

InMoov - Facial Recognition

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DaVinciBot : Robotic association of pôle
Léonard de Vinci

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1 Introduction

DaVinciBot, the robotic association of pôle Léonard De Vinci has developed a facial recognition technology for the InMoov robot. Four students in their fourth year of ESILV, engineering school in Paris-La Défense, realized this project :

- Jérémy Martin
- Thomas Guillaume
- Chloé Mezouar
- Aria Ekhteraei

Their goal was to give to the InMoov robot the possibility to recognize a person in front of him and recognize the emotion of this person to adapt his own behaviour.

In this document, we will present you how to set up this facial recognition.

You can find more informations on :<http://davincibot.org/inmoov-robot-cognitif/>



2 Facial recognition

2.1 Prerequisites

To use the facial recognition, you will need several prerequisites :

- A camera
- A Linux Computer (with Ubuntu preferably)
- Python 3.6 installed

2.2 Set up

First of all, to avoid a lot of problems, it's better to download the Python IDE : Thonny. For that, open the Linux interface(Ctr + Alt + T) and write this next command :

```
$ pip3 install thonny
```

Once the IDE installed, open it with this command :

```
$ thonny
```

Now, we will install the libraries that we need. Go on "Tools" then "Manage packages" and install the next packages (it can take some time) :

- opencv-python
- numpy
- scipy
- scikit-image (it's not a problem if an error message appear)
- dlib
- face_recognition
- easygui



Then, Create a new file in your computer.

In this file, put the python script "Face Recognition V3.py" that you can download on this GitHub :

[Script python](#)

Then, in this same file, create a new file that you are going to name "Pi2".

And inside this file, create an other file that you are going to name "tmp_ dataset"

Now, we can get back on the Thonny IDE and open the "Face Recognition V3.py" script and run it.

2.3 Use

Once the script run, a window should appear with the footage of your computer camera. Every face that goes in front of it is detected with a blue square around it and the name of the person or "unknown" if the person is not in the database.

To add a new face there are two options

You show your unknown face for several second in front of the camera and wait the "Add message" and follow the instructions.

Or you can directly take a picture of the new face and put it in the "tmp_ dataset" file. The name of the picture is the name of that will appear on the blue square.

WARNING You can't add two pictures with the same name and it must be only one face on each photos!



Now, if you want to use an extern camera, you just need to replace the "0" by a "1" in the next command :

```
cap = videocapture(0)
```



3 Conclusion

Thank you for reading this tutorial. For more informations on our others InMoov projects, you can go on the DaVinciBot website : [DaVinciBot - InMoov](#)
All the best!

