Bhavin J Shastri

List of Publications by Year
in descending order

179	5,371	156536	104191
papers	citations	32 h-index	69 g-index

189	189	189	2482
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Prospects and applications of photonic neural networks. Advances in Physics: X, 2022, 7, .	1.5	54
2	Photonic Spiking Neural Networks and Graphene-on-Silicon Spiking Neurons. Journal of Lightwave Technology, 2022, 40, 2901-2914.	2.7	28
3	Scaling up silicon photonic-based accelerators: Challenges and opportunities. APL Photonics, 2022, 7, .	3.0	40
4	Silicon photonic neural network applications and prospects. , 2022, , .		2
5	High-Capacity Space-Division Multiplexing Communications With Silicon Photonic Blind Source Separation. Journal of Lightwave Technology, 2022, 40, 1617-1632.	2.7	12
6	Broadband radio-frequency signal processing with neuromorphic photonics. , 2022, , .		0
7	Neuromorphic photonic circuit modeling in Verilog-A. APL Photonics, 2022, 7, .	3.0	5
8	Design automation of photonic resonator weights. Nanophotonics, 2022, 11, 3805-3822.	2.9	8
9	Silicon microring synapses enable photonic deep learning beyond 9-bit precision. Optica, 2022, 9, 579.	4.8	56
10	Inducing optical self-pulsation by electrically tuning graphene on a silicon microring. Nanophotonics, 2022, .	2.9	1
11	Silicon Photonics for Neuromorphic Computing and Artificial Intelligence: Applications and Roadmap. , 2022, , .		3
12	Polymer modulators in silicon photonics: review and projections. Nanophotonics, 2022, 11, 3855-3871.	2.9	14
13	On-Chip Programmable Nonlinear Optical Signal Processor and Its Applications. IEEE Journal of Selected Topics in Quantum Electronics, 2021, 27, 1-11.	1.9	17
14	Roadmap on emerging hardware and technology for machine learning. Nanotechnology, 2021, 32, 012002.	1.3	104
15	Neuromorphic Silicon Photonics for Artificial Intelligence. Topics in Applied Physics, 2021, , 417-447.	0.4	0
16	On-chip online learning and inference for photonic pattern recognition. , 2021, , .		0
17	Photonic pattern reconstruction enabled by on-chip online learning and inference. JPhys Photonics, 2021, 3, 024006.	2.2	7
18	Silicon Photonics for Artificial Intelligence and Neuromorphic Computing. , 2021, , .		0

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19	Photonics for artificial intelligence and neuromorphic computing. Nature Photonics, 2021, 15, 102-114.	15.6	764
20	Neuromorphic Photonics for Optical Communication Systems. , 2021, , .		1
21	Neuromorphic Photonic Networks. , 2021, , .		0
22	Broadband blind source separation by integrated photonics. , 2021, , .		1
23	Neuromorphic Photonics for Intelligent Signal Processing. , 2021, , .		1
24	A silicon photonicâ€“electronic neural network for fibre nonlinearity compensation. Nature Electronics, 2021, 4, 837-844.	13.1	110
25	Silicon Photonics for Neuromorphic Computing and Artificial Intelligence. , 2021, , .		0
26	Photonics for Neuromorphic Computing and Artificial Intelligence. , 2021, , .		3
27	Intelligent Optical Signal Processing for Optical Communications. , 2021, , .		0
28	Photonic Neural Networks Applications. , 2021, , .		0
29	Multi-level Encoding and Decoding in a Wavelength-Multiplexed Photonic Tensor Processor. , 2021, , .		1
30	Temporal Information Processing With an Integrated Laser Neuron. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-9.	1.9	36
31	Noise Analysis of Photonic Modulator Neurons. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-9.	1.9	31
32	Digital Electronics and Analog Photonics for Convolutional Neural Networks (DEAP-CNNs). IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-13.	1.9	122
33	Photonic Multiply-Accumulate Operations for Neural Networks. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-18.	1.9	166
34	Graphene-based photonic synapse for multi wavelength neural networks. MRS Advances, 2020, 5, 1909-1917.	0.5	7
35	Silicon Photonic Neural Networks and Applications. , 2020, , .		0
36	A graphene-based synapse for photonic neural networks. , 2020, , .		0

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37	Demonstration of scalable microring weight bank control for large-scale photonic integrated circuits. APL Photonics, 2020, 5, 040803.	3.0	60
38	Introduction to JSTQE Issue on Photonics for Deep Learning and Neural Computing. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-3.	1.9	3
39	Photonic independent component analysis using an on-chip microring weight bank. Optics Express, 2020, 28, 1827.	1.7	21
40	Lateral bipolar junction transistor on a silicon photonics platform. Optics Express, 2020, 28, 11692.	1.7	6
41	Demonstration of photonic neural network for fiber nonlinearity compensation in long-haul transmission systems. , 2020, , .		26
42	Primer on silicon neuromorphic photonic processors: architecture and compiler. Nanophotonics, 2020, 9, 4055-4073.	2.9	29
43	Silicon Photonics for AI Hardware. , 2020, , .		0
44	Neuromorphic Photonics: Current Status and Challenges. , 2020, , .		1
45	Real-time Operation of Silicon Photonic Neurons. , 2020, , .		6
46	Demonstration of Multi-Channel Feedback Control for On-Chip Microring Weight Banks. , 2020, , .		1
47	Blind source separation with integrated photonics and reduced dimensional statistics. Optics Letters, 2020, 45, 6494.	1.7	20
48	Silicon Photonic Neural Networks for Chaos-based Secure Communication. , 2020, , .		0
49	Photonic Long-Short Term Memory Neural Networks with Analog Memory. , 2020, , .		0
50	Training Deep Neural Networks in Situ with Neuromorphic Photonics. , 2020, , .		1
51	Neuromorphic Photonic Processor Applications. , 2019, , .		1
52	Advances in Neuromorphic Silicon Photonics. , 2019, , .		0
53	Silicon Photonic Modulator Neuron. Physical Review Applied, 2019, 11, .	1.5	205
54	Photonic principal component analysis using an on-chip microring weight bank. Optics Express, 2019, 27, 18329.	1.7	17

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55	Programmable Silicon Photonic Optical Thresholder. IEEE Photonics Technology Letters, 2019, 31, 1834-1837.	1.3	16
56	Demonstration of Multivariate Photonics: Blind Dimensionality Reduction With Integrated Photonics. Journal of Lightwave Technology, 2019, 37, 5996-6006.	2.7	16
57	Robustness of Optical Steganographic Communication Under Coherent Detection Attack. IEEE Photonics Technology Letters, 2019, 31, 327-330.	1.3	13
58	ITO-based electro-absorption modulator for photonic neural activation function. APL Materials, 2019, 7, .	2.2	105
59	Machine Learning With Neuromorphic Photonics. Journal of Lightwave Technology, 2019, 37, 1515-1534.	2.7	129
60	Neuromorphic Photonics for Deep Learning. , 2019, , .		0
61	Takens-inspired neuromorphic processor: A downsizing tool for random recurrent neural networks via feature extraction. Physical Review Research, 2019, 1, .	1.3	7
62	Neuromorphic photonics with electro-absorption modulators. Optics Express, 2019, 27, 5181.	1.7	86
63	Giant Enhancement in Signal Contrast Using Integrated All-Optical Nonlinear Thresholder. , 2019, , .		4
64	Autaptic Circuits of Integrated Laser Neurons. , 2019, , .		4
65	Enhancing SOI Waveguide Nonlinearities via Microring Resonators. , 2019, , .		3
66	Multiwavelength Neuromorphic Photonics. , 2019, , .		2
67	Multiwavelength Neuromorphic Silicon Photonics. , 2019, , .		0
68	Temporal Dynamics of an Integrated Laser Neuron. , 2018, , .		2
69	A TeraMAC Neuromorphic Photonic Processor. , 2018, , .		9
70	Photonics for Neuromorphic Computing. , 2018, , .		0
71	Principles of Neuromorphic Photonics. , 2018, , 83-118.		11
72	Steganographic Communication via Spread Optical Noise: A Link-Level Eavesdropping Resilient System. Journal of Lightwave Technology, 2018, 36, 5344-5357.	2.7	15

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73	Simultaneous excitatory and inhibitory dynamics in an excitable laser. Optics Letters, 2018, 43, 3802.	1.7	21
74	Two-pole microring weight banks. Optics Letters, 2018, 43, 2276.	1.7	21
75	Neuromorphic Photonics. Optics and Photonics News, 2018, 29, 34.	0.4	38
76	Blind source separation in the physical layer. , 2018, , .		9
77	Neuromorphic Photonic Integrated Circuits. IEEE Journal of Selected Topics in Quantum Electronics, 2018, 24, 1-15.	1.9	123
78	Neuromorphic Photonics, Principles of. , 2018, , 1-37.		14
79	Integrated neuromorphic photonics. , 2018, , .		6
80	Feedback control for microring weight banks. Optics Express, 2018, 26, 26422.	1.7	83
81	Microring Weight Banks for Neuromorphic Silicon Photonics. , 2018, , .		0
82	Simultaneous Q -Switching of a Tm3+:ZBLAN Fiber Laser at $1.9~mu$ m and $2.3~mu$ m Using Graphene. IEEE Photonics Technology Letters, 2017, 29, 405-408.	1.3	11
83	Progress in neuromorphic photonics. Nanophotonics, 2017, 6, 577-599.	2.9	139
84	Neuromorphic photonic networks using silicon photonic weight banks. Scientific Reports, 2017, 7, 7430.	1.6	486
85	Application regime and distortion metric for multivariate RF photonics. , 2017, , .		4
86	Microring weight bank designs with improved channel density and tolerance. , 2017, , .		2
87	Reconfigurable analog photonic networks. , 2017, , .		0
88	All-optical digital-to-spike conversion using a graphene excitable laser. Optics Express, 2017, 25, 33504.	1.7	21
89	Simultaneous Excitatory and Inhibitory Dynamics in A Graphene Excitable Laser. , 2017, , .		0
90	Emergence of Neuromorphic Photonics. , 2017, , .		2

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91	Silicon microring weight banks for multivariate RF photonics. , 2017, , .		4
92	Processing-Network Node. , 2017, , 259-286.		0
93	Semiconductor Photonic Devices as Excitable Processors. , 2017, , 117-167.		0
94	Silicon photonic weight bank control of integrated analog network dynamics. , 2016, , .		2
95	Coherent interactions in microring weight banks and impact on channel density. , 2016, , .		1
96	Multi-channel microring weight bank control for reconfigurable analog photonic networks. , 2016, , .		1
97	Silicon microring weight banks for multivariate RF photonics. , 2016, , .		0
98	Optical steganography communication using signal-carrying noise dispersion. , 2016, , .		1
99	Recent progress in semiconductor excitable lasers for photonic spike processing. Advances in Optics and Photonics, 2016, 8, 228.	12.1	190
100	System Architecture. , 2016, , .		3
101	Multi-channel control for microring weight banks. Optics Express, 2016, 24, 8895.	1.7	55
102	Spike processing with a graphene excitable laser. Scientific Reports, 2016, 6, 19126.	1.6	130
103	Passively synchronized Q-switched and mode-locked dual-band Tm3+:ZBLAN fiber lasers using a common graphene saturable absorber. Scientific Reports, 2016, 6, 36071.	1.6	12
104	Demonstration of a silicon photonic neural network. , 2016, , .		1
105	Physical modeling of photonic neural networks. , 2016, , .		0
106	An integrated analog O/E/O link for multi-channel laser neurons. Applied Physics Letters, 2016, 108, .	1.5	28
107	Spike coded bit sequence generation using photonic excitable laser. , 2016, , .		0
108	Microring Weight Banks. IEEE Journal of Selected Topics in Quantum Electronics, 2016, 22, 312-325.	1.9	116

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109	Photonic Implementation of Spike-Timing-Dependent Plasticity and Learning Algorithms of Biological Neural Systems. Journal of Lightwave Technology, 2016, 34, 470-476.	2.7	39
110	Continuous Calibration of Microring Weights for Analog Optical Networks. IEEE Photonics Technology Letters, 2016, 28, 887-890.	1.3	44
111	Scalable Wideband Principal Component Analysis via Microwave Photonics. IEEE Photonics Journal, 2016, 8, 1-9.	1.0	10
112	Dispersion Deployment and Compensation for Optical Steganography Based on Noise. IEEE Photonics Technology Letters, 2016, 28, 421-424.	1.3	18
113	Demonstration of an O/E/O Receiverless Link in an Integrated Multi-Channel Laser Neuron. , 2016, , .		0
114	Long Range Secure Key Distribution Over Multiple Amplified Fiber Spans Based on Environmental Instabilities. , 2016, , .		5
115	Neuromorphic Platforms Comparison. , 2016, , 365-388.		0
116	Excitable laser processing network node in hybrid silicon: analysis and simulation. Optics Express, 2015, 23, 26800.	1.7	38
117	Spike train encoding of analog signals in a graphene fiber ring laser. , 2015, , .		1
118	Balanced WDM weight banks for analog optical processing and networking in silicon. , 2015, , .		1
119	Optical Signal Processing and Stealth Transmission for Privacy. IEEE Journal on Selected Topics in Signal Processing, 2015, 9, 1185-1194.	7.3	27
120	Proposal for CMOS-compatible optoelectronic integrated circuit for online wideband PCA. , 2015, , .		0
121	Continuous control of microring weight banks. , 2015, , .		0
122	A receiver-less link for excitable laser neurons: Design and simulation. , 2015, , .		3
123	Balanced WDM weight banks for analog optical processing and networking in silicon. , 2015, , .		0
124	Graphene-based passively Q-switched Tm³⁺:ZBLAN fiber laser at 1480 nm. , 2015, , .		1
125	Improved spectral sensing in cognitive radios using photonic-based principal component analysis. , 2015, , .		0
126	Gigabit Ethernet signal transmission using asynchronous optical code division multiple access. Optics Letters, 2015, 40, 5854.	1.7	6

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127	Compact optical steganography based on amplified spontaneous emission noise. , 2015, , .		0
128	SIMPEL: Circuit model for photonic spike processing laser neurons. Optics Express, 2015, 23, 8029.	1.7	38
129	Demonstration of WDM weighted addition for principal component analysis. Optics Express, 2015, 23, 12758.	1.7	52
130	Normalized pulsed energy thresholding in a nonlinear optical loop mirror. Applied Optics, 2015, 54, 3218.	2.1	5
131	Ultrafast Optical Techniques for Communication Networks and Signal Processing. Springer Series in Optical Sciences, 2015, , 469-503.	0.5	1
132	Resonant excitable switching with graphene. , 2014, , .		0
133	Coincidence Detection with Graphene Excitable Laser. , 2014, , .		4
134	Analog noise protected optical encryption with two-dimensional key space. Optics Express, 2014, 22, 14568.	1.7	19
135	Temporal phase mask encrypted optical steganography carried by amplified spontaneous emission noise. Optics Express, 2014, 22, 954.	1.7	33
136	Spatiotemporal pattern recognition with cascadable graphene excitable lasers. , 2014, , .		0
137	Simulations of a graphene excitable laser for spike processing. Optical and Quantum Electronics, 2014, 46, 1353-1358.	1.5	25
138	Secure Communication in Fiber-Optic Networks. , 2014, , 173-183.		26
139	Broadcast-and-weight interconnects for integrated distributed processing systems. , 2014, , .		8
140	Broadcast and Weight: An Integrated Network For Scalable Photonic Spike Processing. Journal of Lightwave Technology, 2014, 32, 4029-4041.	2.7	309
141	Bistable Spiking Circuit with Graphene Excitable Laser for Cascadable Photonic Logic. , 2014, , .		0
142	System Performance Measurement and Analysis of Optical Steganography Based on Noise. IEEE Photonics Technology Letters, 2014, 26, 1920-1923.	1.3	16
143	Photonic Neuromorphic Signal Processing andÂComputing. Nano-optics and Nanophotonics, 2014, , 183-222.	0.2	27
144	Optical Encryption Based on Cancellation of Analog Noise. , 2014, , .		3

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145	A Leaky Integrate-and-Fire Laser Neuron for Ultrafast Cognitive Computing. IEEE Journal of Selected Topics in Quantum Electronics, 2013, 19, 1-12.	1.9	231
146	An evanescent hybrid silicon laser neuron. , 2013, , .		13
147	Graphene excitable laser for photonic spike processing. , 2013, , .		14
148	Phase-mask covered optical steganography based on amplified spontaneous emission noise. , 2013, , .		2
149	The DREAM: An Integrated Photonic Thresholder. Journal of Lightwave Technology, 2013, 31, 1263-1272.	2.7	27
150	Optical steganography based on amplified spontaneous emission noise. Optics Express, 2013, 21, 2065.	1.7	84
151	Exploring excitability in graphene for spike processing networks. , 2013, , .		10
152	Two Dimensional Encrypted Optical Steganography Based on Amplified Spontaneous Emission Noise. , 2013, , .		8
153	Coupled Waveguides for Optical Multiplexing in High-Performance Interconnects. , 2013, , .		0
154	A 20-GSample/s (10 GHz × 2 clocks) burst-mode CDR based on injection-locking and space sampling for access networks. , 2012, , .		0
155	Truly Modular Burst-Mode CDR With Instantaneous Phase Acquisition for Multiaccess Networks. IEEE Photonics Technology Letters, 2012, 24, 134-136.	1.3	3
156	20-GSample/s (10 GHz $imes$ 2 Clocks) Burst-Mode CDR Based on Injection Locking and Space Sampling for Multiaccess Networks. IEEE Photonics Journal, 2012, 4, 1783-1793.	1.0	2
157	A 10-Gb/s space sampling burst-mode clock and data recovery circuit for passive optical networks. , 2011, , .		1
158	A robust overlapped-SCM WDM PON with a standalone burst-mode OLT receiver. , 2011, , .		2
159	Overlapped Subcarrier Multiplexed WDM PONs Enabled by Burst-Mode Receivers. , 2011, , .		0
160	Scaling technologies for terabit fiber optic transmission systems. , 2011, , .		6
161	Circuit Modeling of Carrierâ€“Photon Dynamics in Composite-Resonator Vertical-Cavity Lasers. IEEE Journal of Quantum Electronics, 2011, 47, 1537-1546.	1.0	9
162	5/10-Gb/s Burst-Mode Clock and Data Recovery Based on Semiblind Oversampling for PONs: Theoretical and Experimental. IEEE Journal of Selected Topics in Quantum Electronics, 2010, 16, 1298-1320.	1.9	21

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163	Probabilistic theory for semi-blind oversampling burst-mode clock and data recovery circuits. , 2010, , .		1
164	Burst-mode clock and data recovery for optically interconnected data centers. , 2010, , .		1
165	Experimental Study of Burst-Mode Reception in a 1300â€‰km Deployed Fiber Link. Journal of Optical Communications and Networking, 2010, 2, 1.	3.3	8
166	Performance analysis of burst-mode receivers with clock phase alignment and forward error correction for GPON. Analog Integrated Circuits and Signal Processing, 2009, 60, 57-70.	0.9	2
167	Experimental Demonstration of a Novel 5/10-Gb/s Burst-Mode Clock and Data Recovery Circuit for Gigabit PONs. , 2009, , .		0
168	5 Gb/s burst-mode clock phase aligner with (64, 57) Hamming codes for GPON applications. , 2008, , .		1
169	Experimental Demonstration of a SAC-OCDMA PON With Burst-Mode Reception: Local Versus Centralized Sources. Journal of Lightwave Technology, 2008, 26, 1192-1203.	2.7	29
170	A Standalone Burst-Mode Receiver With Clock and Data Recovery, Clock Phase Alignment, and RS(255,) Tj ETQq0 0 0 rgBT /Overlock 10	1.3	9
171	Experimental investigation of packet loss ratio performance of burst-mode receivers in GPON. , 2008, , .		0
172	3.5 Gb/s burst-mode clock phase aligner for gigabit passive optical networks. , 2008, , .		0
173	Effect of channel impairments on the performance of burst-mode receivers in gigabit PON. , 2008, , .		1
174	Dual Architecture Uplink Demonstration of a 7Ã—622 Mbps SAC-OCDMA PON Using a Burst-Mode Receiver. , 2008, , .		1
175	Performance of Incoherent SAC-OCDMA Using a Burst-Mode Receiver with CDR and FEC. Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS, 2007, , .	0.0	0
176	Face recognition using localized features based on non-negative sparse coding. Machine Vision and Applications, 2007, 18, 107-122.	1.7	26
177	Burst-mode clock and data recovery with FEC and fast phase acquisition for burst-error correction in GPONs. Midwest Symposium on Circuits and Systems, 2007, , .	1.0	1
178	Neuromorphic Engineering. , 2004, , 67-84.		3
179	Neuromorphic Photonics. , 0, , .		146