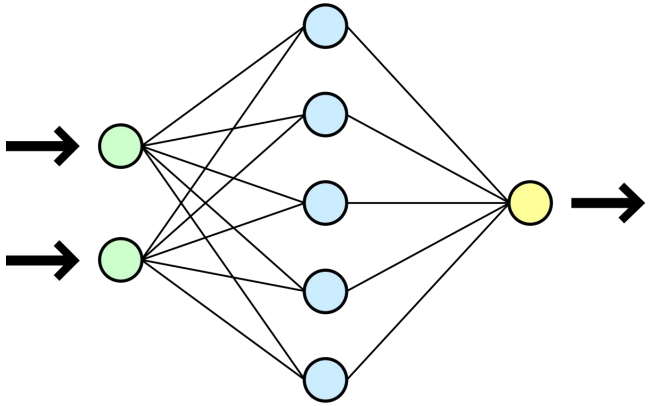

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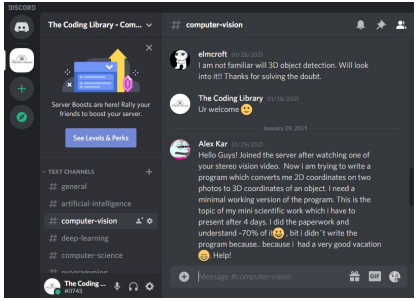
Neural Networks

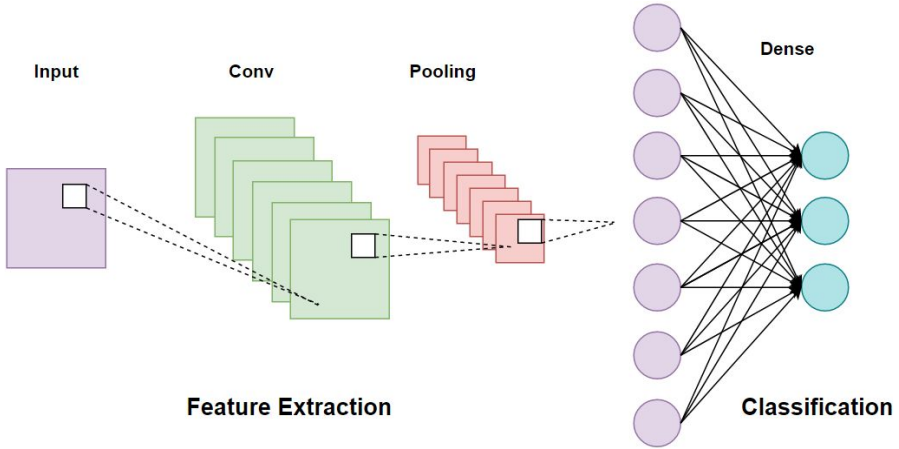
Pooling in Convolutional Neural Networks



Discord Link in Description

Recap of Last Video

- Convolution, Layers and Filters
- Convolutional Neural Networks
- Applications of CNNs
- Trainable parameters in CNNs



Pooling in Convolutional Neural Networks

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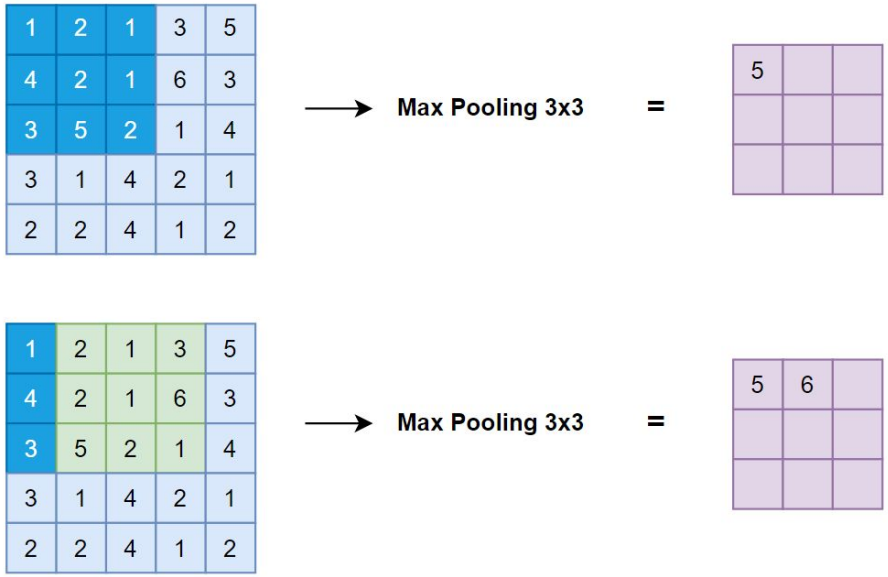
- What is pooling in a CNN and why use it?
- Different types of pooling
  - Max Pooling
  - Average Pooling
  - Global Pooling
- Most used type of pooling and why?
  - How does it affect the convolutional neural network?

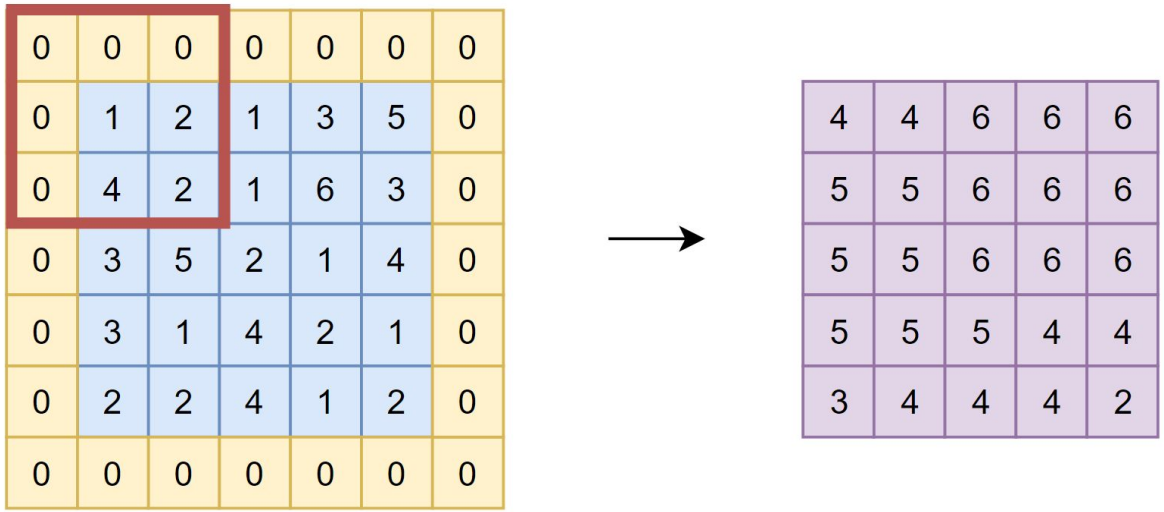
Max Pooling

- What is max pooling, how is it done and why?



Padding

- What is padding?
- What can padding be used for?
- Why is it important to have in some specific situations?



Pooling and Padding in Keras

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MaxPooling2D class

```
tf.keras.layers.MaxPooling2D(
    pool_size=(2, 2), strides=None, padding="valid", data_format=None, **kwargs
)
```

Arguments

- **pool_size**: integer or tuple of 2 integers, window size over which to take the maximum. `(2, 2)` will take the max value over a 2x2 pooling window. If only one integer is specified, the same window length will be used for both dimensions.
- **strides**: Integer, tuple of 2 integers, or None. Strides values. Specifies how far the pooling window moves for each pooling step. If None, it will default to `pool_size`.
- **padding**: One of `"valid"` or `"same"` (case-insensitive). `"valid"` means no padding. `"same"` results in padding evenly to the left/right or up/down of the input such that output has the same height/width dimension as the input.