clamp. , 2016, , 882-891.		0
125	Dynamic Clamp Technique. , 2022, , 1240-1243.		0