Mauricio Barahona

List of Publications by Year
in descending order

161	8,966	94269	49773
papers	citations	37 h-index	87 g-index

199	199	199	11011
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Synchronization in Small-World Systems. Physical Review Letters, 2002, 89, 054101.	2.9	1,322
2	SC3: consensus clustering of single-cell RNA-seq data. Nature Methods, 2017, 14, 483-486.	9.0	1,203
3	Transcriptome-wide noise controls lineage choice in mammalian progenitor cells. Nature, 2008, 453, 544-547.	13.7	1,007
4	Stability of graph communities across time scales. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 12755-12760.	3.3	358
5	Detection of nonlinear dynamics in short, noisy time series. Nature, 1996, 381, 215-217.	13.7	259
6	Random Walks, Markov Processes and the Multiscale Modular Organization of Complex Networks. IEEE Transactions on Network Science and Engineering, 2014, 1, 76-90.	4.1	259
7	Spectral Measure of Structural Robustness in Complex Networks. IEEE Transactions on Systems, Man and Cybernetics, Part A: Systems and Humans, 2011, 41, 1244-1252.	3.4	191
8	A modular cell-based biosensor using engineered genetic logic circuits to detect and integrate multiple environmental signals. Biosensors and Bioelectronics, 2013, 40, 368-376.	5.3	191
9	The Effect of Spatially Inhomogeneous Extracellular Electric Fields on Neurons. Journal of Neuroscience, 2010, 30, 1925-1936.	1.7	169
10	Self-Assembled, Deterministic Carbon Nanotube Wiring Networks This work was funded by the Office of Naval Research, DARPA, and an NSF-FRG grant.. Angewandte Chemie - International Edition, 2002, 41, 353.	7.2	159
11	Titration of chaos with added noise. Proceedings of the National Academy of Sciences of the United States of America, 2001, 98, 7107-7112.	3.3	138
12	PDGFRÎ± demarcates the cardiogenic clonogenic Sca1+ stem/progenitor cell in adult murine myocardium. Nature Communications, 2015, 6, 6930.	5.8	130
13	Markov Dynamics as a Zooming Lens for Multiscale Community Detection: Non Clique-Like Communities and the Field-of-View Limit. PLoS ONE, 2012, 7, e32210.	1.1	116
14	Graph partitions and cluster synchronization in networks of oscillators. Chaos, 2016, 26, 094821.	1.0	110
15	Engineering modular and tunable genetic amplifiers for scaling transcriptional signals in cascaded gene networks. Nucleic Acids Research, 2014, 42, 9484-9492.	6.5	109
16	Natural Connectivity of Complex Networks. Chinese Physics Letters, 2010, 27, 078902.	1.3	108
17	Decentralised minimum-time consensus. Automatica, 2013, 49, 1227-1235.	3.0	104
18	Amplification of small molecule-inducible gene expression via tuning of intracellular receptor densities. Nucleic Acids Research, 2015, 43, 1955-1964.	6.5	98

#	Article	IF	Citations
19	Infrared and Raman spectra of the new superconducting cuprate perovskites MBa2Cu3O7, M =Nd, Dy, Er, Tm. Solid State Communications, 1988, 65, 71-75.	0.9	95
20	Tuning the dials of Synthetic Biology. Microbiology (United Kingdom), 2013, 159, 1236-1253.	0.7	87
21	Combinatorial stresses kill pathogenicCandidaspecies. Medical Mycology, 2012, 50, 699-709.	0.3	79
22	Prediction of allosteric sites and mediating interactions through bond-to-bond propensities. Nature Communications, 2016, 7, 12477.	5.8	78
23	Probabilistic risk analysis of groundwater remediation strategies. Water Resources Research, 2009, 45, .	1.7	72
24	Stochastic models of gene transcription with upstream drives: exact solution and sample path characterization. Journal of the Royal Society Interface, 2017, 14, 20160833.	1.5	71
25	Nitrogen and Carbon Status Are Integrated at the Transcriptional Level by the Nitrogen Regulator NtrC In Vivo. MBio, 2013, 4, e00881-13.	1.8	66
26	Switchable genetic oscillator operating in quasi-stable mode. Journal of the Royal Society Interface, 2010, 7, 1071-1082.	1.5	65
27	Flow graphs: Interweaving dynamics and structure. Physical Review E, 2011, 84, 017102.	0.8	64
28	Encoding dynamics for multiscale community detection: Markov time sweeping for the map equation. Physical Review E, 2012, 86, 026112.	0.8	58
29	X-ray diffraction measurement of the monolayer spontaneous curvature of dioleoylphosphatidylglycerol. Chemistry and Physics of Lipids, 2008, 154, 64-67.	1.5	57
30	Interest communities and flow roles in directed networks: the Twitter network of the UK riots. Journal of the Royal Society Interface, 2014, 11, 20140940.	1.5	52
31	Protein multi-scale organization through graph partitioning and robustness analysis: application to the myosinâ€“myosin light chain interaction. Physical Biology, 2011, 8, 055010.	0.8	50
32	Non-invasive suppression of essential tremor via phase-locked disruption of its temporal coherence. Nature Communications, 2021, 12, 363.	5.8	50
33	Engineering and ethical perspectives in synthetic biology. EMBO Reports, 2012, 13, 584-590.	2.0	49
34	Observability and coarse graining of consensus dynamics through the external equitable partition. Physical Review E, 2013, 88, 042805.	0.8	49
35	Introduction of a Fluorescent Probe to Amyloidâ€Î²2 to Reveal Kinetic Insights into Its Interactions with Copper(II). Angewandte Chemie - International Edition, 2015, 54, 1227-1230.	7.2	47
36	Stochastic Kinetics of Viral Capsid Assembly Based on Detailed Protein Structures. Biophysical Journal, 2006, 90, 3029-3042.	0.2	45

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37	Emergence of Slow-Switching Assemblies in Structured Neuronal Networks. PLoS Computational Biology, 2015, 11, e1004196.	1.5	45
38	Stochastic modelling reveals mechanisms of metabolic heterogeneity. Communications Biology, 2019, 2, 108.	2.0	44
39	Superconducting energy gap inMBa2Cu3O7â^Î´-type materials. Physical Review B, 1988, 37, 652-655.	1.1	43
40	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. PLoS Computational Biology, 2020, 16, e1007606.	1.5	42
41	Structure of complex networks: Quantifying edge-to-edge relations by failure-induced flow redistribution. Network Science, 2014, 2, 66-89.	0.8	41
42	Compound stress response in stomatal closure: a mathematical model of ABA and ethylene interaction in guard cells. BMC Systems Biology, 2012, 6, 146.	3.0	36
43	Flow-Based Network Analysis of the Caenorhabditis elegans Connectome. PLoS Computational Biology, 2016, 12, e1005055.	1.5	35
44	The Stability of a Graph Partition: A Dynamics-Based Framework for Community Detection. Modeling and Simulation in Science, Engineering and Technology, 2013, , 221-242.	0.4	34
45	Graph-based data clustering via multiscale community detection. Applied Network Science, 2020, 5, .	0.8	34
46	Robustness of random graphs based on graph spectra. Chaos, 2012, 22, 043101.	1.0	32
47	Multiscale dynamical embeddings of complex networks. Physical Review E, 2019, 99, 062308.	0.8	32
48	Data-driven unsupervised clustering of online learner behaviour. Npj Science of Learning, 2019, 4, 14.	1.5	31
49	Uncovering allosteric pathways in caspase-1 using Markov transient analysis and multiscale community detection. Molecular BioSystems, 2014, 10, 2247-2258.	2.9	30
50	Revealing cell assemblies at multiple levels of granularity. Journal of Neuroscience Methods, 2014, 236, 92-106.	1.3	30
51	Computational Re-design of Synthetic Genetic Oscillators for Independent Amplitude and Frequency Modulation. Cell Systems, 2018, 6, 508-520.e5.	2.9	30
52	Ba2PrCu3O7: Crystal growth, structure and magnetic properties. Solid State Communications, 1988, 67, 369-372.	0.9	29
53	Flux-dependent graphs for metabolic networks. Npj Systems Biology and Applications, 2018, 4, 32.	1.4	29
54	The â€˜whoâ€™ and â€˜whatâ€™ of #diabetes on Twitter. Digital Health, 2017, 3, 205520761668884.	0.9	28

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55	Toward Precision Healthcare: Context and Mathematical Challenges. Frontiers in Physiology, 2017, 8, 136.	1.3	28
56	The rare-earth H.T.S.C. family Ba2(RE)Cu3O7; structural, electrical and magnetic studies (RE=Y,Nd,Sm,Eu,Gd,Dy,Ho,Er,Tm). Materials Research Bulletin, 1988, 23, 313-321.	2.7	27
57	Complex interlinkages, key objectives, and nexuses among the Sustainable Development Goals and climate change: a network analysis. Lancet Planetary Health, The, 2022, 6, e422-e430.	5.1	27
58	Transient dynamics around unstable periodic orbits in the generalized repressilator model. Chaos, 2011, 21, 023104.	1.0	25
59	Quantitative measure of hysteresis for memristors through explicit dynamics. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 2210-2229.	1.0	24
60	Hhex and Cer1 Mediate the Sox17 Pathway for Cardiac Mesoderm Formation in Embryonic Stem Cells. Stem Cells, 2014, 32, 1515-1526.	1.4	24
61	GlnK Facilitates the Dynamic Regulation of Bacterial Nitrogen Assimilation. Biophysical Journal, 2017, 112, 2219-2230.	0.2	24
62	Biophysical Regulation of Lipid Biosynthesis in the Plasma Membrane. Biophysical Journal, 2008, 94, 2938-2954.	0.2	23
63	Kinetic Analysis Reveals the Identity of AÎ²-Metal Complex Responsible for the Initial Aggregation of AÎ² in the Synapse. ACS Chemical Neuroscience, 2017, 8, 1970-1979.	1.7	22
64	ProteinLens: a web-based application for the analysis of allosteric signalling on atomistic graphs of biomolecules. Nucleic Acids Research, 2021, 49, W551-W558.	6.5	22
65	Perfect Sampling of the Master Equation for Gene Regulatory Networks. Biophysical Journal, 2007, 93, 401-410.	0.2	21
66	A Dynamical Model of Lipoprotein Metabolism. Bulletin of Mathematical Biology, 2007, 69, 1233-1254.	0.9	21
67	Robustness of regular ring lattices based on natural connectivity. International Journal of Systems Science, 2011, 42, 1085-1092.	3.7	21
68	Rewiring cell signalling through chimaeric regulatory protein engineering. Biochemical Society Transactions, 2013, 41, 1195-1200.	1.6	21
69	Dynamics of one-dimensional Josephson-junction arrays. Physica D: Nonlinear Phenomena, 1998, 119, 219-226.	1.3	20
70	Memristors and Bernoulli dynamics. , 2010, , .		20
71	Great cities look small. Journal of the Royal Society Interface, 2015, 12, 20150315.	1.5	20
72	Bounding Stationary Averages of Polynomial Diffusions via Semidefinite Programming. SIAM Journal of Scientific Computing, 2016, 38, A3891-A3920.	1.3	20

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73	On memristor ideality and reciprocity. Microelectronics Journal, 2014, 45, 1363-1371.	1.1	19
74	Window functions and sigmoidal behaviour of memristive systems. International Journal of Circuit Theory and Applications, 2016, 44, 1685-1696.	1.3	19
75	Repurposed floxacins targeting RSK4 prevent chemoresistance and metastasis in lung and bladder cancer. Science Translational Medicine, 2021, 13, .	5.8	19
76	Resonances of dynamical checkerboard states in Josephson arrays with self-inductance. Physical Review B, 1997, 55, R11989-R11992.	1.1	18
77	Crowding-Induced Anisotropic Transport Modulates Reaction Kinetics in Nanoscale Porous Media. Journal of Physical Chemistry B, 2010, 114, 5380-5385.	1.2	18
78	Finding role communities in directed networks using Role-Based Similarity, Markov Stability and the Relaxed Minimum Spanning Tree. , 2013, , .		18
79	Bounding the stationary distributions of the chemical master equation via mathematical programming. Journal of Chemical Physics, 2019, 151, 034109.	1.2	18
80	Systems level profiling of chemotherapy-induced stress resolution in cancer cells reveals druggable trade-offs. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	18
81	Device Properties of Bernoulli Memristors. Proceedings of the IEEE, 2012, 100, 1938-1950.	16.4	17
82	Linear models of activation cascades: analytical solutions and coarse-graining of delayed signal transduction. Journal of the Royal Society Interface, 2016, 13, 20160409.	1.5	17
83	From free text to clusters of content in health records: an unsupervised graph partitioning approach. Applied Network Science, 2019, 4, 2.	0.8	17
84	Superconducting states and depinning transitions of Josephson ladders. Physical Review B, 1998, 57, 1181-1199.	1.1	15
85	Stationary Distributions of Continuous-Time Markov Chains: A Review of Theory and Truncation-Based Approximations. SIAM Review, 2021, 63, 3-64.	4.2	15
86	Opportunities at the Interface of Network Science and Metabolic Modeling. Frontiers in Bioengineering and Biotechnology, 2020, 8, 591049.	2.0	15
87	Informing antimicrobial management in the context of COVID-19: understanding the longitudinal dynamics of C-reactive protein and procalcitonin. BMC Infectious Diseases, 2021, 21, 932.	1.3	15
88	Community detection and role identification in directed networks: Understanding the Twitter network of the care.data debate. Security Science and Technology, 2016, , 111-136.	0.5	14
89	HyperTraPS: Inferring Probabilistic Patterns of Trait Acquisition in Evolutionary and Disease Progression Pathways. Cell Systems, 2020, 10, 39-51.e10.	2.9	14
90	Development and Delivery of a Real-time Hospital-onset COVID-19 Surveillance System Using Network Analysis. Clinical Infectious Diseases, 2020, 72, 82-89.	2.9	14

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91	Cellular memory enhances bacterial chemotactic navigation in rugged environments. Communications Physics, 2020, 3, .	2.0	14
92	Sensory experience modifies spontaneous state dynamics in a large-scale barrel cortical model. Journal of Computational Neuroscience, 2012, 33, 323-339.	0.6	13
93	Risk factor-dependent dynamics of atopic dermatitis: modelling multi-scale regulation of epithelium homeostasis. Interface Focus, 2013, 3, 20120090.	1.5	13
94	Guiding interoperable electronic health records through patient-sharing networks. Npj Digital Medicine, 2018, 1, 65.	5.7	13
95	Allostery and cooperativity in multimeric proteins: bond-to-bond propensities in ATCase. Scientific Reports, 2018, 8, 11079.	1.6	13
96	The Exit Time Finite State Projection Scheme: Bounding Exit Distributions and Occupation Measures of Continuous-Time Markov Chains. SIAM Journal of Scientific Computing, 2019, 41, A748-A769.	1.3	13
97	Computation of Single-Cell Metabolite Distributions Using Mixture Models. Frontiers in Cell and Developmental Biology, 2020, 8, 614832.	1.8	13
98	Scale-dependent measure of network centrality from diffusion dynamics. Physical Review Research, 2020, 2, .	1.3	13
99	New geographic model of care to manage the post-COVID-19 elective surgery aftershock in England: a retrospective observational study. BMJ Open, 2020, 10, e042392.	0.8	13
100	Chemistry across scales: from molecules to cells. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2007, 365, 2921-2934.	1.6	11
101	Synchronization of oscillators in complex networks. Pramana - Journal of Physics, 2008, 70, 1175-1198.	0.9	11
102	Semi-supervised classification on graphs using explicit diffusion dynamics. , 2020, 2, 19-33.		11
103	Quantifying the Alignment of Graph and Features in Deep Learning. IEEE Transactions on Neural Networks and Learning Systems, 2022, 33, 1663-1672.	7.2	10
104	Allosteric Hotspots in the Main Protease of SARS-CoV-2. Journal of Molecular Biology, 2022, 434, 167748.	2.0	10
105	Decentralised minimal-time consensus. , 2011, , .		9
106	Squeeze-and-breathe evolutionary Monte Carlo optimization with local search acceleration and its application to parameter fitting. Journal of the Royal Society Interface, 2012, 9, 1925-1933.	1.5	9
107	HCGA: Highly comparative graph analysis for network phenotyping. Patterns, 2021, 2, 100227.	3.1	9
108	Network memory in the movement of hospital patients carrying antimicrobial-resistant bacteria. Applied Network Science, 2021, 6, .	0.8	9

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109	Finite horizon model reduction and the appearance of dissipation in Hamiltonian systems. , 0, , .		8
110	On periodic reference tracking using batch-mode reinforcement learning with application to gene regulatory network control. , 2013, , .		8
111	Geometric multiscale community detection: Markov stability and vector partitioning. Journal of Complex Networks, 2018, 6, 157-172.	1.1	8
112	Understanding learner behaviour in online courses with Bayesian modelling and time series characterisation. Scientific Reports, 2021, 11, 2823.	1.6	8
113	Reflection on modern methods: constructing directed acyclic graphs (DAGs) with domain experts for health services research. International Journal of Epidemiology, 2022, 51, 1339-1348.	0.9	8
114	Row-switched states in two-dimensional underdamped Josephson-junction arrays. Physical Review B, 1998, 57, 10893-10912.	1.1	7
115	Precision identification of high-risk phenotypes and progression pathways in severe malaria without requiring longitudinal data. Npj Digital Medicine, 2019, 2, 63.	5.7	7
116	Transitions of care across hospital settings in patients with inflammatory bowel disease. World Journal of Gastroenterology, 2019, 25, 2122-2132.	1.4	7
117	Collective Search With Finite Perception: Transient Dynamics and Search Efficiency. Frontiers in Physics, 2019, 6, .	1.0	7
118	Learning compositional sequences with multiple time scales through a hierarchical network of spiking neurons. PLoS Computational Biology, 2021, 17, e1008866.	1.5	7
119	Relative, local and global dimension in complex networks. Nature Communications, 2022, 13, .	5.8	7
120	Obtaining certificates for complete synchronisation of coupled oscillators. Physica D: Nonlinear Phenomena, 2011, 240, 795-803.	1.3	6
121	Ba2Pr.34+Pr.73+Cu.73+Cu2.32+O7 : Crystal growth, structure and magnetic properties. Physica C: Superconductivity and Its Applications, 1988, 153-155, 423-424.	0.6	5
122	Intrinsic phase-locked state in two-dimensional Nb Josephson arrays. IEEE Transactions on Applied Superconductivity, 1997, 7, 3103-3106.	1.1	5
123	A new bound of the /spl Lscr//sub 2/[0, T]-induced norm and applications to model reduction. , 2002, , .		5
124	Full analogue electronic realisation of the Hodgkin-Huxley neuronal dynamics in weak-inversion CMOS. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 1200-3.	0.5	5
125	A Dominated Coupling From The Past algorithm for the stochastic simulation of networks of biochemical reactions. BMC Systems Biology, 2008, 2, 42.	3.0	5
126	Listening to Mental Health Crisis Needs at Scale: Using Natural Language Processing to Understand and Evaluate a Mental Health Crisis Text Messaging Service. Frontiers in Digital Health, 2021, 3, 779091.	1.5	5

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127	Patterns of healthcare utilisation in children and young people: a retrospective cohort study using routinely collected healthcare data in Northwest London. BMJ Open, 2021, 11, e050847.	0.8	5
128	Prediction of Protein Allosteric Signalling Pathways and Functional Residues Through Paths of Optimised Propensity. Journal of Molecular Biology, 2022, 434, 167749.	2.0	5
129	Ba2(RE)Cu3O7â˜Î´(RE=La, Pr, Nd, Sm, Gd): Crystal growth, structure and magnetic properties. Solid State Ionics, 1989, 32-33, 1154-1159.	1.3	3
130	A biomimetic CMOS synapse. , 0, , .		3
131	Graph-Based Topic Extraction from Vector Embeddings of Text Documents: Application to a Corpus of News Articles. Studies in Computational Intelligence, 2021, , 154-166.	0.7	3
132	Edge-based formulation of elastic network models. Physical Review Research, 2019, 1, .	1.3	3
133	Superconducting energy gap and phonon spectra in MBa2Cu3O7â˜x type materials. Physica C: Superconductivity and Its Applications, 1988, 153-155, 663-664.	0.6	2
134	Pinned states in Josephson arrays: A general stability theorem. Physical Review B, 1998, 58, 5215-5218.	1.1	2
135	An analysis of the Map Seeking Circuit and Monte Carlo extensions. , 2009, , .		2
136	Stochastic oscillatory dynamics of generalized repressilators. , 2012, , .		2
137	Ideal memristors as reciprocal elements. , 2013, , .		2
138	Dynamics of Cluster Synchronisation in Modular Networks: Implications for Structural and Functional Networks. Understanding Complex Systems, 2015, , 107-130.	0.3	2
139	Approximations of Countably Infinite Linear Programs over Bounded Measure Spaces. SIAM Journal on Optimization, 2021, 31, 604-625.	1.2	2
140	Geometric graphs from data to aid classification tasks with Graph Convolutional Networks. Patterns, 2021, 2, 100237.	3.1	2
141	Abstract 1775: Targeting RSK4 prevents both chemoresistance and metastasis in lung cancer. , 2019, , .		2
142	Solutions of weakly reversible chemical reaction networks are bounded and persistent*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 42-47.	0.4	1
143	Identifying naturally occurring communities of primary care providers in the English National Health Service in London. BMJ Open, 2020, 10, e036504.	0.8	1
144	Abstract 1775: Targeting RSK4 prevents both chemoresistance and metastasis in lung cancer. , 2019, , .		1

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145	REBa2Cu3O7â˜Î´ (RE = Pr, Nd, Sm, Gd): Crystal growth, structure and magnetism. Solid State Ionics, 1988, 26, 167.	1.3	0
146	Noise characteristics of interlocked repressilators. BMC Systems Biology, 2007, 1, .	3.0	0
147	Interplay between spontaneous and sensory activities in barrel cortex: a computational study. BMC Neuroscience, 2009, 10, .	0.8	0
148	How is a sensory stimulus represented in ongoing dynamics in the barrel cortex?. BMC Neuroscience, 2010, 11, .	0.8	0
149	Kinetics of the Interconversion Between Two Physiologically Important Copper-Bound Amyloid-Beta Species. Biophysical Journal, 2014, 106, 682a.	0.2	0
150	Kinetics of Metal Amyloid-Beta Binding and Efficacy of Ligands Targeting Metal Amyloid-Beta Interactions. Biophysical Journal, 2014, 106, 39a.	0.2	0
151	P595PDGFRalpha demarcates the cardiogenic and clonogenic Sca-1+ stem cell. Cardiovascular Research, 2014, 103, S107.4-S107.	1.8	0
152	Secondary Metal Binding to Amyloid-Beta Monomer is Insignificant under Synaptic Conditions. Biophysical Journal, 2015, 108, 385a.	0.2	0
153	Kernel Two-Sample and Independence Tests for Nonstationary Random Processes. Engineering Proceedings, 2021, 5, 31.	0.4	0
154	Integrated Systems Level Examination of Proteasome Inhibitor Stress Recovery in Myeloma Cells Reveals Druggable Vulnerabilities Linked to Multiple Metabolic Processes. Blood, 2019, 134, 1818-1818.	0.6	0
155	A primary care network analysis: natural communities of general practices in London. British Journal of General Practice, 2020, 70, bjgp20X711113.	0.7	0
156	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0
157	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0
158	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0
159	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0
160	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0
161	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0