# Giacomo Indiveri

## List of Publications by Citations



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|---|---|---|---|
| 226 papers | 7,300 citations | 37 h-index | 80 g-index |
| 256 ext. papers | 9,180 ext. citations | 5.4 avg, IF | 6.45 L-index |

| # | Paper | IF | Citations |
|---|---|---|---|
| 226 | Neuromorphic silicon neuron circuits. *Frontiers in Neuroscience*, **2011**, 5, 73 | 5.1 | 693 |
| 225 | A VLSI array of low-power spiking neurons and bistable synapses with spike-timing dependent plasticity. *IEEE Transactions on Neural Networks*, **2006**, 17, 211-21 | | 633 |
| 224 | Memory and Information Processing in Neuromorphic Systems. *Proceedings of the IEEE*, **2015**, 103, 1379-1397 | 14.3 | 386 |
| 223 | Integration of nanoscale memristor synapses in neuromorphic computing architectures. *Nanotechnology*, **2013**, 24, 384010 | 3.4 | 356 |
| 222 | A reconfigurable on-line learning spiking neuromorphic processor comprising 256 neurons and 128K synapses. *Frontiers in Neuroscience*, **2015**, 9, 141 | 5.1 | 338 |
| 221 | STDP and STDP variations with memristors for spiking neuromorphic learning systems. *Frontiers in Neuroscience*, **2013**, 7, 2 | 5.1 | 274 |
| 220 | . *Proceedings of the IEEE*, **2014**, 102, 1367-1388 | 14.3 | 253 |
| 219 | Dynamic evolving spiking neural networks for on-line spatio- and spectro-temporal pattern recognition. *Neural Networks*, **2013**, 41, 188-201 | 9.1 | 227 |
| 218 | Synaptic dynamics in analog VLSI. *Neural Computation*, **2007**, 19, 2581-603 | 2.9 | 215 |
| 217 | A Scalable Multicore Architecture With Heterogeneous Memory Structures for Dynamic Neuromorphic Asynchronous Processors (DYNAPs). *IEEE Transactions on Biomedical Circuits and Systems*, **2018**, 12, 106-122 | 5.1 | 198 |
| 216 | Real-Time Classification of Complex Patterns Using Spike-Based Learning in Neuromorphic VLSI. *IEEE Transactions on Biomedical Circuits and Systems*, **2009**, 3, 32-42 | 5.1 | 154 |
| 215 | Analog VLSI **2002**, | | 137 |
| 214 | Frontiers in neuromorphic engineering. *Frontiers in Neuroscience*, **2011**, 5, 118 | 5.1 | 116 |
| 213 | Large-Scale Neuromorphic Spiking Array Processors: A Quest to Mimic the Brain. *Frontiers in Neuroscience*, **2018**, 12, 891 | 5.1 | 95 |
| 212 | Synthesizing cognition in neuromorphic electronic systems. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, E3468-76 | 11.5 | 92 |
| 211 | Artificial Cognitive Systems: From VLSI Networks of Spiking Neurons to Neuromorphic Cognition. *Cognitive Computation*, **2009**, 1, 119-127 | 4.4 | 91 |
| 210 | A low-power adaptive integrate-and-fire neuron circuit | | 91 |

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| 209 | A Multichip Pulse-Based Neuromorphic Infrastructure and Its Application to a Model of Orientation Selectivity. *IEEE Transactions on Circuits and Systems Part 1: Regular Papers*, **2007**, 54, 981-993 | | 86 |
| 208 | Emulating short-term synaptic dynamics with memristive devices. *Scientific Reports*, **2016**, 6, 18639 | 4.9 | 84 |
| 207 | Spike-Based Synaptic Plasticity in Silicon: Design, Implementation, Application, and Challenges. *Proceedings of the IEEE*, **2014**, 102, 717-737 | 14.3 | 82 |
| 206 | Orientation-selective aVLSI spiking neurons. *Neural Networks*, **2001**, 14, 629-43 | 9.1 | 81 |
| 205 | Local structure supports learning of deterministic behavior in recurrent neural networks. *BMC Neuroscience*, **2015**, 16, | 3.2 | 78 |
| 204 | Robotic vision. Neuromorphic vision sensors. *Science*, **2000**, 288, 1189-90 | 33.3 | 77 |
| 203 | A current-mode conductance-based silicon neuron for address-event neuromorphic systems **2009**, | | 58 |
| 202 | Neuromorphic architectures for spiking deep neural networks **2015**, | | 55 |
| 201 | A Neuromorphic Event-Based Neural Recording System for Smart Brain-Machine-Interfaces. *IEEE Transactions on Biomedical Circuits and Systems*, **2015**, 9, 699-709 | 5.1 | 52 |
| 200 | **2015**, | | 52 |
| 199 | Modeling selective attention using a neuromorphic analog VLSI device. *Neural Computation*, **2000**, 12, 2857-80 | 2.9 | 52 |
| 198 | Neuromorphic analog VLSI sensor for visual tracking: circuits and application examples. *IEEE Transactions on Circuits and Systems Part 2: Express Briefs*, **1999**, 46, 1337-1347 | | 52 |
| 197 | A systematic method for configuring VLSI networks of spiking neurons. *Neural Computation*, **2011**, 23, 2457-97 | 2.9 | 47 |
| 196 | Analog VLSI architectures for motion processing: from fundamental limits to system applications. *Proceedings of the IEEE*, **1996**, 84, 969-987 | 14.3 | 47 |
| 195 | A Current-Mode Hysteretic Winner-take-all Network, with Excitatory and Inhibitory Coupling. *Analog Integrated Circuits and Signal Processing*, **2001**, 28, 279-291 | 1.2 | 46 |
| 194 | An event-based neural network architecture with an asynchronous programmable synaptic memory. *IEEE Transactions on Biomedical Circuits and Systems*, **2014**, 8, 98-107 | 5.1 | 45 |
| 193 | Obstacle Avoidance and Target Acquisition for Robot Navigation Using a Mixed Signal Analog/Digital Neuromorphic Processing System. *Frontiers in Neurorobotics*, **2017**, 11, 28 | 3.4 | 42 |
| 192 | Online spatio-temporal pattern recognition with evolving spiking neural networks utilising address event representation, rank order, and temporal spike learning **2012**, | | 39 |

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| 191 | New technologies for testing a model of cricket phonotaxis on an outdoor robot. *Robotics and Autonomous Systems*, **2005**, 51, 41-54 | 3.5 | 37 |
| 190 | A Bidirectional Brain-Machine Interface Featuring a Neuromorphic Hardware Decoder. *Frontiers in Neuroscience*, **2016**, 10, 563 | 5.1 | 37 |
| 189 | A serial communication infrastructure for multi-chip address event systems **2008**, | | 35 |
| 188 | A neuromorphic VLSI device for implementing 2-D selective attention systems. *IEEE Transactions on Neural Networks*, **2001**, 12, 1455-63 | | 35 |
| 187 | Mapping Spiking Neural Networks to Neuromorphic Hardware. *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, **2020**, 28, 76-86 | 2.6 | 35 |
| 186 | Spike-based learning with a generalized integrate and fire silicon neuron **2010**, | | 34 |
| 185 | Memristive synapses connect brain and silicon spiking neurons. *Scientific Reports*, **2020**, 10, 2590 | 4.9 | 33 |
| 184 | A neuromorphic systems approach to in-memory computing with non-ideal memristive devices: from mitigation to exploitation. *Faraday Discussions*, **2019**, 213, 487-510 | 3.6 | 32 |
| 183 | A spiking neural network model of 3D perception for event-based neuromorphic stereo vision systems. *Scientific Reports*, **2017**, 7, 40703 | 4.9 | 31 |
| 182 | A recipe for creating ideal hybrid memristive-CMOS neuromorphic processing systems. *Applied Physics Letters*, **2020**, 116, 120501 | 3.4 | 31 |
| 181 | Optimal solid state neurons. *Nature Communications*, **2019**, 10, 5309 | 17.4 | 31 |
| 180 | Discrimination of EMG Signals Using a Neuromorphic Implementation of a Spiking Neural Network. *IEEE Transactions on Biomedical Circuits and Systems*, **2019**, 13, 795-803 | 5.1 | 30 |
| 179 | Memristive computing devices and applications. *Journal of Electroceramics*, **2017**, 39, 4-20 | 1.5 | 30 |
| 178 | Implementation of a spike-based perceptron learning rule using TiO2-x memristors. *Frontiers in Neuroscience*, **2015**, 9, 357 | 5.1 | 28 |
| 177 | Selective attention in multi-chip address-event systems. *Sensors*, **2009**, 9, 5076-8098 | 3.8 | 28 |
| 176 | An ultra low power current-mode filter for neuromorphic systems and biomedical signal processing **2006**, | | 28 |
| 175 | A reconfigurable neuromorphic VLSI multi-chip system applied to visual motion computation | | 28 |
| 174 | Hardware Implementation of Deep Network Accelerators Towards Healthcare and Biomedical Applications. *IEEE Transactions on Biomedical Circuits and Systems*, **2020**, 14, 1138-1159 | 5.1 | 28 |

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| 173 | A differential memristive synapse circuit for on-line learning in neuromorphic computing systems. *Nano Futures*, **2017**, 1, 035003 | 3.6 | 27 |
| 172 | An event-based architecture for solving constraint satisfaction problems. *Nature Communications*, **2015**, 6, 8941 | 17.4 | 27 |
| 171 | Embedded neuromorphic vision for humanoid robots **2011**, | | 27 |
| 170 | Real-Time Ultra-Low Power ECG Anomaly Detection Using an Event-Driven Neuromorphic Processor. *IEEE Transactions on Biomedical Circuits and Systems*, **2019**, 13, 1575-1582 | 5.1 | 25 |
| 169 | Extended memory lifetime in spiking neural networks employing memristive synapses with nonlinear conductance dynamics. *Nanotechnology*, **2019**, 30, 015102 | 3.4 | 25 |
| 168 | Global scaling of synaptic efficacy: Homeostasis in silicon synapses. *Neurocomputing*, **2009**, 72, 726-731 | 5.4 | 24 |
| 167 | Active vision using an analog VLSI model of selective attention. *IEEE Transactions on Circuits and Systems Part 2: Express Briefs*, **2001**, 48, 492-500 | | 24 |
| 166 | 2022 roadmap on neuromorphic computing and engineering. *Neuromorphic Computing and Engineering*, | | 24 |
| 165 | Scaling mixed-signal neuromorphic processors to 28 nm FD-SOI technologies **2016**, | | 23 |
| 164 | Learning and stabilization of winner-take-all dynamics through interacting excitatory and inhibitory plasticity. *Frontiers in Computational Neuroscience*, **2014**, 8, 68 | 3.5 | 21 |
| 163 | Neuromorphic VLSI Models of Selective Attention: From Single Chip Vision Sensors to Multi-chip Systems. *Sensors*, **2008**, 8, 5352-5375 | 3.8 | 21 |
| 162 | Spike-driven threshold-based learning with memristive synapses and neuromorphic silicon neurons. *Journal Physics D: Applied Physics*, **2018**, 51, 344003 | 3 | 20 |
| 161 | Mapping arbitrary mathematical functions and dynamical systems to neuromorphic VLSI circuits for spike-based neural computation **2014**, | | 18 |
| 160 | An event-based VLSI network of integrate-and-fire neurons | | 18 |
| 159 | The Importance of Space and Time for Signal Processing in Neuromorphic Agents: The Challenge of Developing Low-Power, Autonomous Agents That Interact With the Environment. *IEEE Signal Processing Magazine*, **2019**, 36, 16-28 | 9.4 | 17 |
| 158 | A device mismatch compensation method for VLSI neural networks **2010**, | | 17 |
| 157 | Hybrid neuromorphic circuits exploiting non-conventional properties of RRAM for massively parallel local plasticity mechanisms. *APL Materials*, **2019**, 7, 081125 | 5.7 | 16 |
| 156 | A VLSI network of spiking neurons with plastic fully configurable "stop-learning" synapses **2008**, | | 16 |

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| 155 | A VLSI spike-driven dynamic synapse which learns only when necessary | | 16 |
| 154 | Spike-based learning in VLSI networks of integrate-and-fire neurons **2007**, | | 16 |
| 153 | ReRAM-Based Neuromorphic Computing **2016**, 715-736 | | 15 |
| 152 | An Ultralow Leakage Synaptic Scaling Homeostatic Plasticity Circuit With Configurable Time Scales up to 100 ks. *IEEE Transactions on Biomedical Circuits and Systems*, **2017**, 11, 1271-1277 | 5.1 | 15 |
| 151 | Emergent Auditory Feature Tuning in a Real-Time Neuromorphic VLSI System. *Frontiers in Neuroscience*, **2012**, 6, 17 | 5.1 | 15 |
| 150 | A VLSI network of spiking neurons with an asynchronous static random access memory **2011**, | | 15 |
| 149 | A softwareHardware selective attention system. *Neurocomputing*, **2004**, 58-60, 647-653 | 5.4 | 15 |
| 148 | System implementations of analog VLSI velocity sensors. *IEEE Micro*, **1996**, 16, 40-49 | 1.8 | 15 |
| 147 | A neuromorphic controller for a robotic vehicle equipped with a dynamic vision sensor | | 15 |
| 146 | Processing EMG signals using reservoir computing on an event-based neuromorphic system **2018**, | | 15 |
| 145 | Reconfigurable halide perovskite nanocrystal memristors for neuromorphic computing.. *Nature Communications*, **2022**, 13, 2074 | 17.4 | 15 |
| 144 | ECG-based Heartbeat Classification in Neuromorphic Hardware **2019**, | | 14 |
| 143 | Obstacle avoidance with LGMD neuron: Towards a neuromorphic UAV implementation **2017**, | | 14 |
| 142 | Guest editorial - Special issue on neural networks hardware implementations. *IEEE Transactions on Neural Networks*, **2003**, 14, 976-979 | | 14 |
| 141 | Spatio-temporal Spike Pattern Classification in Neuromorphic Systems. *Lecture Notes in Computer Science*, **2013**, 262-273 | 0.9 | 14 |
| 140 | **2016**, | | 14 |
| 139 | PyNCS: a microkernel for high-level definition and configuration of neuromorphic electronic systems. *Frontiers in Neuroinformatics*, **2014**, 8, 73 | 3.9 | 13 |
| 138 | Exploiting device mismatch in neuromorphic VLSI systems to implement axonal delays **2012**, | | 13 |

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| 137 | Implementing homeostatic plasticity in VLSI networks of spiking neurons **2008**, | | 13 |
| 136 | An adaptive silicon synapse | | 13 |
| 135 | An electronic neuromorphic system for real-time detection of high frequency oscillations (HFO) in intracranial EEG. *Nature Communications*, **2021**, 12, 3095 | 17.4 | 13 |
| 134 | A PCI based high-fanout AER mapper with 2 GiB RAM look-up table, 0.8 µs latency and 66MHz output event-rate **2011**, | | 12 |
| 133 | Open-Loop Neuromorphic Controller Implemented on VLSI Devices **2018**, | | 12 |
| 132 | Programmable Spike-Timing-Dependent Plasticity Learning Circuits in Neuromorphic VLSI Architectures. *ACM Journal on Emerging Technologies in Computing Systems*, **2015**, 12, 1-18 | 1.7 | 11 |
| 131 | Event-based circuits for controlling stochastic learning with memristive devices in neuromorphic architectures **2018**, | | 11 |
| 130 | A Model of Stimulus-Specific Adaptation in Neuromorphic Analog VLSI. *IEEE Transactions on Biomedical Circuits and Systems*, **2011**, 5, 413-9 | 5.1 | 11 |
| 129 | Autonomous vehicle guidance using analog VLSI neuromorphic sensors. *Lecture Notes in Computer Science*, **1997**, 811-816 | 0.9 | 11 |
| 128 | Closed-Loop Spiking Control on a Neuromorphic Processor Implemented on the iCub. *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, **2020**, 10, 546-556 | 5.2 | 11 |
| 127 | NeuCube Neuromorphic Framework for Spatio-temporal Brain Data and Its Python Implementation. *Lecture Notes in Computer Science*, **2013**, 78-84 | 0.9 | 11 |
| 126 | Ultra-Low-Power FDSOI Neural Circuits for Extreme-Edge Neuromorphic Intelligence. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2021**, 68, 45-56 | 3.9 | 11 |
| 125 | Ultra low leakage synaptic scaling circuits for implementing homeostatic plasticity in neuromorphic architectures **2014**, | | 10 |
| 124 | Winner-Take-All Networks with Lateral Excitation. *Analog Integrated Circuits and Signal Processing*, **1997**, 13, 185-193 | 1.2 | 10 |
| 123 | Selective attention implemented with dynamic synapses and integrate-and-fire neurons. *Neurocomputing*, **2006**, 69, 1971-1976 | 5.4 | 10 |
| 122 | An adaptive visual tracking sensor with a hysteretic winner-take-all network | | 10 |
| 121 | A Neuromorphic Device for Detecting High-Frequency Oscillations in Human iEEG **2019**, | | 10 |
| 120 | Decision making and perceptual bistability in spike-based neuromorphic VLSI systems **2015**, | | 9 |

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| 119 | **2013**, | | 9 |
| 118 | A fully-synthesized 20-gate digital spike-based synapse with embedded online learning **2017**, | | 9 |
| 117 | On-chip unsupervised learning in winner-take-all networks of spiking neurons **2017**, | | 9 |
| 116 | A spiking implementation of the lamprey's Central Pattern Generator in neuromorphic VLSI **2014**, | | 9 |
| 115 | Towards a neuromorphic vestibular system. *IEEE Transactions on Biomedical Circuits and Systems*, **2014**, 8, 669-80 | 5.1 | 9 |
| 114 | A memory-efficient routing method for large-scale spiking neural networks **2013**, | | 9 |
| 113 | State-dependent sensory processing in networks of VLSI spiking neurons **2010**, | | 9 |
| 112 | Dynamic state and parameter estimation applied to neuromorphic systems. *Neural Computation*, **2012**, 24, 1669-94 | 2.9 | 9 |
| 111 | Neuromorphic vision sensors and preprocessors in system applications **1998**, 3410, 134 | | 9 |
| 110 | Concept Learning in Neuromorphic Vision Systems: What Can We Learn from Insects?. *Journal of Software Engineering and Applications*, **2014**, 07, 387-395 | 0.6 | 9 |
| 109 | Parameter Optimization and Learning in a Spiking Neural Network for UAV Obstacle Avoidance Targeting Neuromorphic Processors. *IEEE Transactions on Neural Networks and Learning Systems*, **2020**, 31, 3305-3318 | 10.3 | 9 |
| 108 | Beyond spike-timing dependent plasticity in memristor crossbar arrays **2016**, | | 9 |
| 107 | Ultra-Low Power Silicon Neuron Circuit for Extreme-Edge Neuromorphic Intelligence **2019**, | | 9 |
| 106 | In-depth Characterization of Resistive Memory-Based Ternary Content Addressable Memories **2018** , | | 9 |
| 105 | A Neuromorphic Computational Primitive for Robust Context-Dependent Decision Making and Context-Dependent Stochastic Computation. *IEEE Transactions on Circuits and Systems II: Express Briefs*, **2019**, 66, 843-847 | 3.5 | 8 |
| 104 | Event-based softcore processor in a biohybrid setup applied to structural plasticity **2015**, | | 8 |
| 103 | **2011**, | | 8 |
| 102 | Spike-Based Plasticity Circuits for Always-on On-Line Learning in Neuromorphic Systems **2019**, | | 7 |

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| 101 | Neuromorphic Implementation of Spiking Relational Neural Network for Motor Control **2020**, | | 7 |
| 100 | Organic electronics Axon-Hillock neuromorphic circuit: towards biologically compatible, and physically flexible, integrate-and-fire spiking neural networks. *Journal Physics D: Applied Physics*, **2021**, 54, 104004 | 3 | 7 |
| 99 | **2017**, | | 6 |
| 98 | Rhythmic Inhibition Allows Neural Networks to Search for Maximally Consistent States. *Neural Computation*, **2015**, 27, 2510-47 | 2.9 | 6 |
| 97 | Sequential activity in asymmetrically coupled winner-take-all circuits. *Neural Computation*, **2014**, 26, 1973-2004 | 2.9 | 6 |
| 96 | Robust state-dependent computation in neuromorphic electronic systems **2017**, | | 6 |
| 95 | Neuromorphic log-domain silicon synapse circuits obey bernoulli dynamics: a unifying tutorial analysis. *Frontiers in Neuroscience*, **2014**, 8, 428 | 5.1 | 6 |
| 94 | A robust sound perception model suitable for neuromorphic implementation. *Frontiers in Neuroscience*, **2013**, 7, 278 | 5.1 | 6 |
| 93 | A hybrid analog/digital Spike-Timing Dependent Plasticity learning circuit for neuromorphic VLSI multi-neuron architectures **2014**, | | 6 |
| 92 | A neuromorphic saliency-map based active vision system **2011**, | | 6 |
| 91 | Modeling orientation selectivity using a neuromorphic multi-chip system | | 6 |
| 90 | A Neuromorphic aVLSI network chip with configurable plastic synapses **2007**, | | 6 |
| 89 | EMG-Based Gestures Classification Using a Mixed-Signal Neuromorphic Processing System. *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, **2020**, 10, 578-587 | 5.2 | 6 |
| 88 | Nanoscale Room-Temperature Multilayer Skyrmionic Synapse for Deep Spiking Neural Networks. *Physical Review Applied*, **2020**, 14, | 4.3 | 6 |
| 87 | Hybrid CMOS-RRAM Neurons with Intrinsic Plasticity **2019**, | | 5 |
| 86 | Neuromorphic Engineering **2015**, 715-725 | | 5 |
| 85 | Obstacle avoidance and target acquisition in mobile robots equipped with neuromorphic sensory-processing systems **2017**, | | 5 |
| 84 | Analog circuits for mixed-signal neuromorphic computing architectures in 28 nm FD-SOI technology **2017**, | | 5 |

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| 83 | A motion planning algorithm for smooth paths of bounded curvature and curvature derivative **2009** , | | 5 |
| 82 | Applying neuromorphic vision sensors to planetary landing tasks **2009**, | | 5 |
| 81 | A 2D neuromorphic VLSI architecture for modeling selective attention **2000**, | | 5 |
| 80 | A Spike-Based Neuromorphic Architecture of Stereo Vision. *Frontiers in Neurorobotics*, **2020**, 14, 568283 | 3.4 | 5 |
| 79 | A spiking neural network (SNN) for detecting high frequency oscillations (HFOs) in the intraoperative ECoG. *Scientific Reports*, **2021**, 11, 6719 | 4.9 | 5 |
| 78 | Neural State Machines for Robust Learning and Control of Neuromorphic Agents. *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, **2019**, 9, 679-689 | 5.2 | 5 |
| 77 | Organizing Sequential Memory in a Neuromorphic Device Using Dynamic Neural Fields. *Frontiers in Neuroscience*, **2018**, 12, 717 | 5.1 | 5 |
| 76 | Event-Based Computation for Touch Localization Based on Precise Spike Timing. *Frontiers in Neuroscience*, **2020**, 14, 420 | 5.1 | 4 |
| 75 | Neuromorphic Systems **2016**, 1-22 | | 4 |
| 74 | Insect-Inspired Elementary Motion Detection Embracing Resistive Memory and Spiking Neural Networks. *Lecture Notes in Computer Science*, **2018**, 115-128 | 0.9 | 4 |
| 73 | eMorph: Towards Neuromorphic Robotic Vision. *Procedia Computer Science*, **2011**, 7, 163-165 | 1.6 | 4 |
| 72 | Neuromorphic Systems **2009**, 521-528 | | 4 |
| 71 | Characterizing the Firing Properties of an Adaptive Analog VLSI Neuron. *Lecture Notes in Computer Science*, **2004**, 189-200 | 0.9 | 4 |
| 70 | Analog VLSI motion projects at Caltech **1996**, | | 4 |
| 69 | Analog Weight Updates with Compliance Current Modulation of Binary ReRAMs for On-Chip Learning **2020**, | | 4 |
| 68 | Embodied neuromorphic intelligence.. *Nature Communications*, **2022**, 13, 1024 | 17.4 | 4 |
| 67 | A novel spiking CPG-based implementation system to control a lamprey robot **2016**, | | 3 |
| 66 | An Ultra-Low Power Sigma-Delta Neuron Circuit **2019**, | | 3 |

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| 65 | Toward neuromorphic intelligent brain-machine interfaces: An event-based neural recording and processing system **2014**, | | 3 |
| 64 | Synthesis of log-domain integrators for silicon synapses with global parametric control **2010**, | | 3 |
| 63 | Attentive motion sensor for mobile robotic applications **2011**, | | 3 |
| 62 | **2012**, | | 3 |
| 61 | Reliable Computation in Noisy Backgrounds Using Real-Time Neuromorphic Hardware **2007**, | | 3 |
| 60 | A low-power dual-threshold comparator for neuromorphic systems | | 3 |
| 59 | A recurrent neural architecture mimicking cortical preattentive vision systems. *Neurocomputing*, **1996**, 11, 155-170 | 5.4 | 3 |
| 58 | Supervised training of spiking neural networks for robust deployment on mixed-signal neuromorphic processors. *Scientific Reports*, **2021**, 11, 23376 | 4.9 | 3 |
| 57 | Robot Soccer using Optical Analog VLSI Sensors. *International Journal of Robotics and Automation*, **2004**, 19, | 1.3 | 3 |
| 56 | Object Tracking Using Multiple Neuromorphic Vision Sensors. *Lecture Notes in Computer Science*, **2005**, 426-433 | 0.9 | 3 |
| 55 | A Real-Time Event-Based Selective Attention System for Active Vision **2012**, 205-219 | | 3 |
| 54 | PCM-Trace: Scalable Synaptic Eligibility Traces with Resistivity Drift of Phase-Change Materials **2021**, | | 3 |
| 53 | Neuromorphic Engineering **2004**, 67-84 | | 3 |
| 52 | Introducing principles of synaptic integration in the optimization of deep neural networks.. *Nature Communications*, **2022**, 13, 1885 | 17.4 | 3 |
| 51 | An error-propagation spiking neural network compatible with neuromorphic processors **2020**, | | 2 |
| 50 | Automated synthesis of asynchronous event-based interfaces for neuromorphic systems **2013**, | | 2 |
| 49 | The CO3AUVs (Cooperative Cognitive Control for Autonomous Underwater Vehicles) Project: overview and current progresses.. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2010**, 43, 235-239 | | 2 |
| 48 | Form specifies function: robust spike-based computation in analog VLSI without precise synaptic weights | | 2 |

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|---|---|---|---|
| 47 | System implementations of analog VLSI velocity sensors | | 2 |
| 46 | | | 2 |
| 45 | Winner-Take-All Networks with Lateral Excitation **1998**, 367-377 | | 2 |
| 44 | A neuromorphic architecture for cortical multilayer integration of early visual tasks. *Machine Vision and Applications*, **1995**, 8, 305-314 | 2.8 | 2 |
| 43 | An electronic neuromorphic system for real-time detection of High Frequency Oscillations (HFOs) in intracranial EEG | | 2 |
| 42 | **2020**, | | 2 |
| 41 | Systematic Construction of Finite State Automata Using VLSI Spiking Neurons. *Lecture Notes in Computer Science*, **2012**, 382-383 | 0.9 | 2 |
| 40 | Neuromorphic Pattern Generation Circuits for Bioelectronic Medicine **2021**, | | 2 |
| 39 | Online Detection of Vibration Anomalies Using Balanced Spiking Neural Networks **2021**, | | 2 |
| 38 | Introducing Neuromorphic Computing and Engineering *Neuromorphic Computing and Engineering*, **2021**, 1, 010401 | | 2 |
| 37 | Automatic gain control of ultra-low leakage synaptic scaling homeostatic plasticity circuits **2016**, | | 2 |
| 36 | Tunable device-mismatch effects for stochastic computation in analog/digital neuromorphic computing architectures **2016**, | | 2 |
| 35 | An auto-scaling wide dynamic range current to frequency converter for real-time monitoring of signals in neuromorphic systems **2016**, | | 2 |
| 34 | Computation in Neuromorphic Analog VLSI Systems. *Perspectives in Neural Computing*, **2002**, 3-20 | | 2 |
| 33 | A Spiking Network for Inference of Relations Trained with Neuromorphic Backpropagation **2019**, | | 1 |
| 32 | Synaptic and neuromorphic functions: general discussion. *Faraday Discussions*, **2019**, 213, 553-578 | 3.6 | 1 |
| 31 | System-level integration in neuromorphic co-processors **2020**, 479-497 | | 1 |
| 30 | Wide dynamic range weights and biologically realistic synaptic dynamics for spike-based learning circuits **2016**, | | 1 |

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| 29 | Deriving optimal silicon neuron circuit specifications using Data Assimilation **2018**, | | 1 |
| 28 | Robust Learning and Recognition of Visual Patterns in Neuromorphic Electronic Agents **2019**, | | 1 |
| 27 | A compact ultra low-power pulse delay and extension circuit for neuromorphic processors **2017**, | | 1 |
| 26 | Activity dependent structural plasticity in neuromorphic systems **2017**, | | 1 |
| 25 | A modular configurable system for closed-loop bidirectional brain-machine interfaces **2015**, | | 1 |
| 24 | Smart motion sensing for autonomous robots **2014**, | | 1 |
| 23 | Function approximation with uncertainty propagation in a VLSI spiking neural network **2012**, | | 1 |
| 22 | A model of stimulus-specific adaptation in neuromorphic a VLSI **2010**, | | 1 |
| 21 | Live demonstration: State-dependent sensory processing in networks of VLSI spiking neurons **2010**, | | 1 |
| 20 | Confession session: Learning from others mistakes **2011**, | | 1 |
| 19 | Robust classification of correlated patterns with a neuromorphic VLSI network of spiking neurons **2007**, | | 1 |
| 18 | A neuromorphic architecture for cortical multilayer integration of early visual tasks. *Machine Vision and Applications*, **1995**, 8, 305-314 | 2.8 | 1 |
| 17 | A neuromorphic spiking neural network detects epileptic high frequency oscillations in the scalp EEG.. *Scientific Reports*, **2022**, 12, 1798 | 4.9 | 1 |
| 16 | A neuromorphic model of olfactory processing and sparse coding in the Drosophila larva brain. *Neuromorphic Computing and Engineering*, | | 1 |
| 15 | Implementing Efficient Balanced Networks with Mixed-Signal Spike-Based Learning Circuits **2021**, | | 1 |
| 14 | A neuromorphic model of olfactory processing and sparse coding in the Drosophila larva brain | | 1 |
| 13 | Live Demonstration: Face Recognition on an Ultra-Low Power Event-Driven Convolutional Neural Network ASIC **2019**, | | 1 |
| 12 | Organic Log-Domain Integrator Synapse. *Advanced Electronic Materials*, **2022**, 8, 2100724 | 6.4 | 1 |

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| 11 | Robust neuromorphic coupled oscillators for adaptive pacemakers. *Scientific Reports*, **2021**, 11, 18073 | 4.9 | 0 |
| 10 | A robust model of Stimulus-Specific Adaptation validated on neuromorphic hardware. *Scientific Reports*, **2021**, 11, 17904 | 4.9 | 0 |
| 9 | Compact Analog Temporal Edge Detector Circuit With Programmable Adaptive Threshold for Neuromorphic Vision Sensors. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2014**, 61, 3094-3104 | 3.9 | |
| 8 | Hardware Infrastructure **2014**, 305-348 | | |
| 7 | Software Infrastructure **2014**, 349-364 | | |
| 6 | Silicon Neurons **2014**, 153-183 | | |
| 5 | Silicon Synapses **2014**, 185-217 | | |
| 4 | Memristive Computing Devices and Applications. *Kluwer International Series in Electronic Materials: Science and Technology*, **2022**, 5-32 | | |
| 3 | Neuromorphic Selective Attention Systems **2005**, 633-637 | | |
| 2 | A Multi-Layer Analog VLSI Architecture for Texture Analysis Isomorphic to Cortical Cells in Mammalian Visual System **1994**, 61-70 | | |
| 1 | Neuromorphic Cognition **2022**, 2313-2322 | | |