



Figure 1.10: Initially, the number of connections between neurons in artificial neural networks was limited by hardware capabilities. Today, the number of connections between neurons is mostly a design consideration. Some artificial neural networks have nearly as many connections per neuron as a cat, and it is quite common for other neural networks to have as many connections per neuron as smaller mammals like mice. Even the human brain does not have an exorbitant amount of connections per neuron. Biological neural network sizes from [Wikipedia \(2015\)](#).

1. Adaptive linear element ([Widrow and Hoff, 1960](#))
2. Neocognitron ([Fukushima, 1980](#))
3. GPU-accelerated convolutional network ([Chellapilla \*et al.\*, 2006](#))
4. Deep Boltzmann machine ([Salakhutdinov and Hinton, 2009a](#))
5. Unsupervised convolutional network ([Jarrett \*et al.\*, 2009](#))
6. GPU-accelerated multilayer perceptron ([Ciresan \*et al.\*, 2010](#))
7. Distributed autoencoder ([Le \*et al.\*, 2012](#))
8. Multi-GPU convolutional network ([Krizhevsky \*et al.\*, 2012](#))
9. COTS HPC unsupervised convolutional network ([Coates \*et al.\*, 2013](#))
10. GoogLeNet ([Szegedy \*et al.\*, 2014a](#))