Jim Harkin

List of Publications by Year
in descending order

96 papers	1,909 citations	257429 24 h-index	302107 39 g-index
99 all docs	99 docs citations	99 times ranked	1336 citing authors

#	Article	IF	Citations
1	Immuno-informatics analysis predicts B and T cell consensus epitopes for designing peptide vaccine against SARS-CoV-2 with 99.82% global population coverage. Briefings in Bioinformatics, 2022, 23, .	6.5	5
2	An memristor-based synapse implementation using BCM learning rule. Neurocomputing, 2021, 423, 336-342.	5.9	20
3	Counteracting dynamical degradation of a class of digital chaotic systems via Unscented Kalman Filter and perturbation. Information Sciences, 2021, 556, 49-66.	6.9	25
4	Hardware acceleration of genomics data analysis: challenges and opportunities. Bioinformatics, 2021, 37, 1785-1795.	4.1	8
5	A Computational Study of Astrocytic GABA Release at the Glutamatergic Synapse: EAAT-2 and GAT-3 Coupled Dynamics. Frontiers in Cellular Neuroscience, 2021, 15, 682460.	3.7	5
6	Predicting Networks-on-Chip traffic congestion with Spiking Neural Networks. Journal of Parallel and Distributed Computing, 2021, 154, 82-93.	4.1	4
7	Spiking Neural Network-based Structural Health Monitoring Hardware System. , 2021, , .		0
8	Minimising Impact of Local Congestion in Networks-on-Chip Performance by Predicting Buffer Utilisation. , 2020, , .		1
9	Case Studyâ€"Spiking Neural Network Hardware System for Structural Health Monitoring. Sensors, 2020, 20, 5126.	3.8	15
10	Computational Study of Astroglial Calcium Homeostasis in a Semi-isolated Synaptic Cleft. , 2020, , .		0
11	Exploring Spiking Neural Networks for Prediction of Traffic Congestion in Networks-on-Chip. , 2020, , .		8
12	AstroByte: Multi-FPGA Architecture for Accelerated Simulations of Spiking Astrocyte Neural Networks. , 2020, , .		4
13	Exploring Self-Repair in a Coupled Spiking Astrocyte Neural Network. IEEE Transactions on Neural Networks and Learning Systems, 2019, 30, 865-875.	11.3	34
14	GABA Regulation of Burst Firing in Hippocampal Astrocyte Neural Circuit: A Biophysical Model. Frontiers in Cellular Neuroscience, 2019, 13, 335.	3.7	6
15	Calcium Microdomain Formation at the Perisynaptic Cradle Due to NCX Reversal: A Computational Study. Frontiers in Cellular Neuroscience, 2019, 13, 185.	3.7	16
16	Bio-inspired fault detection circuits based on synapse and spiking neuron models. Neurocomputing, 2019, 331, 473-482.	5.9	20
17	Autonomous Learning Paradigm for Spiking Neural Networks. Lecture Notes in Computer Science, 2019, , 737-744.	1.3	0
18	Fault-Tolerant Learning in Spiking Astrocyte-Neural Networks on FPGAs. , 2018, , .		4

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19	An Efficient, Low-Cost Routing Architecture for Spiking Neural Network Hardware Implementations. Neural Processing Letters, 2018, 48, 1777-1788.	3.2	14
20	SPANNER: A Self-Repairing Spiking Neural Network Hardware Architecture. IEEE Transactions on Neural Networks and Learning Systems, 2018, 29, 1287-1300.	11.3	48
21	Homeostatic Fault Tolerance in Spiking Neural Networks: A Dynamic Hardware Perspective. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 687-699.	5.4	35
22	Adding Security to Networks-on-Chip using Neural Networks. , 2018, , .		17
23	Scalable Bio-inspired Fault Detection, Isolation and Recovery in NoCs. , 2018, , .		0
24	Bio-inspired Anomaly Detection for Low-cost Gas Sensors. , 2018, , .		1
25	Time-multiplexed System-on-Chip using Fault-tolerant Astrocyte-Neuron Networks. , 2018, , .		6
26	Low Cost Interconnected Architecture for the Hardware Spiking Neural Networks. Frontiers in Neuroscience, 2018, 12, 857.	2.8	11
27	Onâ€chip communication for neuroâ€glia networks. IET Computers and Digital Techniques, 2018, 12, 130-138.	1.2	0
28	Potassium and sodium microdomains in thin astroglial processes: A computational model study. PLoS Computational Biology, 2018, 14, e1006151.	3.2	52
29	FPGA-based Fault-injection and Data Acquisition of Self-repairing Spiking Neural Network Hardware. , 2018, , .		7
30	A computational study of astrocytic glutamate influence on post-synaptic neuronal excitability. PLoS Computational Biology, 2018, 14, e1006040.	3.2	34
31	Case study: Impact of auxiliary energy in manufacturing operations. , 2018, , .		2
32	Forest fire detection using spiking neural networks. , 2018, , .		8
33	Rapid application prototyping for hardware modular spiking neural network architectures. Neural Computing and Applications, 2017, 28, 2767-2779.	5.6	1
34	Counteracting Dynamical Degradation of Digital Chaotic Chebyshev Map via Perturbation. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2017, 27, 1750033.	1.7	64
35	Assessing Self-Repair on FPGAs with Biologically Realistic Astrocyte-Neuron Networks. , 2017, , .		11
36	Layered tile architecture for efficient hardware spiking neural networks. Microprocessors and Microsystems, 2017, 53, 21-32.	2.8	6

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37	Homeostatic fault tolerance in spiking neural networks utilizing dynamic partial reconfiguration of FPGAs. , 2017, , .		2
38	An Extended Algorithm Using Adaptation of Momentum and Learning Rate for Spiking Neurons Emitting Multiple Spikes. Lecture Notes in Computer Science, 2017, , 569-579.	1.3	3
39	Self-repairing Learning Rule for Spiking Astrocyte-Neuron Networks. Lecture Notes in Computer Science, 2017, , 384-392.	1.3	3
40	An FPGA-based hardware-efficient fault-tolerant astrocyte-neuron network. , 2016, , .		18
41	Astrocyte to spiking neuron communication using Networks-on-Chip ring topology. , 2016, , .		5
42	Efficient neuron architecture for FPGA-based spiking neural networks. , 2016, , .		2
43	Self-repairing hardware with astrocyte-neuron networks. , 2016, , .		16
44	Scalable Networks-on-Chip Interconnected Architecture for Astrocyte-Neuron Networks. IEEE Transactions on Circuits and Systems I: Regular Papers, 2016, 63, 2290-2303.	5.4	40
45	Hierarchical Networks-on-Chip Interconnect for Astrocyte-Neuron Network Hardware. Lecture Notes in Computer Science, 2016, , 382-390.	1.3	4
46	Self-repairing mobile robotic car using astrocyte-neuron networks. , 2016, , .		20
47	A chaotic map-control-based and the plain image-related cryptosystem. Nonlinear Dynamics, 2016, 83, 2293-2310.	5.2	63
48	Fault-Tolerant Networks-on-Chip Routing With Coarse and Fine-Grained Look-Ahead. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2016, 35, 260-273.	2.7	43
49	Designing a Compact Wireless Network based Device-free Passive Localisation System for Indoor Environments. International Journal of Wireless Networks and Broadband Technologies, 2015, 4, 28-43.	1.0	3
50	Bio-inspired hierarchical framework for multi-view face detection and pose estimation. , 2015, , .		3
51	On the role of astroglial syncytia in self-repairing spiking neural networks. IEEE Transactions on Neural Networks and Learning Systems, 2015, 26, 2370-2380.	11.3	42
52	Low cost fault-tolerant routing algorithm for Networks-on-Chip. Microprocessors and Microsystems, 2015, 39, 358-372.	2.8	42
53	An authentication strategy based on spatiotemporal chaos for software copyright protection. Security and Communication Networks, 2015, 8, 4073-4086.	1.5	6
54	Case study: Bio-inspired self-adaptive strategy for spike-based PID controller. , 2015, , .		12

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55	Fine-Grained Fault-Tolerant Adaptive Routing for Networks-on-Chip. Lecture Notes in Computer Science, 2015, , 492-505.	1.3	1
56	Bio-Inspired Hybrid Framework for Multi-view Face Detection. Lecture Notes in Computer Science, 2015, , 232-239.	1.3	1
57	Low Overhead Monitor Mechanism for Fault-Tolerant Analysis of NoC. , 2014, , .		6
58	Online traffic-aware fault detection for networks-on-chip. Journal of Parallel and Distributed Computing, 2014, 74, 1984-1993.	4.1	44
59	Online fault detection for Networks-on-Chip interconnect. , 2014, , .		7
60	Modular Neural Tile Architecture for Compact Embedded Hardware Spiking Neural Network. Neural Processing Letters, 2013, 38, 131-153.	3.2	27
61	Intelligent assessment and content personalisation in adaptive educational systems. , 2013, , .		8
62	Scalable Hierarchical Network-on-Chip Architecture for Spiking Neural Network Hardware Implementations. IEEE Transactions on Parallel and Distributed Systems, 2013, 24, 2451-2461.	5.6	94
63	Using Game-Based Learning in Virtual Worlds to Teach Electronic and Electrical Engineering. IEEE Transactions on Industrial Informatics, 2013, 9, 575-584.	11.3	72
64	Fixed latency on-chip interconnect for hardware spiking neural network architectures. Parallel Computing, 2013, 39, 357-371.	2.1	25
65	Biophysically based computational models of astrocyte ~ neuron coupling and their functional significance. Frontiers in Computational Neuroscience, 2013, 7, 44.	2.1	13
66	Circuit Warz, the games; collaborative and competitive game-based learning in virtual worlds. , 2012, , .		4
67	Hierarchical Network-on-Chip and Traffic Compression for Spiking Neural Network Implementations. , 2012, , .		13
68	Self-repair in a bidirectionally coupled astrocyte-neuron (AN) system based on retrograde signaling. Frontiers in Computational Neuroscience, 2012, 6, 76.	2.1	48
69	Advancing interconnect density for spiking neural network hardware implementations using traffic-aware adaptive network-on-chip routers. Neural Networks, 2012, 33, 42-57.	5.9	54
70	Stakes and Issues for Collaborative Remote Laboratories in Virtual Environments. , 2012, , 529-542.		1
71	Investigating Power Reduction for NoC-Based Spiking Neural Network Platforms using Channel Encoding. International Journal of Adaptive Resilient and Autonomic Systems, 2012, 3, 1-16.	0.3	0
72	Bidirectional Coupling between Astrocytes and Neurons Mediates Learning and Dynamic Coordination in the Brain: A Multiple Modeling Approach. PLoS ONE, 2011, 6, e29445.	2.5	109

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73	Hardware spiking neural network prototyping and application. Genetic Programming and Evolvable Machines, 2011, 12, 257-280.	2.2	41
74	Exploring retrograde signaling via astrocytes as a mechanism for self repair. , 2011, , .		8
75	A wireless approach to device-free localisation (DFL) for indoor environments. , 2011, , .		5
76	Adaptive Routing Strategies for Large Scale Spiking Neural Network Hardware Implementations. Lecture Notes in Computer Science, 2011, , 77-84.	1.3	7
77	The impact of neural model resolution on hardware spiking neural network behaviour. , 2010, , .		1
78	EMBRACE-SysC for analysis of NoC-based Spiking Neural Network architectures. , 2010, , .		8
79	Analysis of device-free localisation (DFL) techniques for indoor environments. , 2010, , .		3
80	Game-based strategy to teaching electronic. , 2010, , .		2
81	Remembering Key Features of Visual Images Based on Spike Timing Dependent Plasticity of Spiking Neurons. , 2009, , .		4
82	Modular hardware design for distantâ€internet embedded systems engineering laboratory. Computer Applications in Engineering Education, 2009, 17, 389-397.	3.4	6
83	Integrating virtual worlds & virtual learning environments for online education. , 2009, , .		27
84	Teaching Engineering Education Using Virtual Worlds and Virtual Learning Environments. , 2009, , .		25
85	Exploring the evolution of NoC-based Spiking Neural Networks on FPGAs. , 2009, , .		17
86	Emulating Spiking Neural Networks for edge detection on FPGA hardware. , 2009, , .		9
87	A Reconfigurable and Biologically Inspired Paradigm for Computation Using Network-On-Chip and Spiking Neural Networks. International Journal of Reconfigurable Computing, 2009, 2009, 1-13.	0.2	46
88	A Hardware Accelerated Simulation Environment for Spiking Neural Networks. Lecture Notes in Computer Science, 2009, , 336-341.	1.3	3
89	Walled City to Wireless City. , 2009, , 322-356.		0
90	Neuro-inspired Speech Recognition with Recurrent Spiking Neurons. Lecture Notes in Computer Science, 2008, , 513-522.	1.3	16

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91	Intelligent User Support in Autonomous Remote Experimentation Environments. IEEE Transactions on Industrial Electronics, 2008, 55, 2355-2367.	7.9	33
92	Reconfigurable platforms and the challenges for large-scale implementations of spiking neural networks. , 2008, , .		17
93	Investigating the Suitability of FPAAs for Evolved Hardware Spiking Neural Networks. Lecture Notes in Computer Science, 2008, , 118-129.	1.3	19
94	Challenges for large-scale implementations of spiking neural networks on FPGAs. Neurocomputing, 2007, 71, 13-29.	5.9	209
95	Clientâ€“server architecture for collaborative remote experimentation. Journal of Network and Computer Applications, 2007, 30, 1295-1308.	9.1	31
96	Area Efficient Architecture for Large Scale Implementation of Biologically Plausible Spiking Neural Networks on Reconfigurable Hardware. , 2006, , .		11