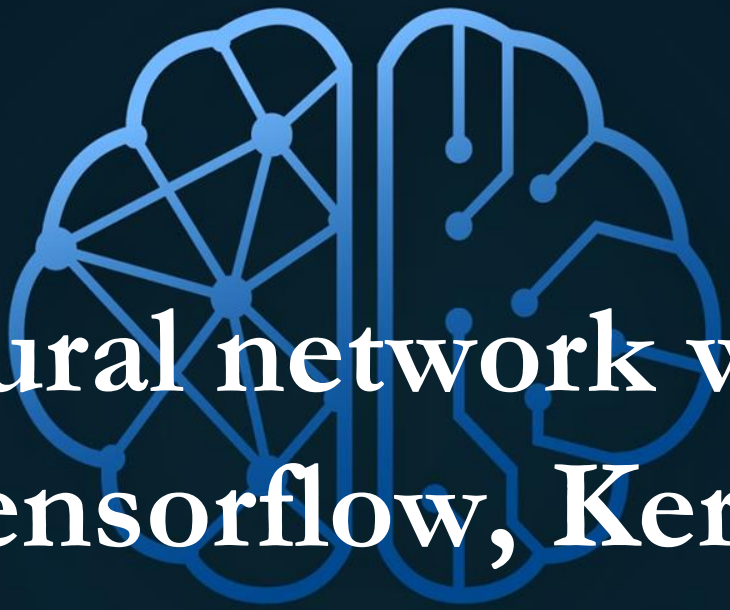
https://www.facebook.com/hcmut.ml.iot.lab



Neural network with Tensorflow, Keras

ML IoT

HCMUT EE MACHINE LEARNING & IOT LAB

5/2021

A. Batch and epoch in a neural network

Sample is a single row of data. A training dataset is comprised of many rows of data (many samples)

Batch size is a hyperparameter: number of samples fed into model before updating the model parameters.

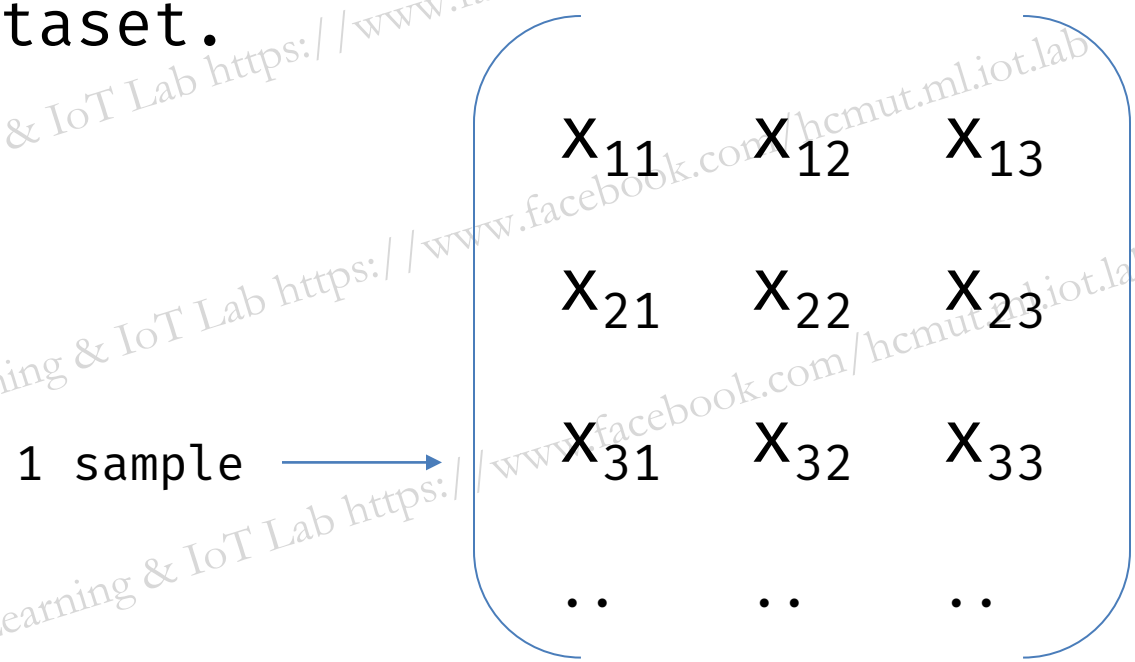
Batch size != number of batches

1 batch is a set of samples

$$\begin{matrix} x_{11} & x_{12} & x_{13} \\ x_{21} & x_{22} & x_{23} \\ x_{31} & x_{32} & x_{33} \\ .. & .. & .. \end{matrix}$$

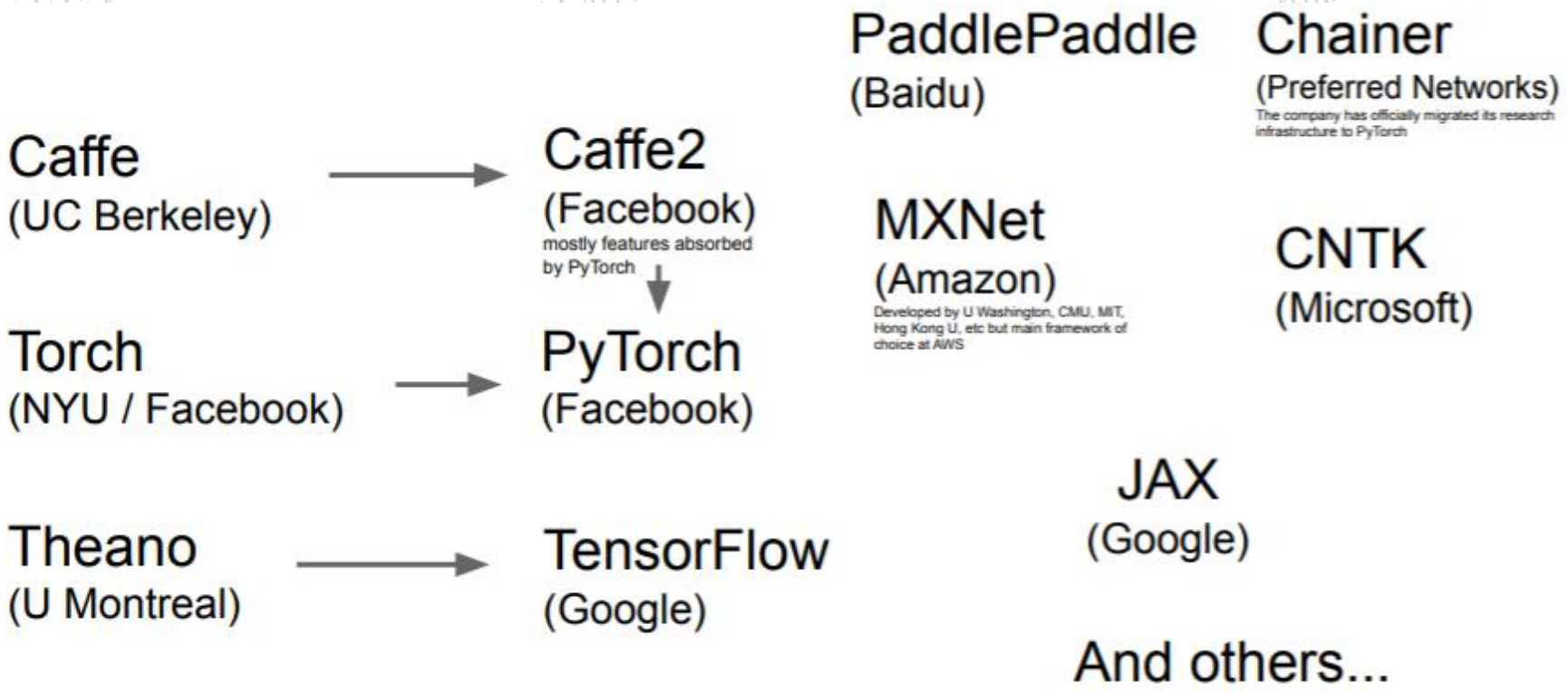
1 Epoch is comprised of one or more batches. 1 epoch means that each sample in the training dataset had an opportunity to update the model parameter.

The number of epochs is a hyperparameter: the number times the algorithm will work through the entire training dataset.



B. Tensorflow

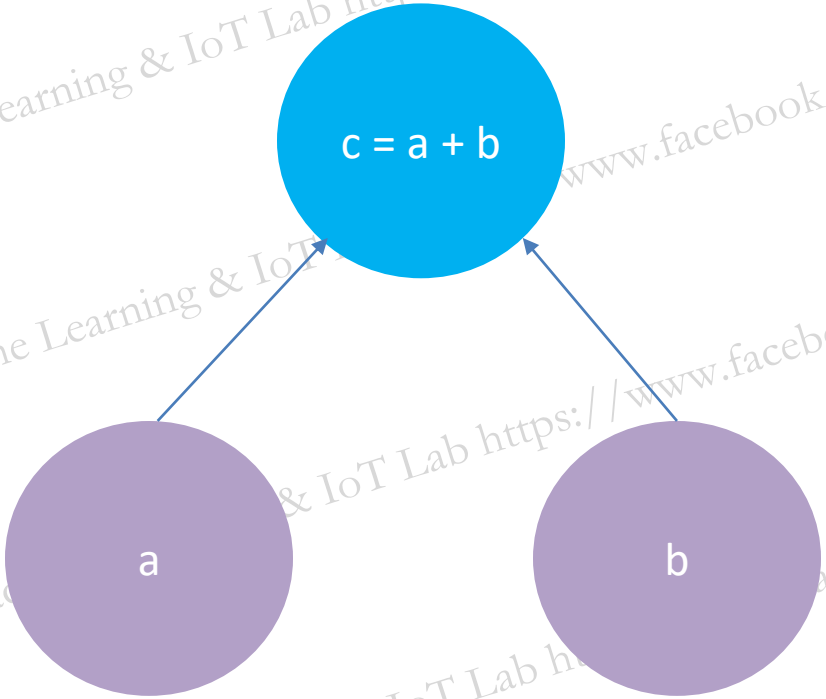
Frameworks



Computations on Tensors

We can visualize computations in Tensorflow using graph.

These graphs are tensors holding data.



Computations on Tensors