INSTRUCTIONS TO RUN AND TEST THE PIS-CVBR® ALGORITHM

To test the algorithm presented in "Vein Biometric Recognition on a Smartphone" manuscript, PIS-CVBR® (Processing and Identification Software for Contactless Vascular Biometric Recognition, SIFT® version), over your dataset, please, run the python code, *Vein_Biometric_Recognition_on_a_Smartphone-Python_Code_V1.0.py*, following the next steps:

1) Install the OpenCV© library (check https://opencv.org/ for more information):

   pip install opencv-python==3.4.0.14

2) Install the non-free extension of the OpenCV© library:

   pip install opencv-contrib-python==3.4.0.14

3) Install the NumPy© library (check https://www.numpy.org/ for more information):

   pip install numpy

4) Place the *Vein_Biometric_Recognition_on_a_Smartphone-Python_Code_V1.0.py* in your dataset path or location.
5) Make sure that the infrared greyscale images (*.jpg* format, if you want, you can change the file extension in the code) of your dataset have the following name structure:

   - P000_R.jpg (Right wrist user 0 pattern)
   - P000_R-S00.jpg (Right wrist user 0 sample 0)
   - P000_R-S01.jpg (Left wrist user 0 sample 1)
   - …
   - P001_L.jpg (Left wrist user 1 pattern)
   - P001_L-S00.jpg (Right wrist user 1 sample 0)
   - P001_L-S01.jpg (Left wrist user 1 sample 1)
   - …

6) Run the *Vein_Biometric_Recognition_on_a_Smartphone-Python_Code_V1.0.py* with your favorite python IDE.
7) After processing the algorithm (time depends on your computer performance and your dataset size), the program generates 2 *.txt* files:
   - *Vein_Biometric_Recognition_on_a_Smartphone-SIFT_Mated.txt*
   - *Vein_Biometric_Recognition_on_a_Smartphone-SIFT_Non-Mated.txt*
8) Both files contain the following comparison information:
   - Patter ; Sample ; Number of coincident matches ;
9) Finally, with these files, you can obtain your results.

Requirements

1) Windows or Linux OS (it should be work in other OS with Python).
2) Python© 3.5.4 version (it should be work with other versions).
3) OpenCV© 3.4.0.14 library version.
4) NumPy© library.
5) Optional: Python© IDE.