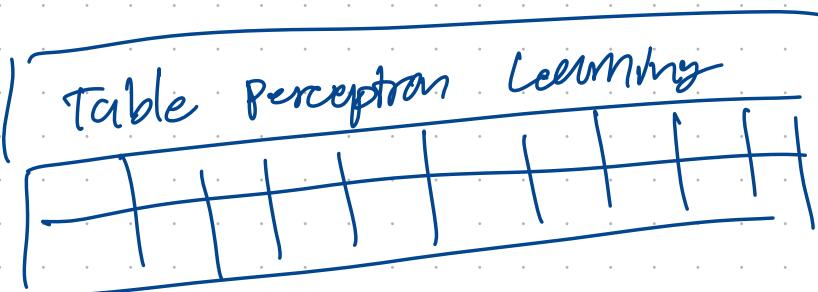
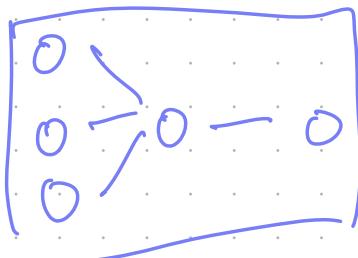


11/03/68 Deep Learning. Lecture Class VEE

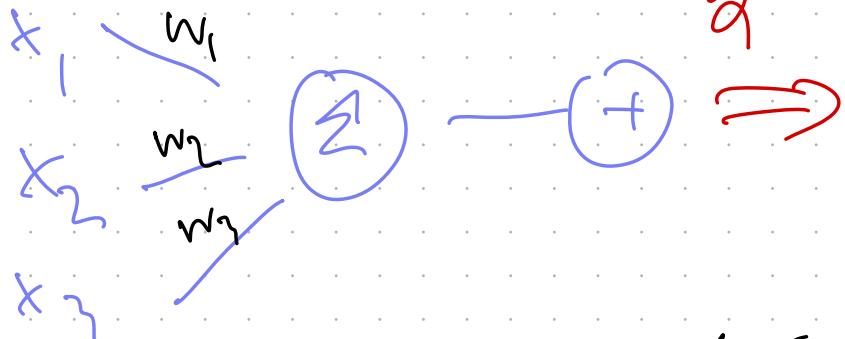
→ Perceptron → 1960 CNN 2nd cell 10⁵ neurons

- 120115cm5 R.WC12/V5U weight

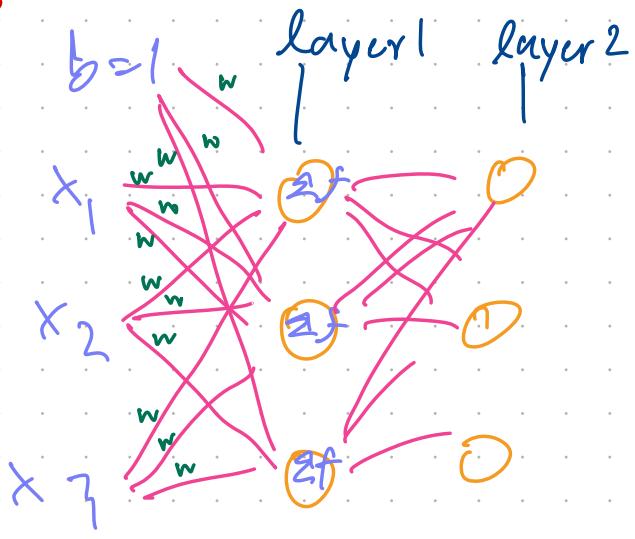
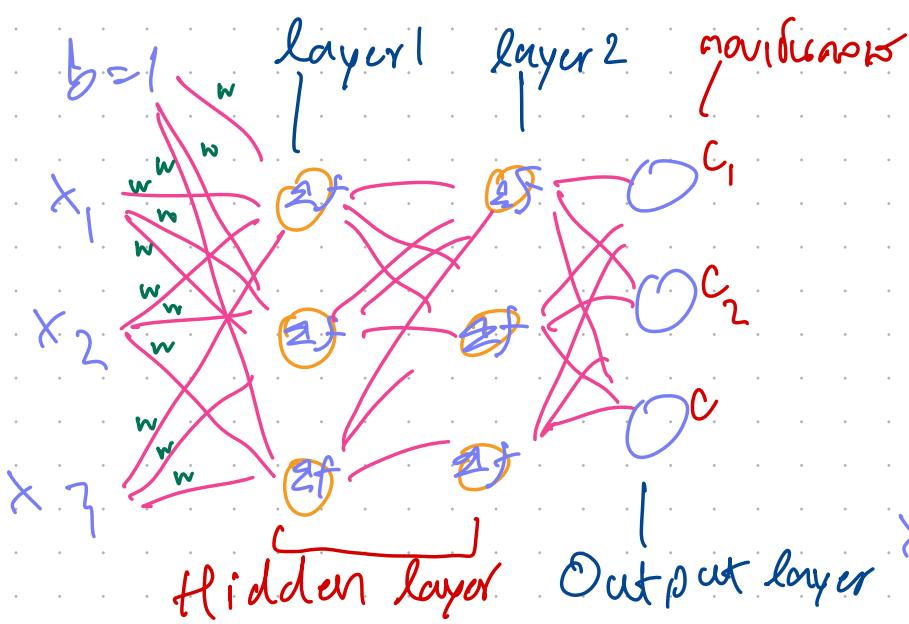
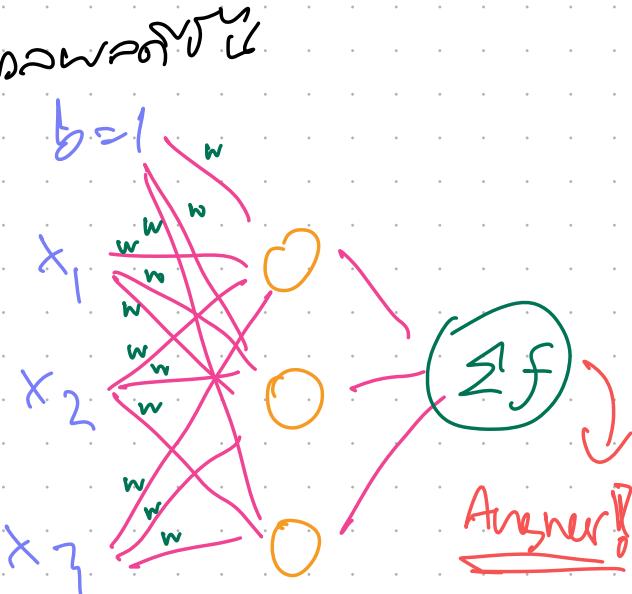
→ VSTO weight search direction into



bias = 1

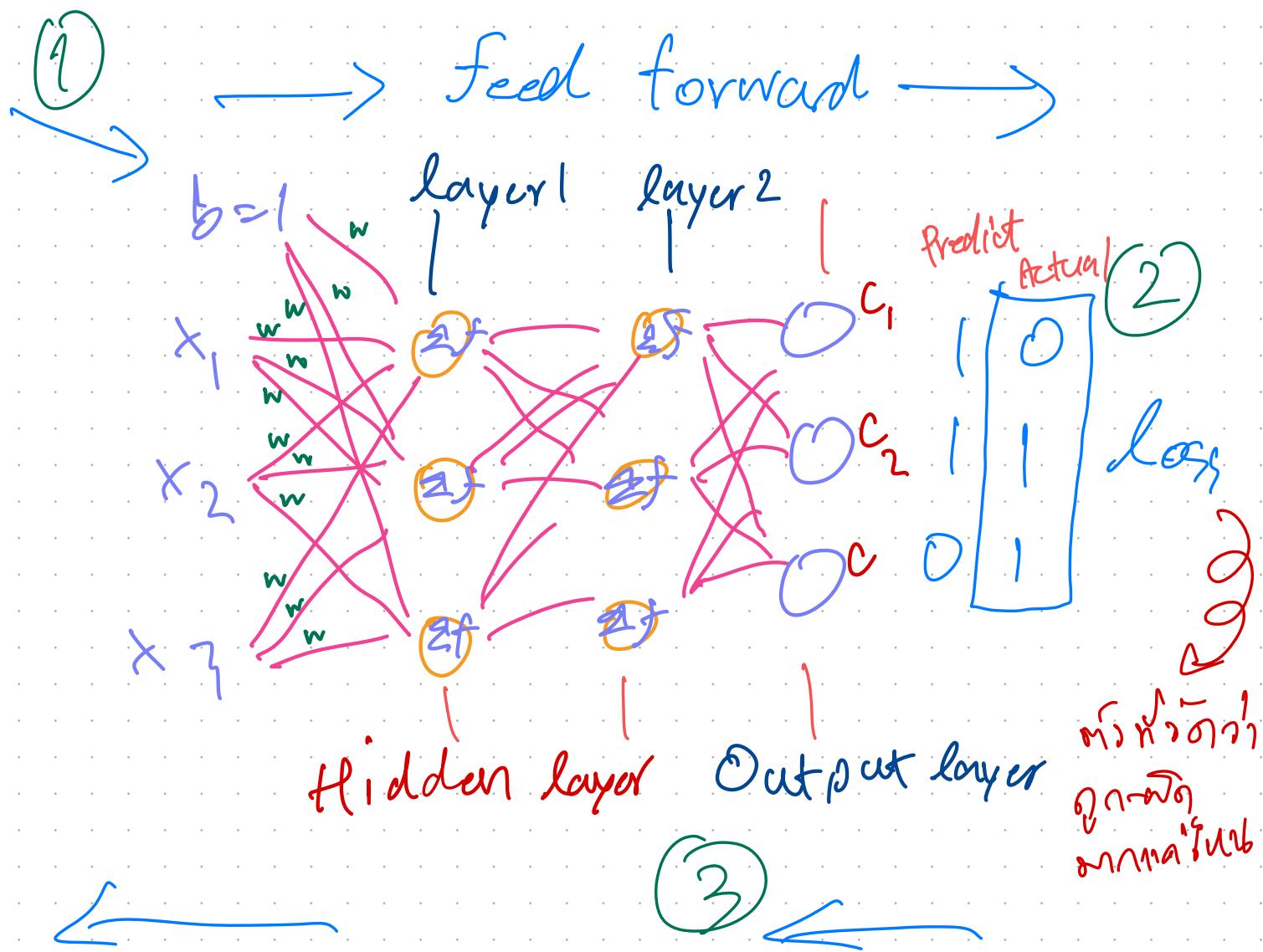


★ ଓଲାଇସ ପ୍ରକଳ୍ପରେ 10¹¹ ମୀଟ୍ରୀ



- softmax model මේ prediction නෙනු යුතු මෙහෙයුම් නිසුම් නියමිත නියම් නිසුම් නියම් නියම් නියම්
 - softmax නියම් නියම්
 - softmax නියම් නියම් නියම් නියම් නියම් නියම් නියම් නියම් නියම්
 - softmax නියම් නියම් නියම් නියම් නියම් නියම් නියම් නියම්
 - softmax නියම් නියම් නියම් නියම් නියම් නියම් නියම්
 - softmax නියම් නියම් නියම් නියම් නියම් නියම්
 - softmax නියම් නියම් නියම් නියම් නියම්
 - softmax නියම් නියම්

ANN : Artificial Neural Network



Back propagation

↳ **does** the loss **not** go

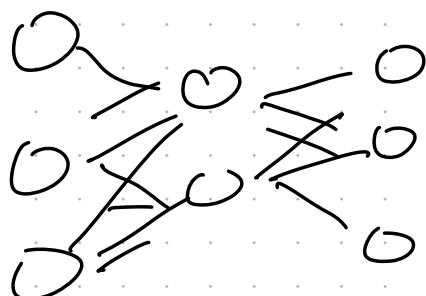
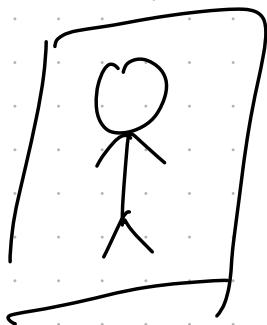
Info in' weight

(un瓈'nous in' weight)

Naïve ANN.

- ეს მისამართი მარტივი არის feature Engineering

Classical ML: (Vector + Vector) Vector (რაოდ)



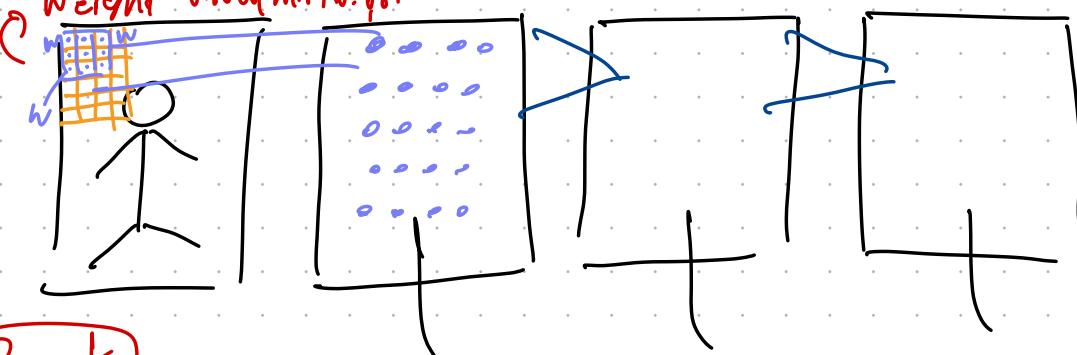
↓ feature Engineering



Convolutional

Present

weight optimization

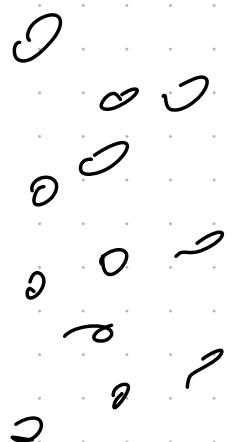


Past

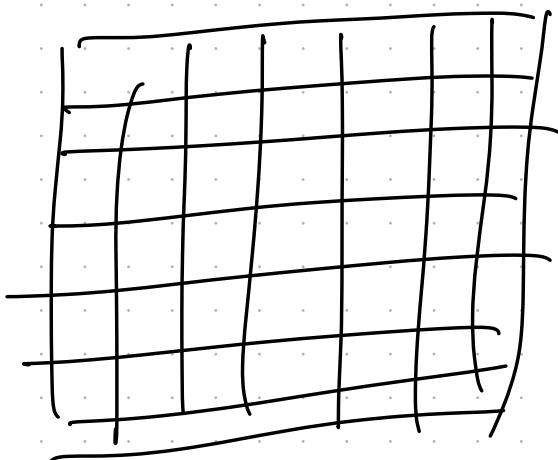
Histogram of color : 3rgb რაოდენობა

Histogram of Oriented gradient : 112x40 3 11m²:ga

(11x3x3 11x3x3 ...)



Classical



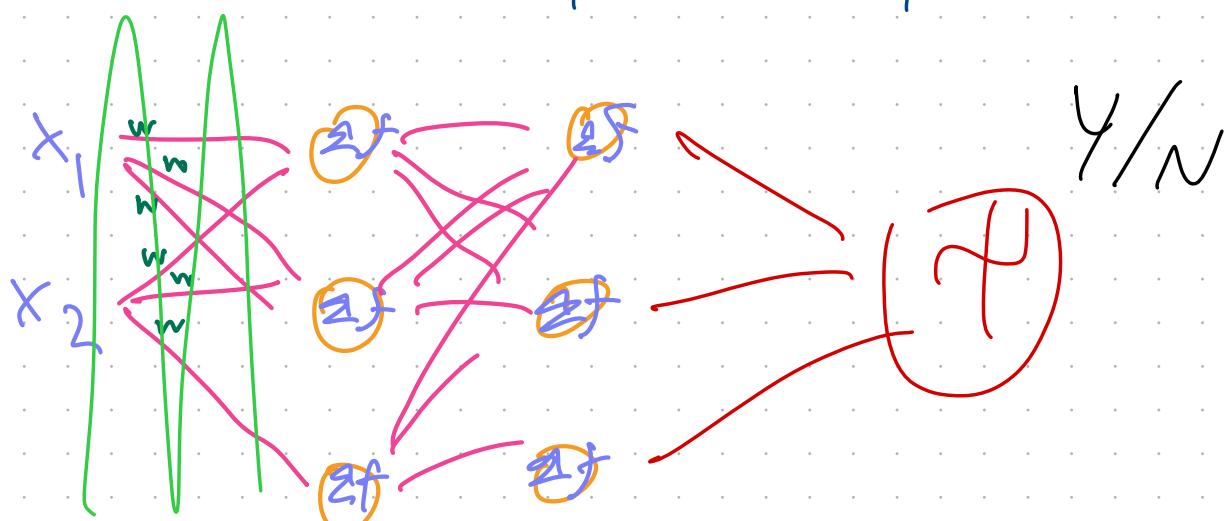
Deep Learning

Surfaces

feature = $\{x_1, x_2, x_3, \dots, x_n\} \mid x \in \mathbb{R}$
Vector \uparrow dimension

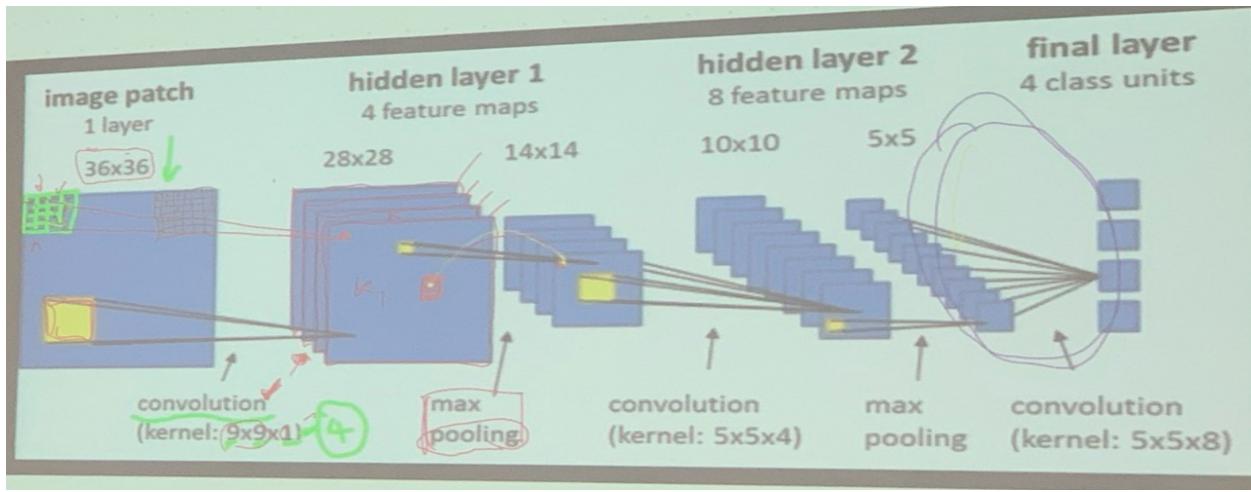
Input layer + layer 2

Deep

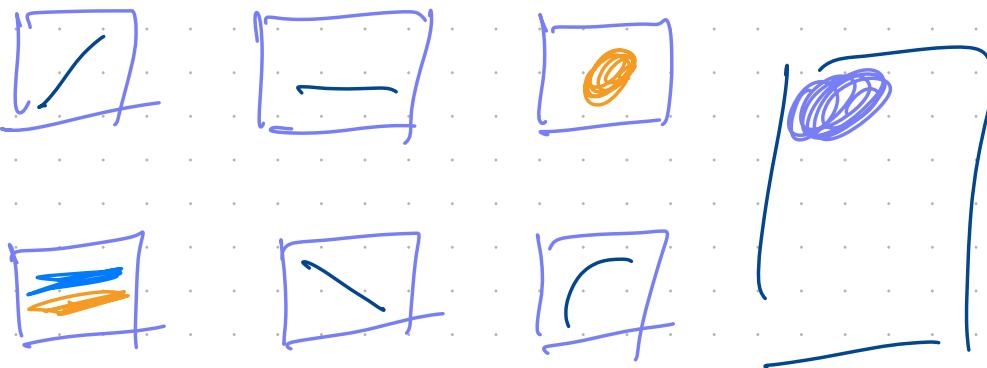


Fully connected

Dense layer



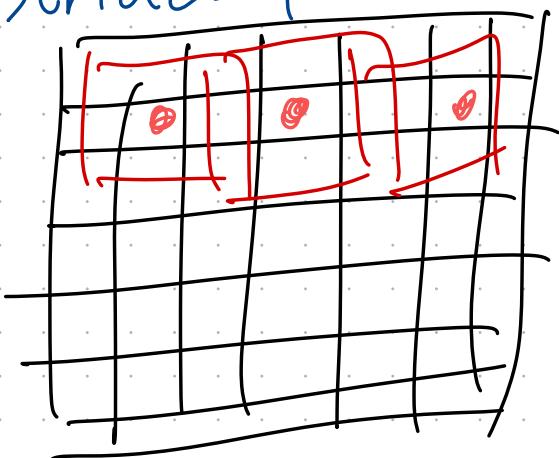
Max pooling : ជីវិះ នៅក្នុងតាមបន្ទាន់ទីតាំង



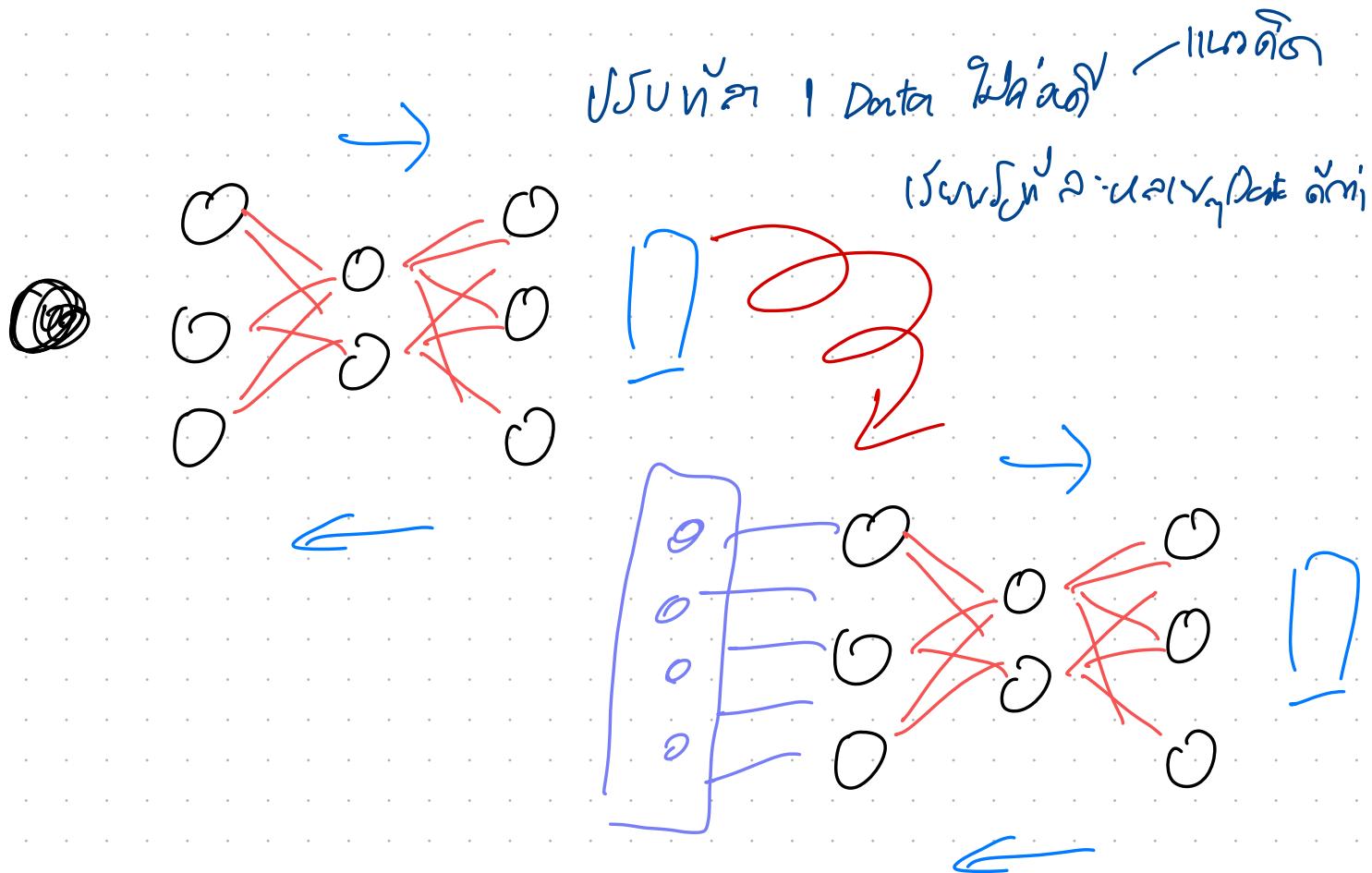
Flatten layer : ជីវិះ រួមចូលក្នុងលេខកូដ

Stride : និមិត្តន៍យោ នៅ Window នៅក្នុងបាន

Stride = 1 បីរួមទៅមែន: នៅក្នុង



Batch Size: ຈິງເບື້ອ: ບໍ່ stable ສົ່ງ

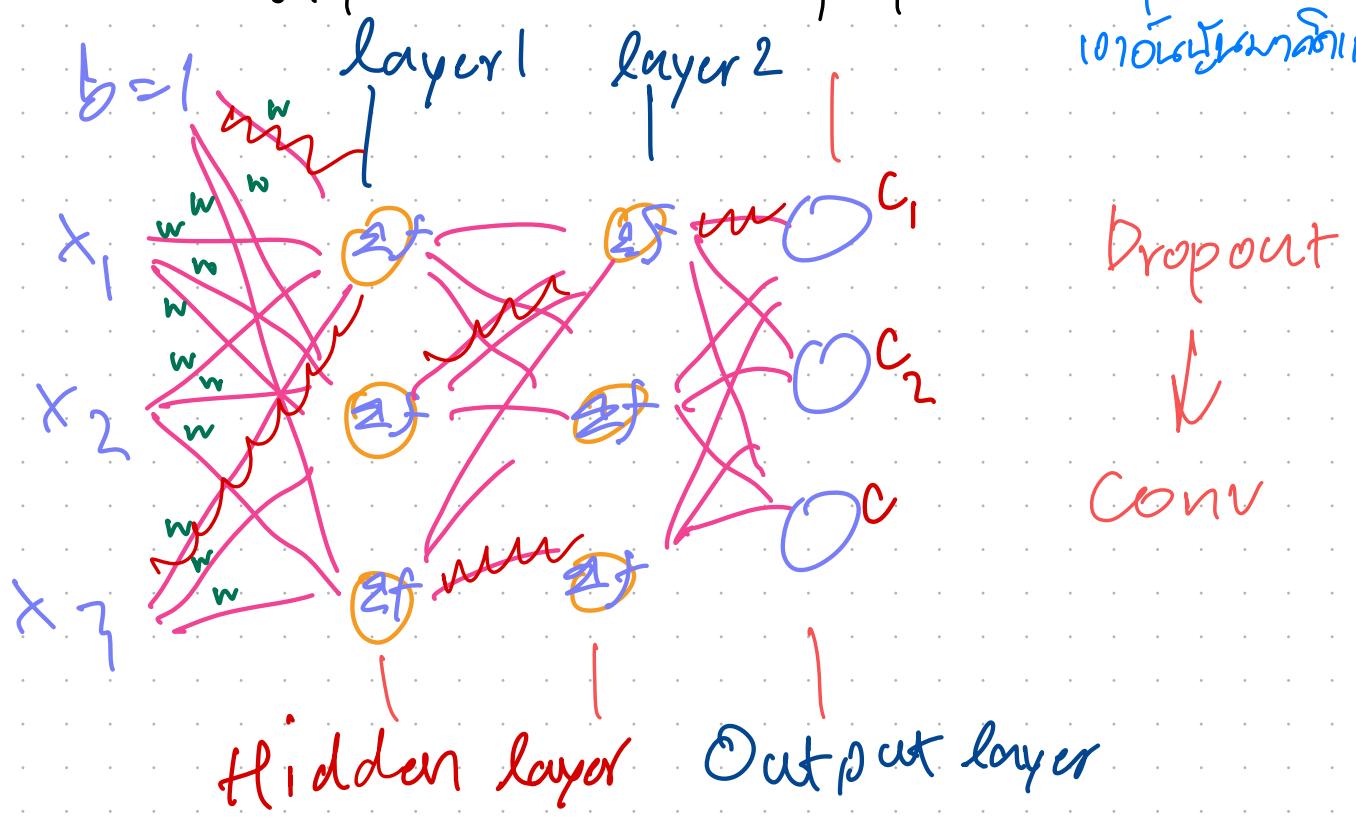


Drop out: % ທີ່ຈະອຸກປິດ-ປິດ

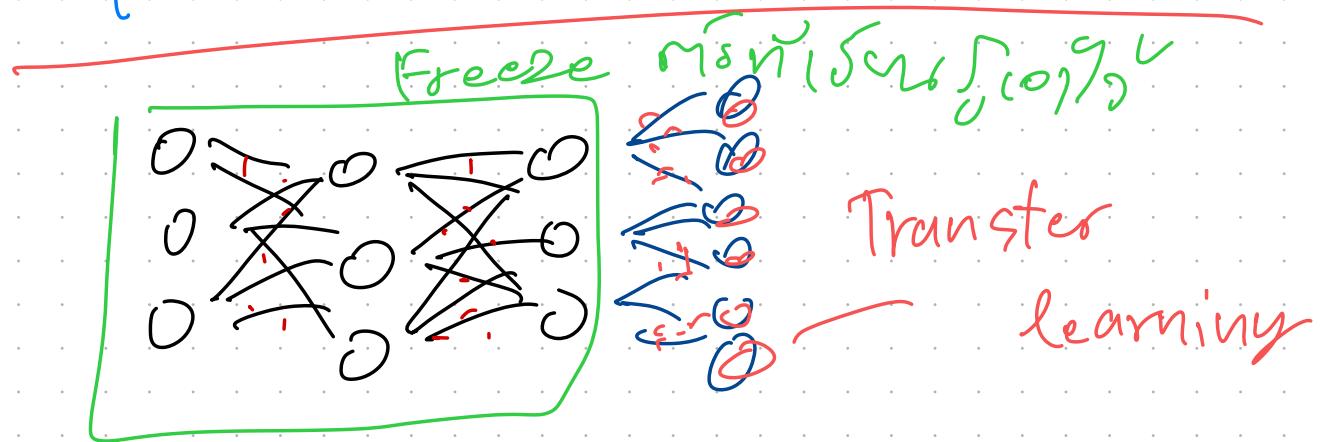
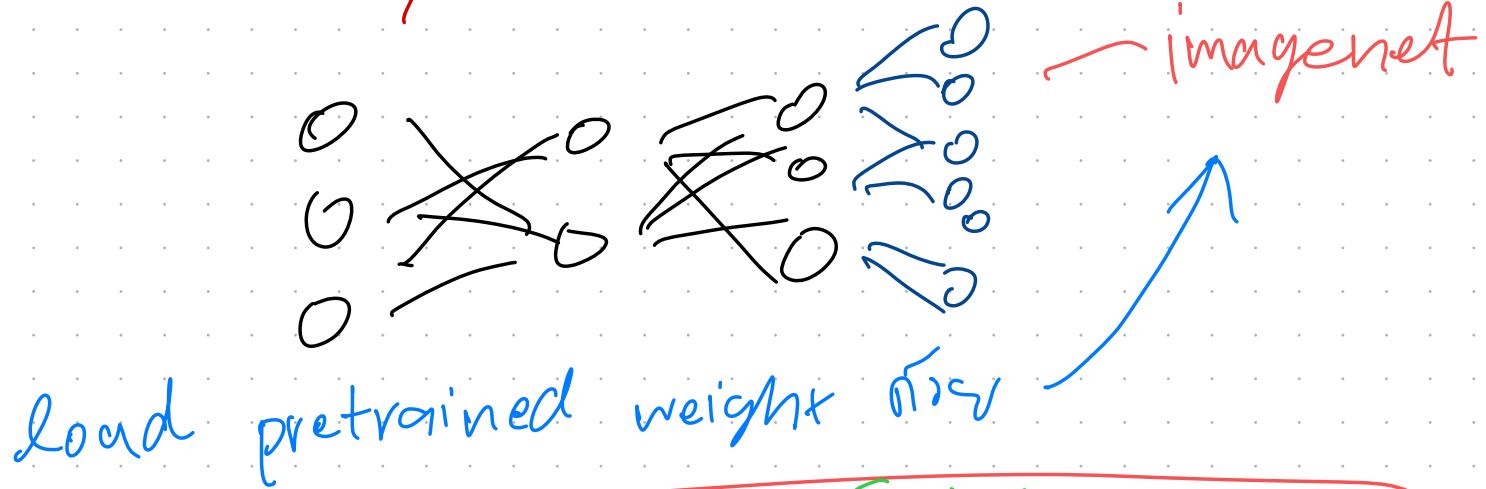
- ນີ້ແມ່ນການຢືນກວນພາບກວນ ອະລົດເປັນຫຼຸດ

- ດັ່ງນີ້ມີຄື ນີ້ແມ່ນກວນພາບກວນທຸກ ອົງຮັດວຽກ (ອຸດນັ້ນຫຼຸດ)

ໃຫຍ່ເວັບໄວ້ການອຸດນັ້ນຫຼຸດ

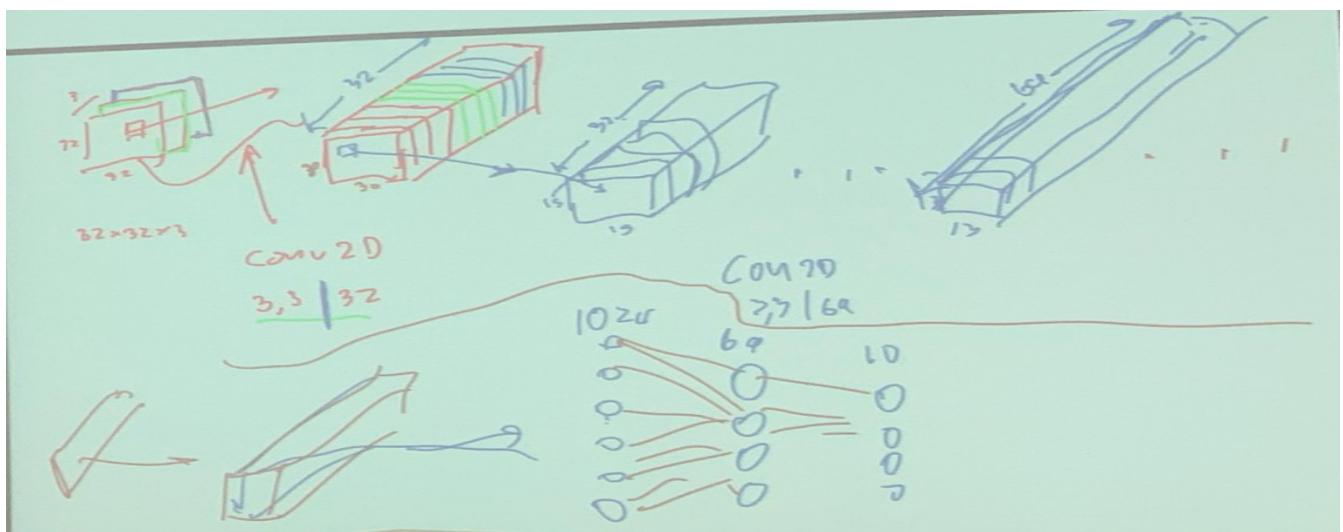


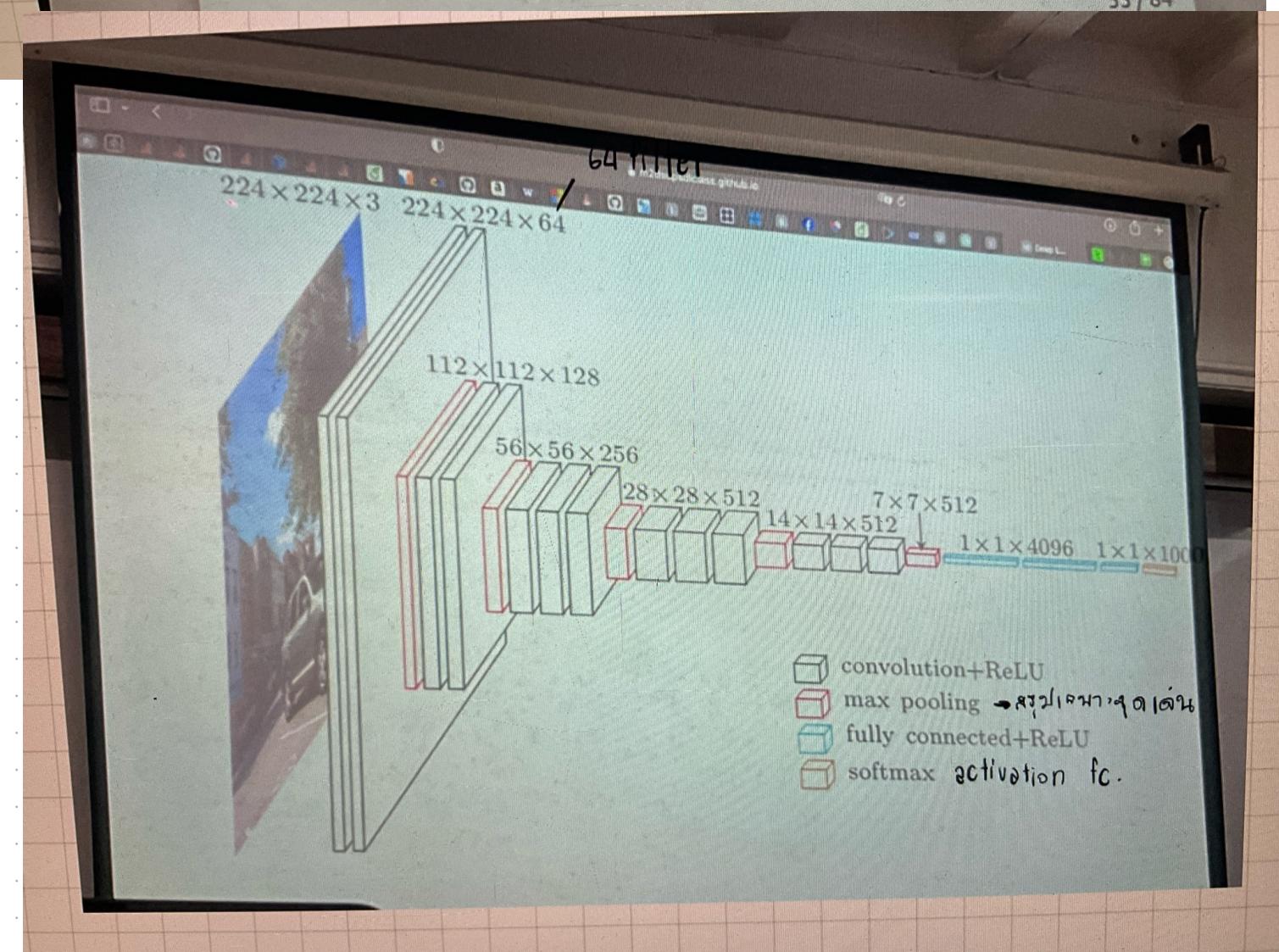
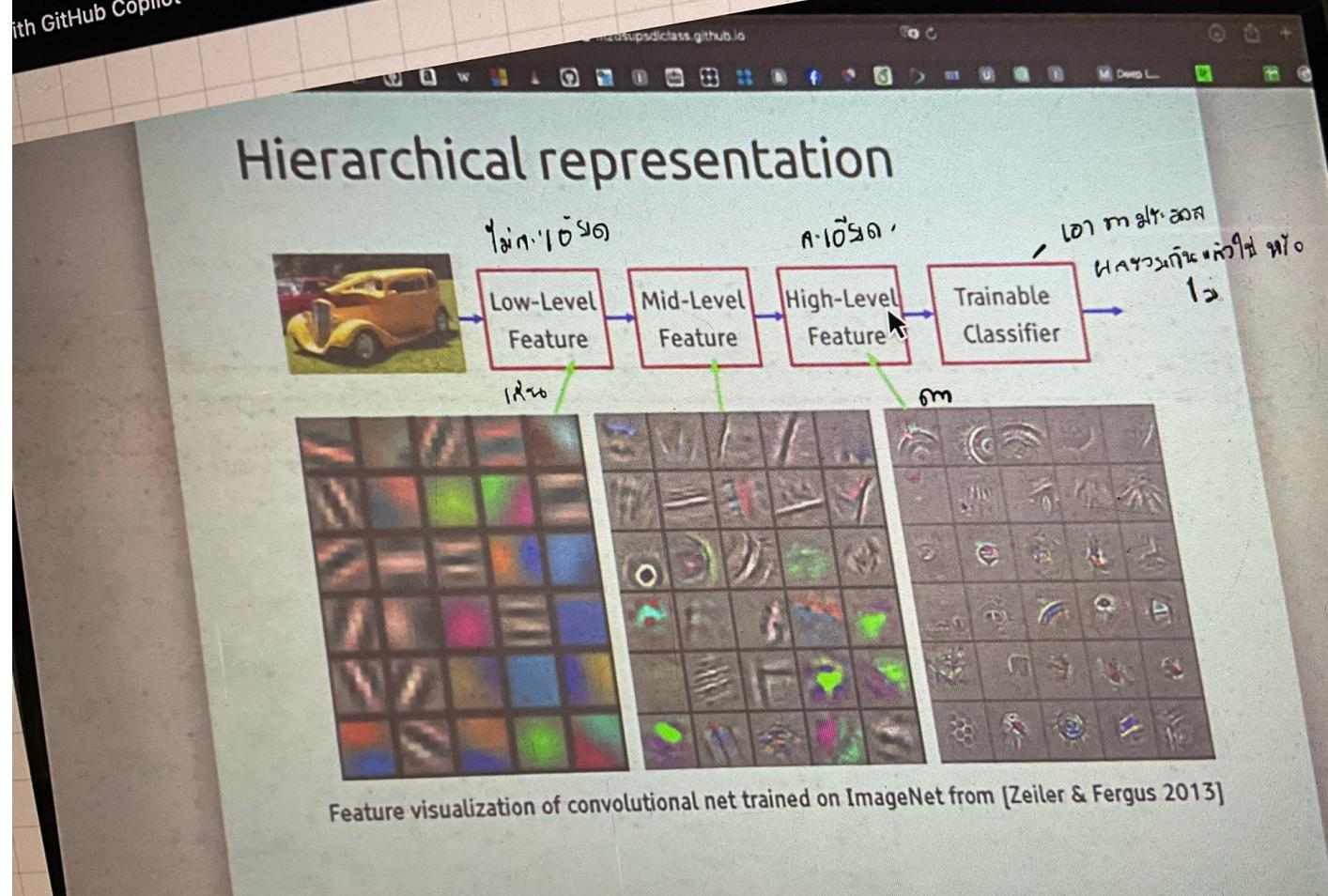
Freeze layer



no training to do unfreeze

freeze into ~~that~~ weight no node in intermediate
no training to do output layer





Epoch & Loss : training loss \rightarrow train - test
Validation \rightarrow test - validation

