




# Tips for a correct functioning of Face Recognition technology

*FacePhi Face Recognition*

[www.FacePhi.com](http://www.FacePhi.com)

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 FacePhi

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# 1. Introduction

This report presents some advices for the proper functioning of **FacePhi** face recognition technology. Considering these advices, the user experience will be better and the rates of correct verification and identification obtained will improve substantially.

## 2. User's interaction with user controls

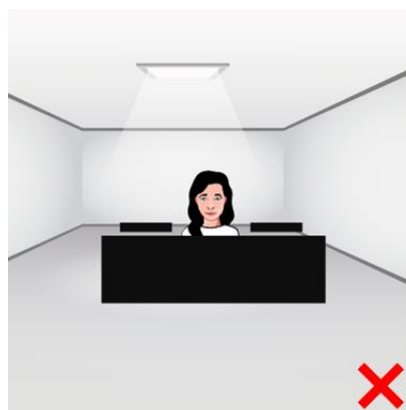
The user controls developed by **FacePhi** for web, mobile and desktop applications, facilitate the quick integration of the technology in any of these environments. They also permit the end user to extract the facial characteristics in an easy and friendly manner. Nevertheless, it is important that the end user takes into account the following advices when performing detection and facial extraction.

You should try to avoid the following situations for the proper functioning of our face recognition technology when you use the user controls for registration, authentication and identification:

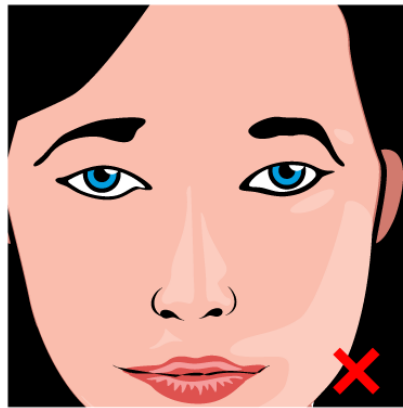
- a) Face very close to the edges of the image captured by the camera.



- b) Face very far from the camera.



- c) Face very close to the camera.



- d) Avoid rotating your face more than 15 degrees in each direction.



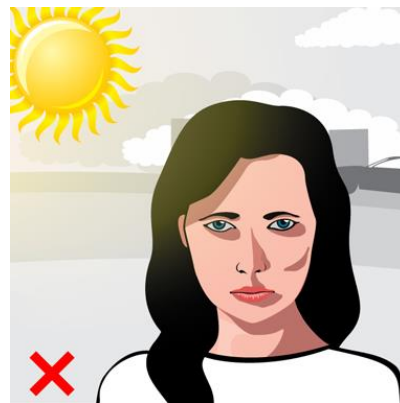
- e) Face not visible due to some elements such as hair, sun glasses, etc.



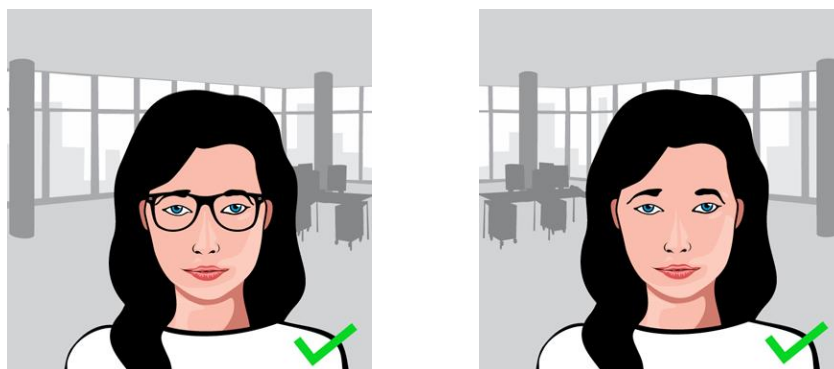
- f) Bad lighting conditions which do not permit the proper display of the image captured by the camera.



- g) Too many shadows caused by high intensity lights or very directional spotlights.



The correct situation of detection and face recognition occurs when the face is centered on the image, the rotation is not too excessive and the lighting conditions are the right ones.



## 3. Tips for the end user

Facial recognition is very sensitive to the quality of the images. For this reason, we should pay special attention when we acquire them.

### 3.1. Pose

Front position is the best face position (full-face). Head movements should not exceed 15 degrees on each direction. These movements are the following:

- Nodding up and down (Pitch)
- Turning right or left (Yaw)
- Tilting left or right (Roll)

In order to carry out a complete user enrollment, you should make slightly movements up and down, right and left, without exceeding 15 degrees in all directions during extraction process. This way, facial patterns generated will contain information of different user poses.

### 3.2. Expression

FacePhi face recognition technology is able to obtain, enrol and verify face patterns even when there are face slight movements and different face expressions. Nevertheless, if there are important changes on the face expression, the software may require a more natural position.

### 3.3. Lighting

Lighting is a very important factor. The light should be as diffuse as possible in order to be equally distributed all over the face (a diffuse light is the opposite of a hard or directional light which causes shadows and highlights).

Visible shadows should be avoided. Shadows might appear when a high intensity light is used or when there is backlighting on the scene. For this reason, we advise you to avoid such situations.



### 3.4. Glasses

Situations where the lighting may cause reflections on the crystals of the glasses should be avoided. If necessary, remove the glasses during the extraction process.

Recommended glasses are those ones with clear and transparent crystals because, both eyes and iris are perfectly visible.

Sunglasses are not accepted due to their dark lenses which cause eyes occlusion.

### 3.5. Capture devices

Ideally, all images should be registered and identified using the same webcam. Different capture devices might have different optical distortions that might affect the functioning of the face recognition system.

#### Camera minimum requirements:

- Resolution: 640 x 480
- 24 fps or higher

#### Recommended requirements:

- Resolution: 640x480
- 30 fps or higher
- Autofocus
- Automatic Iris
- Wide Dynamic Range Technology (WDR)

### 3.6. Changes

#### 3.6.1 Face

Beard, moustache and some other facial characteristics may affect the reliability of the recognition process but, however, the system has a high level of tolerance against these changes.



### 3.6.2. Capture device

As mentioned before, the lens system is very important.

When the capture device changes, generally, the lens system also changes and so do the perception (each lens system can deform the image in a different way). Besides, each device counts on a different sensor which encodes the information and it can also introduce differences.

Sometimes, when the camera is changed, the system may require a new registration.

### 3.6.3. Camera focal length

Distance from user to camera may be an element which influences facial recognition due to the deformity that some 2D images may display because of the lens system used. When a user stands at different distances to the camera and uses cameras with different focal lengths, these problems may appear.


In order to improve face recognition reliability, we recommend you to use cameras with the same focal length and similar distances from user to camera, both at enrolment and authentication.


## 4. Contact Information

For general inquiries, please, contact us through the following:

E-mail	
	<a href="mailto:info@facephi.com">info@facephi.com</a>

Website	
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### 4.1. Commercial contact

For any commercial inquiry, please, contact us:


E-mail	
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	(+34) 965 10 80 08

### 4.2. Technical support

For any technical question, suggestion or report, please, contact us:


E-mail	
	<a href="mailto:support@facephi.com">support@facephi.com</a>

Telephone	
	(+34) 965 10 80 08

### 4.3. Feedback and suggestions

If you would like to make any suggestion or if you detect any type of error, please, contact us:

E-mail	
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