1. Filtering is the main technique in convolution layers. In fact, convolution describes the process of repeated application of filters. Specific filters applied by a convolution layer search for specific features in the image, scanned across its pixels, and mathematically assign values through multiplication that map the likelihood of its presence in each location.
2. Features are the unique characteristics of an image. Broken down into components, such as particular edges and curves, their presence characterizes what an object is. For neural networks, training to identify these specific features can allow for the system to classify what the image most likely is based on the features found to be associated with the image during convolution and pooling.
3. Feature maps are the outcome of the several layers of convolution. After actions such as convolution, batch normalization, ReLU, pooling, etc. are applied to the features in an image, the specific combinations of certain features come to indicate the presence of a larger, more complex feature to the network, as it learns in training. These are ideally compiled into a feature map as filters are applied to the input in the hidden layers.
4. Pooling is also referred to as max pooling. This is in reference to its action of taking the highest value in a filter region and transposing it alongside other max values in a smaller unit. Such a process allows for dimensionality to be reduced while still preserving important characteristics in the original image.