Face Emotion Recognition

IMPLEMENTATION USING PYTHON | OPENCV | DeepFace | Tensorflow

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Outline

❖ Brainstorming :
- Concepts
- Dataset
- Transfer learning

❖ Installation

❖ Code Implementation

Brainstorming : How to Find Facial Expressions?

1. Vision Based Techniques :   Classification Problem
❖ Camera   => **Model** => Happy
                                                        Angry
                                                        Sad
                                                        Surprised
                                                        ....
        Input

2. Bio-signals/ Physiological   => Regression Problem
3. Human Emotion Recognition

Types of Facial Expressions

Happy

Fear

Surprised

Angry

Sad

Disgust

Neutral

07
Classes

Review of Dataset FER 2013 (Kaggle)

Problems in Dataset:

- Imbalance Problem :
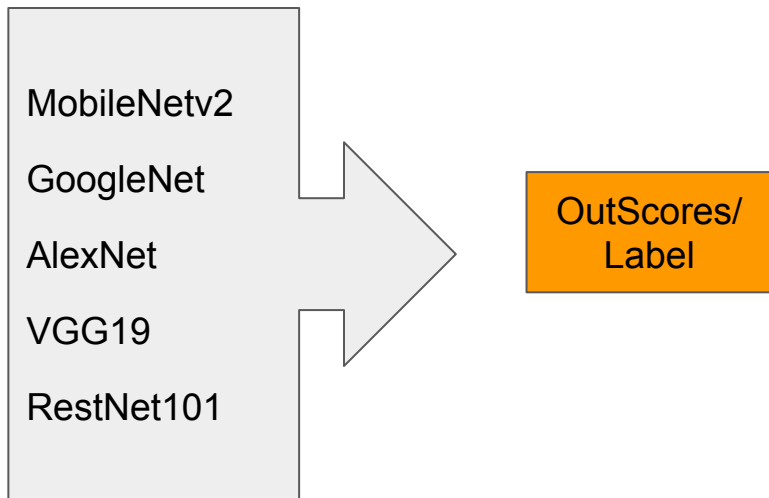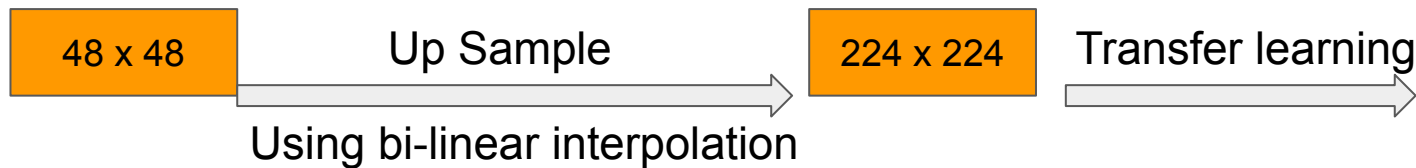
=> solution Data augmentation

- Intra-class variation of FER:

=> Avoid Overfitting

- Occlusion (mostly with hand)
- Contrast variation
- Eye glasses
- Outliers

Methodology (Transfer Learning for Face Emotion Recognition)

FER2013 Dataset

| 48 x 48 | Up Sample | 224 x 224 | Transfer learning |

Using bi-linear interpolation

MobileNetv2

GoogleNet

AlexNet

VGG19

RestNet101

OutScores/
Label

Tools we need

Anaconda :

➢ Package of multiple libraries and IDEs
● IDEs:
● Jupyter notebook
● Spyder
● VSCode

Libraries :

● DeepFace - preTrained model => pip install deepface
● Tensorflow => pip install tensorflow tensorflow-gpu
● Opencv => pip install opencv-python