Neuromorphic

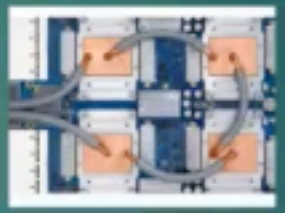
- Emulate brain functions using spiking neural networks
- When novel inputs are presented, can adapt and does not require re-training (brittleness)
- Large investments being made
- Intel's Loihi has 128 neuromorphic cores & consumes less power than a GPU or CPU; scalable system with 100 million neurons by 2020
- IBM's TrueNorth: 64 million neurons and 16 billion synapses
- Applications: image processing, path planning; TrueNorth classifies objects in hi-def video > 100 frames/sec (DeBole *et al.*, 2019: 25).

DNN/CNN

NVIDIA VOLTA GPUs have Tensor cores

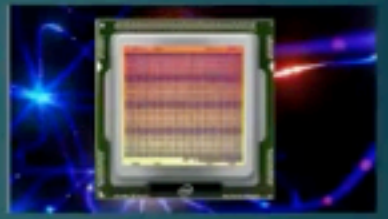
GPU

TPU



Brittle

Neuromorphic



Less Brittle But Unproven

https://gpu.userbenchmark.com/Speed/Test/76200/NVIDIA-Quadro-RTX-8000

https://www.cnet.com/news/google-ai-chips-two-are-way-faster-together-faster-learning-cloud-computing/

https://www.intel.com/content/www/us/en/research/neuromorphic-computing.html