**Week 4 Note: Convolutional Neural Network**

**1/ Edge Detector:**

Diagram

Description automatically generated

Diagram

Description automatically generatedA picture containing text, electronics, calculator

Description automatically generated

A picture containing table

Description automatically generated

* Instead of hand coding filter like sobel, the convolution can learn the weight which is the representation of the filter and thus we say that the CNN can learn the edges.

**2/ Padding:**

Chart, diagram, box and whisker chart

Description automatically generated

* There are 2 disadvantage in padding is that (1) the image is shrink and (2) the corner pixel only be contribute to the calculation once (meaning you throw away info from images).
* So, you can pad the image with the border of 1 pixel

Diagram, engineering drawing, box and whisker chart

Description automatically generated

Text, Word

Description automatically generated with medium confidence

**3/ Stride:**

A picture containing diagram

Description automatically generated

Chart, line chart

Description automatically generated

Diagram, text

Description automatically generated with medium confidence