

## ASSET LIST

# LOT 145: NEUROMORPHIC TECHNOLOGY FOR COMPUTING AND MACHINE LEARNING/AI PATENTS FOR SALE

## 145号专利包：用于计算和机器学习/人工智能的神经形态技术专利待拍

Ocean Tomo Bid-Ask™ Market patent auction lot 145 offers 38 U.S. patents from Brain Corporation related to neuromorphic computers and algorithms. The IP owner, Brain Corp, is recognized a leader in neuromorphic technology. The subject inventions were developed while working with a multinational company. The portfolio includes patents on spiking neurons, spiking networks, spike-timing dynamics, neuromorphic learning/AI, as well as visual recognition and visual tracking optimized for neuromorphic hardware. According to Markets and Markets, the neuromorphic computing market is expected to be valued at USD 22.7 million in 2021 and is expected to reach USD 550 million by 2026, at a CAGR of 89.1% between 2021 and 2026.

Ocean Tomo Bid-Ask™市场145号待售专利包来自Brain Corporation，包含了有关神经形态计算机和算法的38项美国专利。专利权人Brain Corp 是公认的神经形态技术领导者。本发明是与某跨国公司合作时开发的。该专利包覆盖了脉冲神经元、脉冲网络、脉冲定时动力学、神经形态学习/人工智能，以及针对神经形态硬件优化的视觉识别和视觉跟踪方面的专利。《Markets and Markets》的数据显示，2021年神经拟态计算市场规模预计为2.27千万美元，预计到2026年将达到5.5亿美元，2021-2026年复合年增长率为89.1%。

For further information or to bid on this lot, please email [Bid-Ask@OceanTomo.com](mailto:Bid-Ask@OceanTomo.com).  
 竞拍该专利包或详询更多信息，欢迎联系 [Bid-Ask@OceanTomo.com](mailto:Bid-Ask@OceanTomo.com).

NO. 序号	PUBLICATION NO. 公开号	PATENT TITLE 专利名称	PRIMARY IP CLASS IPC主分类号	PRIORITY DATE 优先权日	FILE DATE 申请日	ISSUE/PUBLICATION DATE 公开日	NO. OF FORWARD CITATIONS 前引数量
1	US 8315305	System and methods for invariant pulse latency coding 不变脉冲延迟编码的系统和方法	H04N 11/02	3/26/10	8/26/10	11/20/12	117
2	US 8467623	Invariant pulse latency coding systems and methods 不变脉冲延迟编码系统和方法	G06F 17/00	3/26/10	8/26/10	6/18/13	129
3	US 8793205	Robotic learning and evolution apparatus 机器学习和进化装置	G06N 3/00	9/20/12	9/20/12	7/29/14	77
4	US 8942466	Sensory input processing apparatus and methods 感官输入处理装置和方法	G06K 9/36	8/26/10	6/2/11	1/27/15	8
5	US 8943008	Apparatus and methods for reinforcement learning in artificial neural networks 人工神经网络中用于强化学习的装置和方法	G06F 15/18	9/21/11	6/5/12	1/27/15	35
6	US 8972315	Apparatus and methods for activity-based plasticity in a spiking neuron network 脉冲神经网络中用于基于活性的可塑性的装置和方法	G06N 3/02	10/25/12	10/25/12	3/3/15	64
7	US 8977582	Spiking neuron network sensory processing apparatus and methods 脉冲神经网络感官处理设备和方法	G06K 9/62	7/12/12	7/12/12	3/10/15	41
8	US 8983216	Invariant pulse latency coding systems and methods 不变脉冲延迟编码系统和方法	H04N 19/107	3/26/10	5/15/13	3/17/15	23
9	US 8990133	Apparatus and methods for state-dependent learning in spiking neuron networks 脉冲神经网络中进行状态相关学习的装置和方法	G06N 3/08	12/20/12	12/20/12	3/24/15	62
10	US 8996177	Robotic training apparatus and methods 机器人训练设备和方法	G05B 15/00	3/15/13	3/15/13	3/31/15	25
11	US 9014416	Sensory processing apparatus and methods 感官处理设备和方法	G06K 9/00	6/29/12	7/2/12	4/21/15	15
12	US 9015092	Dynamically reconfigurable stochastic learning apparatus and methods 可重新配置的动态随机学习设备和方法	G06N 3/08	6/4/12	6/4/12	4/21/15	47
13	US 9047568	Apparatus and methods for encoding of sensory data using artificial spiking neurons 使用脉冲神经元对感官数据进行编码的装置和方法	G06N 5/02	9/20/12	9/20/12	6/2/15	53
14	US 9070039	Temporal winner takes all spiking neuron network sensory processing apparatus and methods 脉冲神经网络感官处理设备和方法	G06K 9/00	2/1/13	2/1/13	6/30/15	57
15	US 9082079	Spiking neuron network proportional integrator differentiator controller apparatus and methods 脉冲神经网络比例积分器微分控制器设备和方法	G06F 15/18	10/22/12	10/22/12	7/14/15	26
16	US 9098811	Spiking neuron network apparatus and methods 脉冲神经网络比例积分器微分控制器设备和方法	G06N 3/06	6/4/12	6/4/12	8/4/15	17
17	US 9104186	Stochastic apparatus and methods for implementing generalized learning rules 实施通用学习规则的随机装置和方法	G06F 15/18	6/4/12	6/4/12	8/11/15	21
18	US 9111215	Conditional plasticity spiking neuron network apparatus and methods 可塑脉冲神经网络装置和方法	G06N 3/02	7/3/12	7/3/12	8/18/15	13
19	US 9111226	Modulated plasticity apparatus and methods for spiking neuron network 用于脉冲神经网络的调制塑性装置和方法	G06F 15/18	10/25/12	10/25/12	8/18/15	16
20	US 9123127	Contrast enhancement spiking neuron network sensory processing apparatus and methods 对比增强脉冲神经网络感官处理设备和方法	G06K 9/62	12/10/12	12/10/12	9/1/15	23
21	US 9152915	Apparatus and methods for encoding vector into pulse-code output 使用矢量编码为脉冲代码的装置和方法	G06N 3/10	8/26/10	11/29/12	10/6/15	18
22	US 9156165	Adaptive critic apparatus and methods 自适应批评装置和方法	G06F 15/18	9/21/11	9/21/11	10/13/15	2
23	US 9183493	Adaptive plasticity apparatus and methods for spiking neuron network 用于脉冲神经网络的自适应可塑性装置和方法	G06N 5/00	10/25/12	10/25/12	11/10/15	11
24	US 9189730	Modulated stochasticity spiking neuron network controller apparatus and methods 调制随机脉冲神经网络控制装置和方法	G06N 3/08	9/20/12	9/20/12	11/17/15	39
25	US 9193075	Apparatus and methods for object detection via optical flow cancellation 通过光流消除进行物体检测的装置和方法	G06N 3/04	8/26/10	11/29/12	11/24/15	23
26	US 9195934	Spiking neuron classifier apparatus and methods using conditionally independent subsets 使用条件独立子集的脉冲神经元分类器装置和方法	G06N 3/02	1/31/13	1/31/13	11/24/15	47
27	US 9213937	Apparatus and methods for gating analog and spiking signals in artificial neural networks 用于在人工神经网络中选中模拟和脉冲信号的装置和方法	G06F 15/18	9/21/11	2/6/13	12/15/15	26
28	US 9218563	Spiking neuron sensory processing apparatus and methods for saliency detection 用于显著性检测的脉冲神经网络感官处理设备和方法	G06E 1/00	10/25/12	10/25/12	12/22/15	16
29	US 9224090	Sensory input processing apparatus in a spiking neural networks 脉冲神经网络中的感官输入处理设备	G06N 3/04	5/7/12	5/7/12	12/29/15	5
30	US 9256215	Apparatus and methods for generalized state-dependent learning in spiking neuron networks 在脉冲神经网络中用于广义状态相关学习的装置和方法	G06N 5/00	7/27/12	7/27/12	2/9/16	0
31	US 9275326	Rate stabilization through plasticity in spiking neuron networks 在脉冲神经网络中通过可塑性实现速率稳定	G06F 15/18	11/30/12	11/30/12	3/1/16	1
32	US9311594	Spiking neuron network apparatus and methods for encoding of sensory data 脉冲神经网络装置和感官数据编码方法	G06N 5/00	9/20/12	9/20/12	4/12/16	1
33	US9311593	Apparatus and methods for polychronous encoding and multiplexing in neuronal prosthetics devices 用于神经假体装置中的多时编码和复用的装置和方法	A61N 1/36	3/26/10	5/26/11	4/12/16	0
34	US9367798	Spiking neuron networks adaptive control apparatus and methods 脉冲神经网络自适应控制装置和方法	G06N 5/00	9/20/12	9/20/12	6/14/16	14
35	US9384443	Robotic training apparatus and methods 机器人训练设备和方法	B25J 9/16	6/14/13	6/14/13	7/5/16	41
36	US9405975	Apparatus and methods for pulse-code invariant object recognition 用于脉冲代码不变对象识别的装置和方法	G06K 9/00	3/26/10	6/2/11	8/2/16	6
37	US9489623	Apparatus and methods for backward propagation of errors in a spiking neuron networks 用于在脉冲神经网络中反向传播错误的装置和方法	G06N 3/08	10/15/13	10/15/13	11/8/16	25
38	US9552546	Apparatus and methods for efficacy balancing in a spiking neuron networks 用于在脉冲神经网络中平衡功效的装置和方法	G06F 15/18	7/30/13	7/30/13	1/24/17	3