

Convolutional neural network (CNN) is a regularized type of feed-forward neural network that learns feature engineering by itself via filters (or kernel) optimization. Vanishing gradients and exploding gradients, seen during backpropagation in earlier neural networks, are prevented by using regularized weights over fewer connections. For example, for each neuron in the fully-connected layer, 10,000 weights would be required for processing an image sized 100×100 pixels. However, applying cascaded convolution (or cross-correlation) kernels, only 25 neurons are required to process 5x5-sized tiles. Higher-layer features are extracted from wider context windows, compared to lower-layer features.

Sources: [Convolutional neural network - Wikipedia](#)