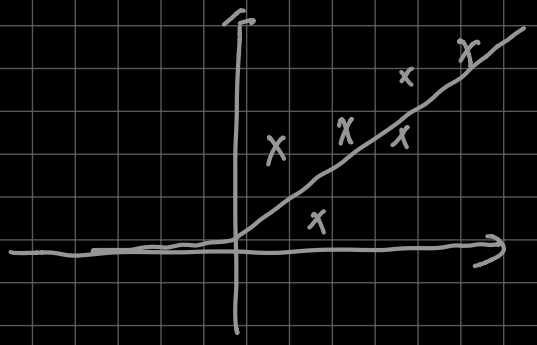
Linear Regression

ReLu function: Rectified Linear Unit

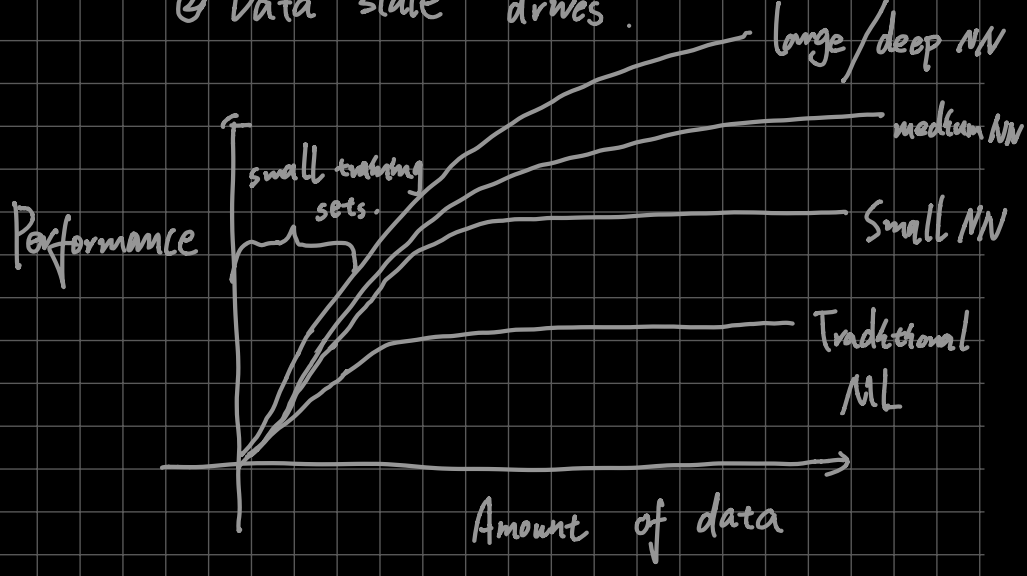


Why neural network thrived ? ⇒ ① DL can handle the unstructured data which traditional ML can't do.

Image. Text. Audio.

structured data: table. list. graph. tree

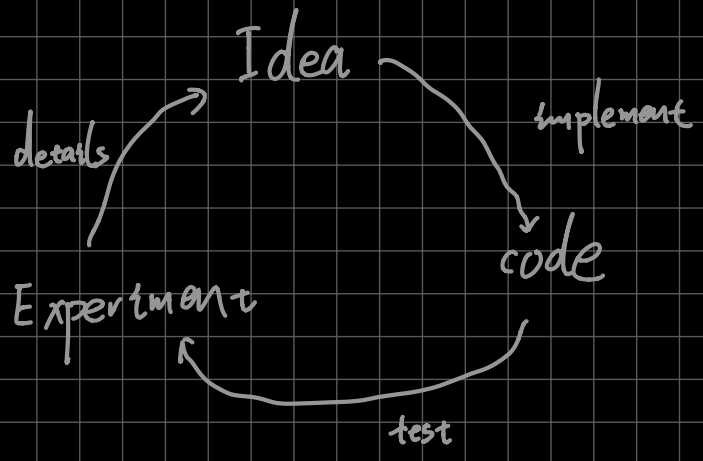
② Data scale drives.



Data ⇒ Large Scale Data

Computation ⇒ GPU. TPUs. more powerful CPU

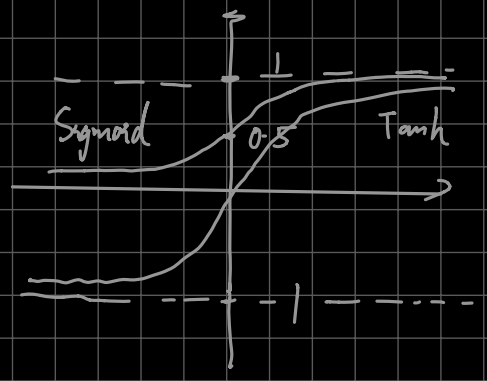
Algorithms ⇒ Relu. Selu ---



Tanh and Sigmoid:

$$\text{Sigmoid: } \sigma(z) = \frac{1}{1+e^{-z}}$$

$$\text{Tanh: } \tau(z) = \frac{e^{z}-e^{-z}}{e^{z}+e^{-z}}$$



△ The tanh function is almost strictly superior than sigmoid function (For the fact that tanh() is symmetric across 0, so it will do mean normalization after activation. Thus, the next layer will receive a better input) ⇒ There is an exception that: output need to be in (0, 1), then we use sigmoid function.

e.g: binary classification.

Geoffrey Hinton:

① If you have an intuition, whether it's good or not, go and persue for it. Because if it's good then you'll be successful based on it, if it's bad the it doesn't matter what you've done

② Deep Learning is to show computers and let computers figure problem out, while traditional ways of using computers is to program them. That means we need to figure the problem out by ourself.