Face Anti Spoofing

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Contents

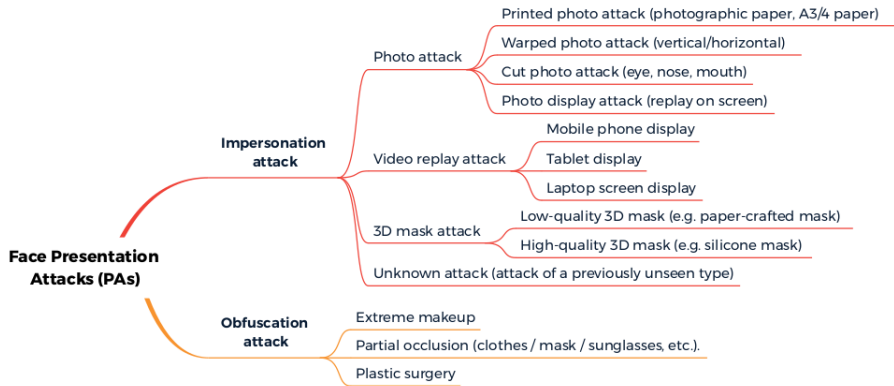Figure: A typology of face Presentation Attacks (PAs)

The methods for Face Anti Spoofing
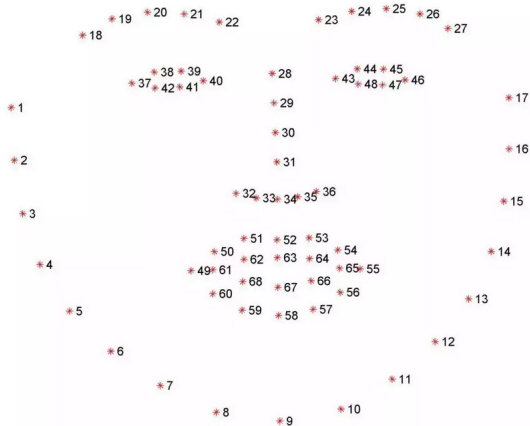
1. Liveness cue-based methods
2. Texture cue-based methods
3. 3D geometric cue-based methods
4. Multiple cues-based methods
5. Methods using new trend

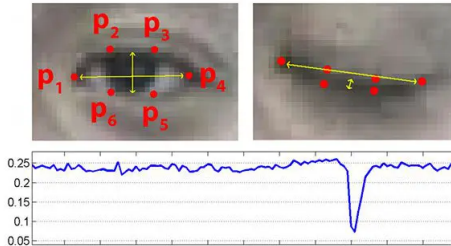1. eye blinks
2. Head movement
3. Remote PhotoPlethysmoGraphy
4. ...

Figure: eye blinks

Advantages

1 Easy to deploy
2 User-friendly

Disadvantages

1 Hack by using video

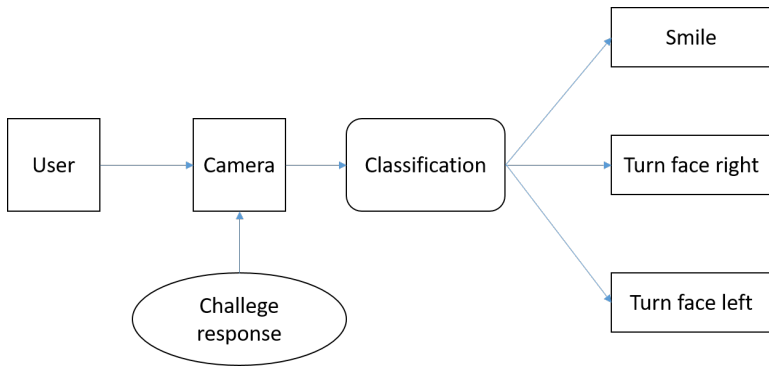$$\text{EAR} = \frac{\|p_2 - p_6\| + \|p_3 - p_5\|}{2\|p_1 - p_4\|}$$

Figure: Challenge-Response

Advantages:
1 Easy to deploy
2 Can check attack by using video
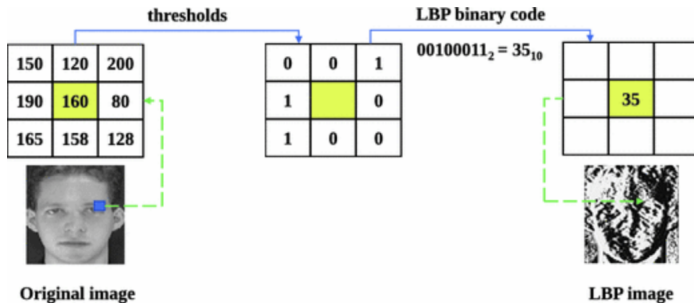
Disadvantages: Users don't like this method

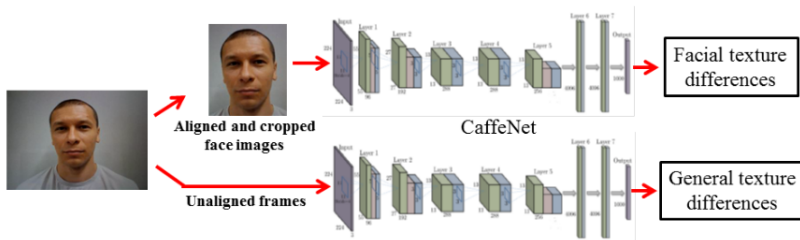Figure: Challenge-Response

Disadvantages:
1. low accuracy
2. noise

Figure: Alexnet Face

Dataset:
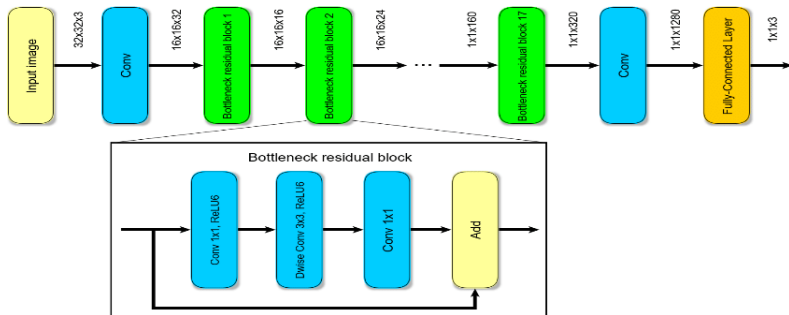1. Dataset CelebA
2. Large Crowdcollected Face Anti-Spoofing

Figure: Mobilenet V2

Advantages:
1 Easy deploy
2 The accracy is better LBP

Disadvantages:
1 Overfit
2 Dataset

Figure: The image real/fake with flash

Advantages: The user don't like the flash.
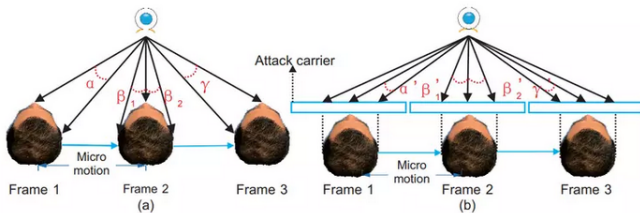
Figure: 3D map

Using Mobilenet V2

1 Tranfer learning model
2 Retrain with the new Dataset

Using Eye Blinks

1 Using face landmarks 68 point