- 1. A filter is an array of values which uses convolution to alter the input image. The image will be be turned into a set of numbers with each pixel given a value. The convolution is done through collecting a portion of the image, and taking the values of the pixels, and multiplying the values at hand and adding them together to make the mathematical values simpler by turning an array to a single value.
- 2. A feature is a shape that is recognized by a convolutional neural network. These features start simple and get more complex as you go deeper in the network. In a network aiming to identify a car a feature may be a straight or curved line, but in higher layers, may be a wheel, and a door. These features are placed against an image and where they are found, the pixels are assigned certain values >0, with values where the feature is not found being assigned a zero.
- 3. The feature map is an array which represents an image that has been shrunk through filters convolving the entirety of the image. These maps are the output for the convolutional layers. They each identify one feature in the image regardless of the position or frequency of the feature.
- 4. In between sets of convolutions are pooling layers. The input layers in pooling are made smaller in the process reducing the dimensions of the layer. This is done differently with different methods of pooling. With max pooling the layer is broken apart into equal sections, and the highest value is chosen and plugged back in into the layer, with the new layer being comprised of only the highest values of the sections. With average pooling the same is done but the new layer only consists of the averages of the section but this version is less popular.