Presentation reconnaissance facile

# DIA 1 – Presentation -R

Hello everybody, today we will present our project for the course called “Intelligent System”. To be in line with this year's theme "human body", we decided to realise a project based on emotion recognition. We will explain what this project is about, what we want to achieve and what our resources are now to do this project.

# DIA 2 – Objective facial recognition - R

The emotional state of humans can be obtained from a wide range of behavioral cues and signals that are available through expression or presentation visual, auditory and physiological emotion. Emotional state through visual expression is assessed based on modulation facial expressions, gestures, postures and more generally body language. The data is captured by a camera, allowing non-intrusive configurations. The systems are generally very sensitive to video quality, lighting, pose and face size on video.

Humans are used to taking in nonverbal cues from facial emotions. Now computers are also getting better to reading emotions. So how do we detect emotions in an image? It’s the question of our project.

# DIA 3 – Description of the project -L

For the emotion recognition we use the webcam of our pc to capture the user's image. From the face of the user a process of deep learning will run. In output we would like that the system can recognise the emotion of the user in front of the camera and show it on an interface.

# DIA 4 – Explication of the process (Part 1) -L

As said before, our project is emotion recognition. To make this we use many technologies:

We use the deep learning and more particularly the CNN (Convolutional Neurones Network). As seen in the theory course the CNN is used a lot for de face recognition or image classification, so we decided to use this technology for our project. The CNN works like this:

* The convolution applies a filter to the input image.
* The filter parameters are learned through the learning.
* A learnt filter will be able of detecting features in an image; for example, angles, and use them to classify at best the image.

For our example, the input is my face. The process learning is done with convulsion layers on images from a database of many faces with different emotion. The output will be the emotion that the process will have found.

# DIA 5 – Parts of the face use: -R

To detect emotions several parts of the face are used:

* The corner of the lips
* The mouth
* Cheeks
* The eyes
* the eyebrows
* Wrinkles
* Nose

For example, here is how to detect a feeling of joy:

* The corners of the lips are pulled up.
* The mouth may be open, and the teeth may be visible.
* The cheeks may be raised.
* Wrinkles under the lower eyelid and wrinkles at the corners of the eyes may appear.

# DIA 6 – Output - R

For our project we will use an open-source data set. This open source is: “[Face Emotion Recognition (FER](https://github.com/npinto/fer2013))” from [Kaggle](https://www.kaggle.com/) and built a CNN to detect emotions. The emotions can be classified into 7 classes — happy, sad, fear, disgust, angry, neutral and surprise.

# DIA 7– Planning -L

We can see easily the main dates of the project with the analysis presentation, which is today obviously, the end of the realisation the 23ird of april, The final presentation the following wekk (thirtieth of april) and the end of the project with the final article and the exam day the fifteenth of june.

Now I will show you the Gantt Diagramm that we made with all the steps of these parts.

We splitted the realisation in 3 mains phases: The search of the data, the programmation and the creation of the interface.

We fixed the duration of the programmation and the interface realisation in about 20 days and each test in about 5 days. Like that we are on schedule.

As you can see, the different tasks are sometimes overlapping. We are two in the group, so Romain or me can begin another task even if the previous one isn’t finished yet.

It’s the same thing for the presentation. We split the tasks for the power point making and the presentation training. And fixed 5 days for the power point and 3 for the training.

And then for the final report, we will devote on the writing article for 10 days and then on the layout for 5 days. We decided to fix the time limit before the final date to finish it before the exam session.

Obviously, not all the time allocated to each task is 100% of the work to be done because It is a time frame in which the task must be completed considering the other courses we have.

# DIA 8– State of art -R

During our researchs we have found several sources:

* For understand what the deep learning and the CNN is exactly and for understand how the CNN works, we also use the PDF in the course of intelligent system: “Hight Dimensionnal Data CNN
* The first link is a TFE about : “Emotion recognition by image processing” from Sonia Gharsalli. In this document, there is an explication that how describe the emotions, there are also many databases for making recognition emotion.

<https://tel.archives-ouvertes.fr/tel-01622639/document>

* The second link is a little presentation on how the system works for the emotion recognition. Also, there is an example of program for the realisation of an emotion recognition. I will explain this program in a few moments.

[https://towardsdatascience.com/face-detection-recognition-and-emotion-detection-in-8-lines-of-code-b2ce32d4d5de](https://towardsdatascience.com/face-%20detection-recognition-and-emotion-detection-in-8-lines-of-code-b2ce32d4d5de)

* On the thirth link it’s a forum. On this we can ask all our questions and consult other answers about programming in python.

<https://openclassrooms.com/forum/categorie/langage-python>

* On this next link there is code for “The facial recognition”. It isn’t our project but there is an interesting part on this document. In fact, there are code for making Windows talk. For example, when the system detects the emotion of the user, this one can answer to the people “Today you are angry!”. It can be interesting to add this part of our project.

<https://penseeartificielle.fr/tp-reconnaissance-faciale/>

# DIA 9 – State of art: code and interface -R

For making this project we would like to build a layered convolutional neural network (CNN) in Keras and use image augmentations to improve model performance. During our research, we find piece of program that perform emotion recognition. Of course, we would like to improve this program by adding several features. For example, making Windows talk, the realisation of an interface, …

To implement an interface to our project there are several web-site links or video links on Youtube. On these links there are many explications for the how Tkinter works. Tkinter is the graphic interface on python.

<https://vincent.developpez.com/cours-tutoriels/python/tkinter/apprendre-creer-interface-graphique-tkinter-python-3/#:~:text=Pour%20cr%C3%A9er%20une%20interface%20graphique,que%20des%20clics%20de%20souris>.

<https://www.youtube.com/watch?v=N4M4W7JPOL4>

# DIA 10– Conclusion -L

Many applications are interested in automating the recognition of emotions. These applications are related to many fields. Examples include:

* Marketing: applications to measure customer satisfaction, predict products that interest them.
* Medicine: help in detecting certain psychological illnesses, help in learning emotions for autistic children.
* Security: stress detection.
* Human-machine interaction: companion robot, intelligent car.
* Education: distance learning.

Finally, we see that it is easy to find a lot of information on emotion detection with DeepLearning so we hope that this project will be retained in order to improve our knowledge in this area which is still little known to us.

# DIA 10– Questions? -L

Thank you for listening, we are available to answer your questions.

Voir les articles scientifiques

Faire une recognition sur une video donc sur 10 ou 20 frame par example