

TURING

Turing Vision

# Facial Recognition Guidelines

September 2023



# New Design and Layout of Picture Quality and Similarity

Search - People - Picture quality and similarity

**TURING**

- Home
- Alerts
- Search
- Cameras
- Devices
- Archives
- IoT Connect
- Alert Settings
- Settings
- My Dealer

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← **People** Yesterday at 9:16 am • Warehouse • San Francisco



0:05 / 0:05

View Playback Side By Side Live

**Detected People** [View Picture Quality and Similarity level details](#)



→ High

High

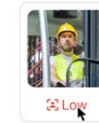
Jacob Joh...

Appearance

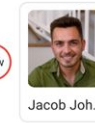
Male

Wording recommendation for Picture Quality?

Low



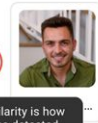
Low picture quality. A high snapshot quality can lead to a more accurate match.  
[How to enhance picture quality?](#)



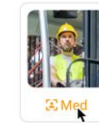
Jacob Joh...



Low similarity. Similarity is how similar between the detected face and any of the faces images of the matched person.  
[How to enhance similarity?](#)



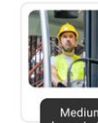
Medium



Medium picture quality. A high snapshot quality can lead to a more accurate match.  
[How to enhance picture quality?](#)



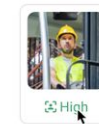
Jacob Joh...



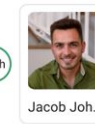
Medium similarity. Similarity is how similar between the detected face and any of the faces images of the matched person.  
[How to enhance similarity?](#)



High



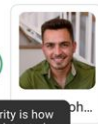
High picture quality. A high snapshot quality can lead to a more accurate match.  
[How to enhance picture quality?](#)



Jacob Joh...

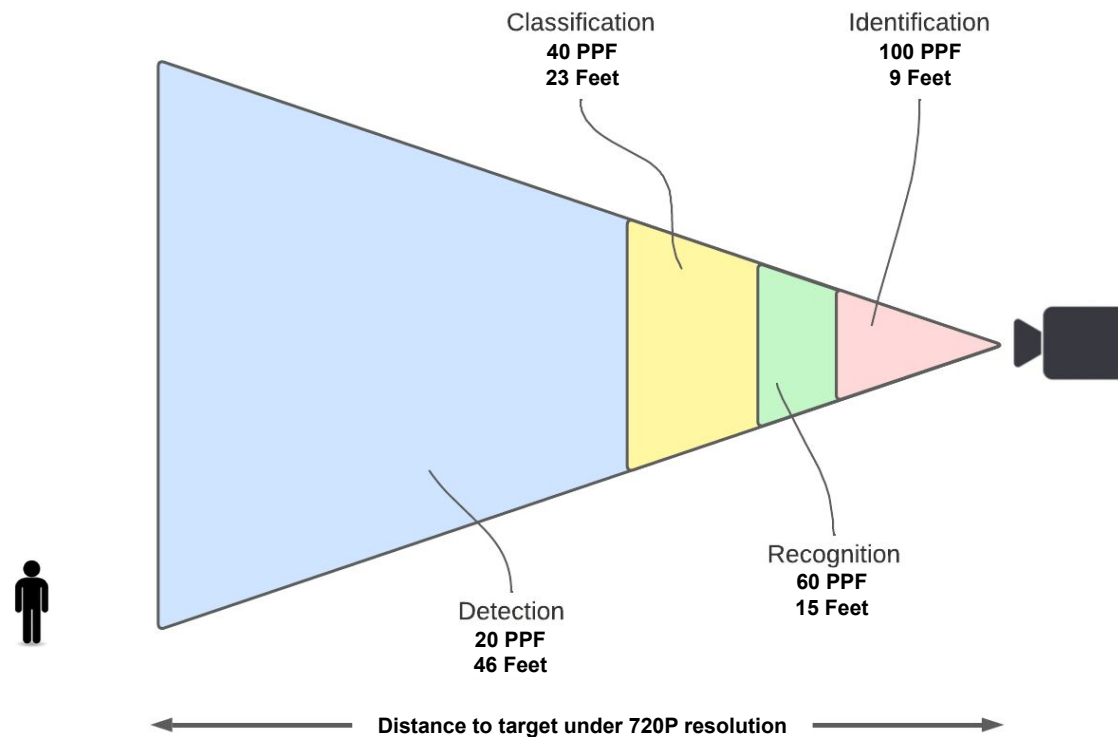


High similarity. Similarity is how similar between the detected face and any of the faces images of the matched person.  
[How to enhance similarity?](#)



# How to Improve Picture Quality?

- **Distance between the Face and Camera:**
  - A PPF of 100 or greater is recommended for face recognition features
  - $PPF = (\text{Horizontal Pixels}) / (\text{HfOV Width})$



# Turing Camera suggested distance for facial recognition

Turing facial recognition works with minimum of 100 PPF (Pixel per foot).

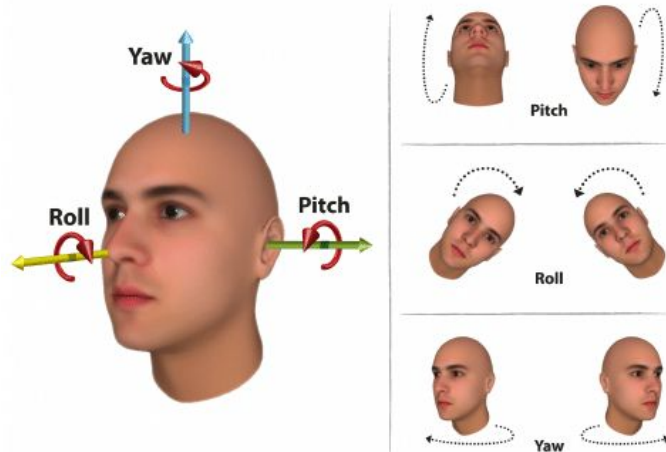
Distance longer than recommended will lead to missing events or false recognitions.

| Focus distance | Recommended maximum Object distance |
|----------------|-------------------------------------|
| 2.8 mm         | 19 ft                               |
| 4 mm           | 25 ft                               |
| 12 mm          | 68 ft                               |
| 13.5 mm        | 76 ft                               |
| 50 mm          | 280 ft                              |

# How to Improve Face Capture Quality?

- **Head Angle:**

- Cameras should capture faces head-on, facing the camera, and as close to the camera as possible
- 3 dimensions of Yaw, Roll and Pitch are usually used to define the angle of the face: Pitch <  $\pm 20^\circ$ , Roll <  $\pm 45^\circ$ , Yaw <  $\pm 30^\circ$



- **Lighting:**

- Bright and even lighting will provide the most reliable and accurate results
- Face recognition is not recommended in low-light scenes nor in those with direct sunlight or high contrast

- **Camera shutter speed (FPS):**

- Larger FPS will have better effect
- Minimum should not be lower than 10FPS



# How to Improve Similarity?

- **Remove low quality image**
  - Decrease the chance that match wrong person



Blurry



Blocked



Cropped



Bad Angle

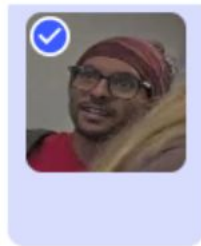
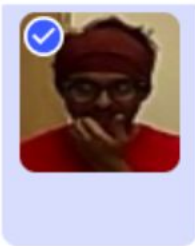
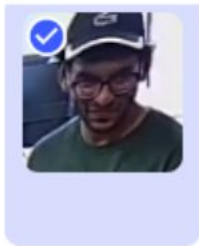


Missing Facial  
Features

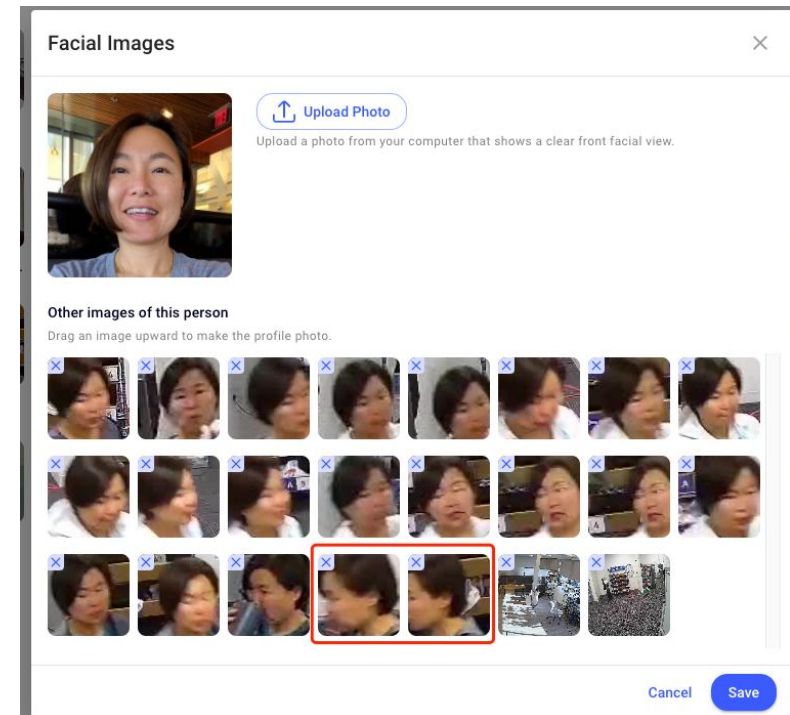


Bad Contrasts

- **Merge same person**
  - Increase the accuracy to match correct person



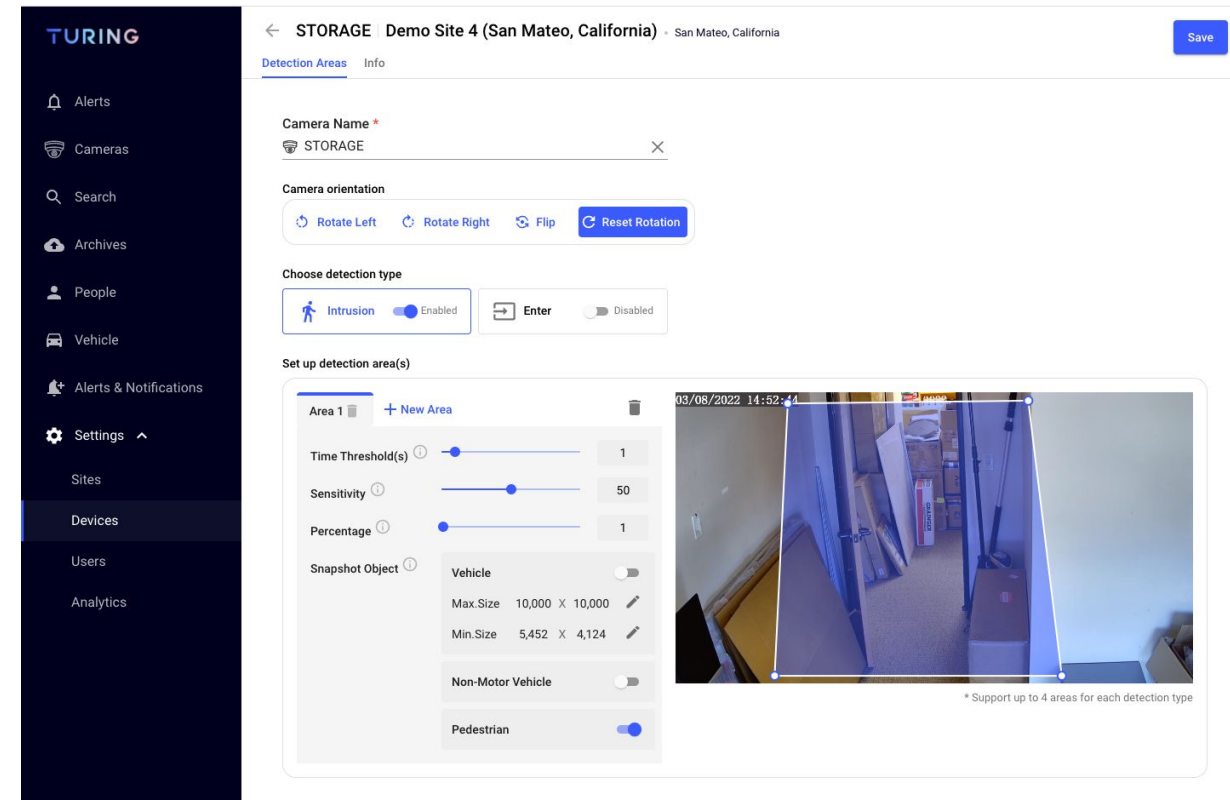
- **Delete bad image from person profile**
  - Images will be automatically added to user profile, please manage images proactively



# How to Improve Similarity?

- **Create Detection Areas**

- Go to Settings > Devices > select the camera > Detection Areas
- Enable “Enter” detection type and select Enter detection type to configure detection areas
- Create one or more detection areas by clicking “+ New Area”
- Start drawing the detection area by clicking on the camera live view port on the right
- Make sure the area encloses where a person’s face will be close to the camera and is well-lit



# How to Improve Similarity?

- **Manually add standard people's image**

- Upload several facial images to a person's profile to increase recognition accuracy
  - Upload a facial image of a person to search in existing people events
  - Facial features: Both eyes open and visible without any facial covering
  - No cropping: Contain full head and shoulders. Face should not be obscured or tightly cropped and occupies a large proportion of the image
  - No blocking: Position camera to prevent anything block view of people and their faces
  - Face resolution: Minimum 80 x 80 pixels in image resolutions up to 1920 x 1080 pixels
  - Contrasts: Use images that have sufficient contrast with the background. A high-contrast monochrome background works well
- Blurry: Use images that are bright and sharp. Avoid using images that may be blurry due to subject and camera motion as much as possible

Facial Images



Upload Photo

Upload a photo from your computer that shows a clear front facial view.

Other images of this person

Drag an image upward to make the profile photo.



Cancel

Save