# Pooling Layer Basics

compiled by D.Gueorguiev, 6/9/2024

## Preliminaries

### Convolution

Continuous space convolution

(1)

Shorthand notation for the convolution operator is :

(2)

Think of the function as an *input* and the second function as a *kernel*. The output is sometimes referred to as the *feature map*.

Discrete space convolution

(3)

## References

[Pooling Layers for Convolutional Neural Networks, Jason Brownlee, July 5, 2019, online tutorial](https://machinelearningmastery.com/pooling-layers-for-convolutional-neural-networks/)

[Deep Learning for Computer Vision: Image Classification, Object Detection, Face Recognition, Jason Brownlee, 2019](https://github.com/dimitarpg13/deep_learning_for_image_processing/blob/main/literature/books/Deep_Learning_for_Computer_Vision-Image_Classification_Object_Detection_and_Face_Recognition_in_Python_by_Jason_Brownlee.pdf)

[Deep learning, Ian Goodfellow, Yoshua Bengio, Aaron Courville, 2016](file:///Users/dimitargueorguiev/git/ml/deep_learning_for_image_processing/literature/books/deeplearning_latest_edition.pdf)