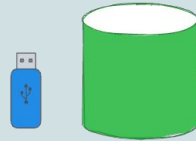


ivanovitch.silva@ufrn.br @ivanovitchm

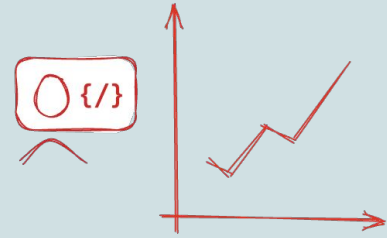
Real Python

A Brief Review

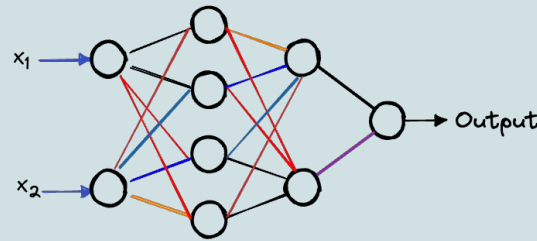
The four key ingredients when training any neural network



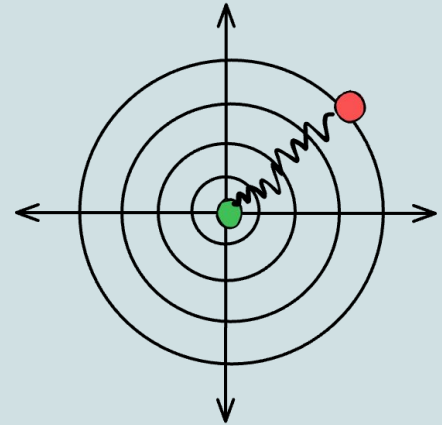
Dataset



Loss Function

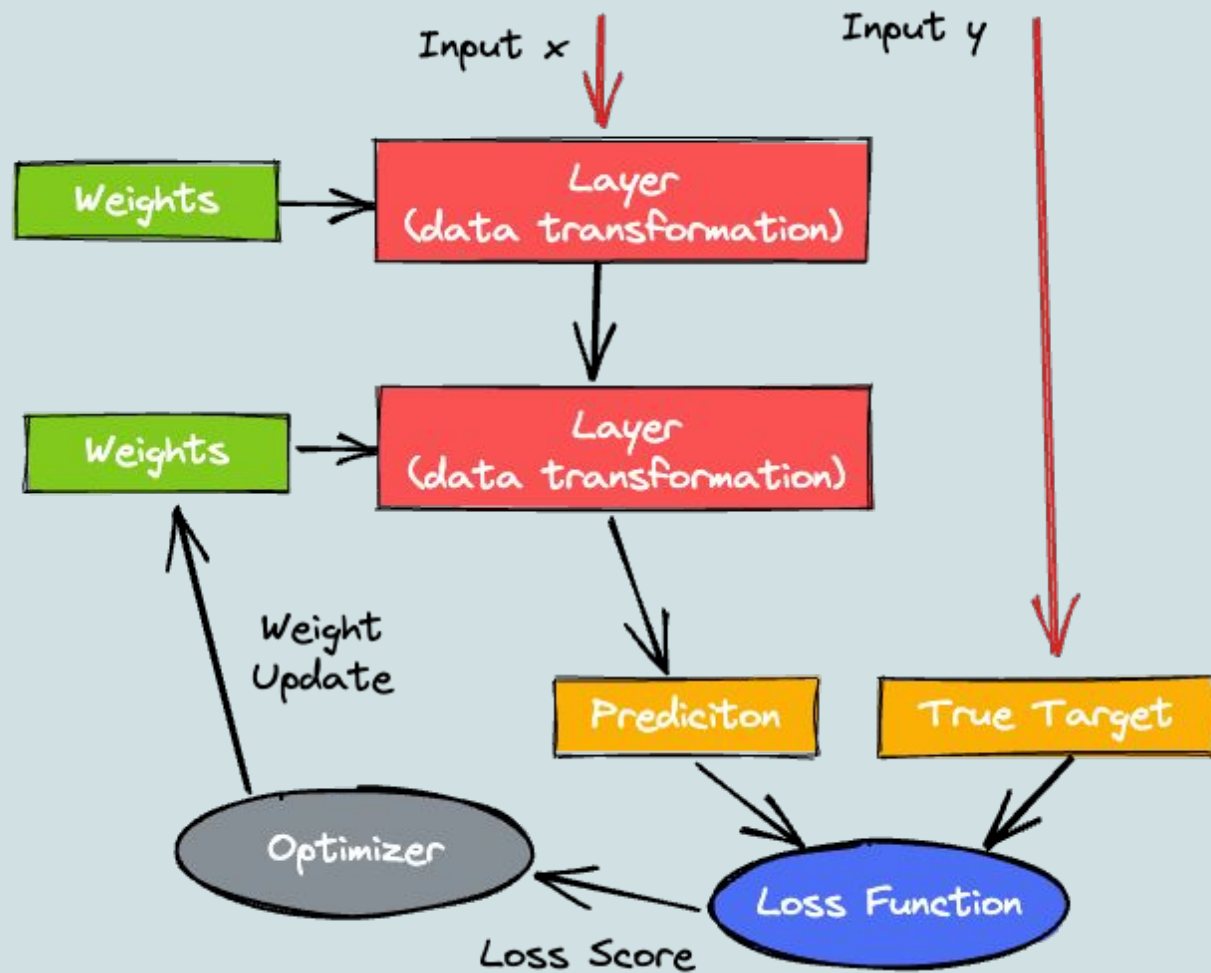


Model/Architecture



Optimization Method

Backpropagation



Forward Propagation

Ingredient #01

Dataset



Classification

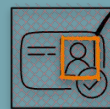


image

#People

label

Object detection



image

bounding box

#People

label

Regression



image

R\$ 100.000,00

target output
values

Instance Segmentation



image

pixel masks

#People

label

Ingredient #02

Loss Function

Regression

Mean Square Error (MSE)
Mean Absolute Error (MAE)
Mean Percentage Error (MPE)

Classification

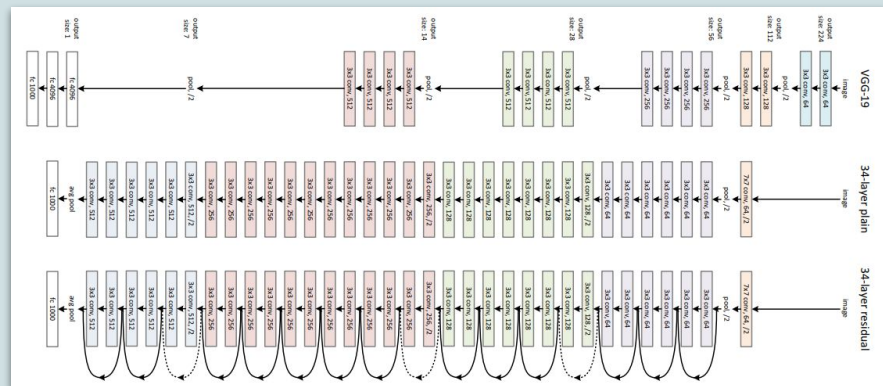
Binary Cross-Entropy
Categorical Cross-Entropy

Object Detection

Cross-Entropy +
Regression Loss

Ingredient #03

Model Architecture



Classification

VGG
ResNet
MobileNet

Object Detection

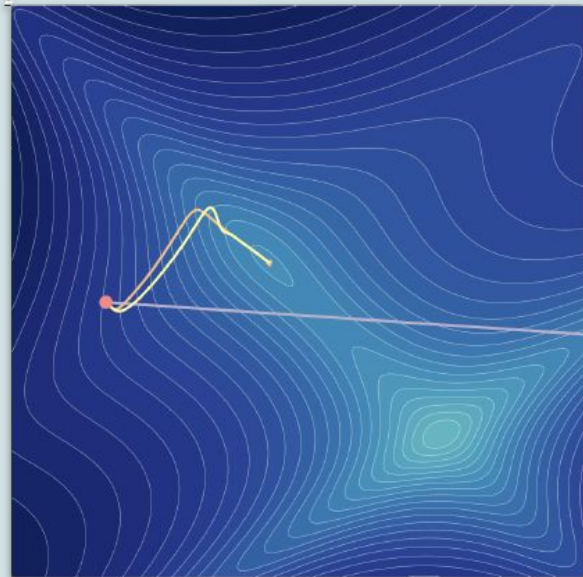
MobileNet + YOLO
Resnet + SSD
VGG + R-CNN

Instance Segm.

U-Net
Mask R-CNN

Ingredient #04

Optimization



<https://www.deeplearning.ai/ai-notes/optimization/index.html>

SGD (and its variants)
Adam
Nadam
Rectified Adam (RAdam)
RMSprop
Adadelta
Adagrad