Instructions on how to install and use the code to control the Incubascope

In this document, we present detailed instructions to install and run the code we develop in Python that allow to easily control the parameters of the Incubascope such as the exposure time, the illumination power, the time between frames, etc.

Step 1 : Install Python on your computer. In our case, we used Miniconda on a Windows 10 computer for this project.

Step 2 : From our github page, download the jupyter notebook file entitled **IncubascopeV1.ipynb**, the requirements text file entitled **requirements.txt** and the image named **img.jpg** (this is just the logo of our lab that will be displayed on the GUI).

Step 3 : Install the required libraries using the following command : **pip install -r requirements.txt**.

In the current configuration, our code still contains some "hard-coded" directories that should be updated in order to have the code that runs properly.

Step 4 : Update the COM port of the Arduino and the pin numbers that connects the Arduino to the two controllers. sortie1 corresponds to the epifluoresnce mode, sortie2 to the brightfield mode.

```
344
345     #Arduino initialization
346     carte = Arduino('COM3')
347     sortie1 = carte.get_pin('d:3:p')
348     sortie2 = carte.get_pin('d:6:p')
349
```

Step 5 : Update the directory path of the Biof logo to the directory where you put it.

```
373     frame0 = Frame(root, width=1500, height=80, background="white")
374     Title=Label(frame0, text='INCUBASCOPE - Acquisition software', background="white")
375     Title.config(font=('Arial', 18))
376     Title.grid(column=0, row=0, rowspan=1, columnspan=1)
377     test0 = Image.open('C:\\Users\\BiOf\\img.jpg')
378     test0=test0.resize((340, 120), Image.ANTIALIAS)
379     photo0 = ImageTk.PhotoImage(test0)
```

Step 6 : From the Python terminal, you can now launch jupyter notebook by simply typing **jupyter notebook**, then you navigate to the directory where the IncubascopeV1.ipynb file is. Run it, the graphical user interface should appear.