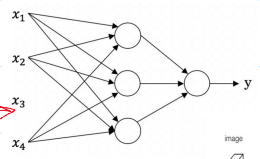
1- Neural Networks and Deep Learning

Sunday, December 11, 2022 5:02 PM

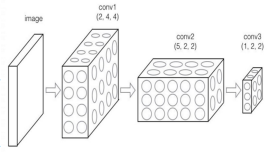
Application :

- Real State
- Online Advertise

} standard NN

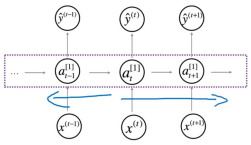


- Photo Tagging } CNN



- Speech Recognition
- Machine Translation

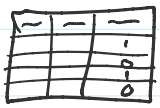
} RNN



- Autonous Driving } Complex hybrid

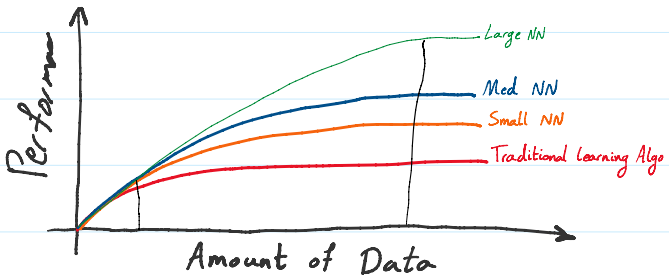
Supervised Learning :

- Structed Data →



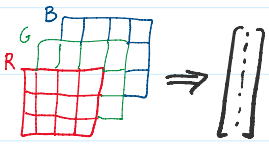
- Unstructed Data →
  - * Audio
  - * Image
  - * Text

Deep Learning Take_off :



Binary Classification :

- 1 (cat) vs 0 (non cat)



* Images : $64 \times 64 \times 3 \longrightarrow n_x = 12288$

$(x, y) : x \in \mathbb{R}^{n_x}, \; y \in \{0, 1\}$

m training example $\{(x^{(1)}, y^{(1)}), \dots, (x^{(m)}, y^{(m)})\}$

$$X = \begin{bmatrix} x^{(1)} x^{(2)} \cdots x^{(m)} \\ \longleftarrow m \longrightarrow \end{bmatrix} \uparrow n_x \downarrow \longrightarrow X \in \mathbb{R}^{n_x \times m} \qquad Y = [y^{(1)} y^{(2)} \cdots y^{(m)}] \longrightarrow Y \in \mathbb{R}^{1 \times m}$$