Capturing and processing video from a webcam

We will use a webcam in this chapter to capture video data. Let's see how to capture the video from the webcam using OpenCV-Python.

How to do it...

1. Create a new Python file, and import the following packages:

```
import cv2
```

2. OpenCV provides a video capture object that we can use to capture images from the webcam. The `0` input argument specifies the ID of the webcam. If you connect a USB camera, then it will have a different ID:

```
# Initialize video capture object
cap = cv2.VideoCapture(0)
```

3. Define the scaling factor for the frames captured using the webcam:

```
# Define the image size scaling factor
scaling_factor = 0.5
```

4. Start an infinite loop and keep capturing frames until you press the *Esc* key. Read the frame from the webcam:

```
# Loop until you hit the Esc key
while True:
    # Capture the current frame
    ret, frame = cap.read()
```

5. Resizing the frame is optional but still a useful thing to have in your code:

```
        # Resize the frame
        frame = cv2.resize(frame, None, fx=scaling_factor, fy=scaling_factor
                interpolation=cv2.INTER_AREA)
```

6. Display the frame:

```
        # Display the image
        cv2.imshow('Webcam', frame)
```

7. Wait for 1 ms before capturing the next frame:

```
        # Detect if the Esc key has been pressed
        c = cv2.waitKey(1)
        if c == 27:
            break
```

8. Release the video capture object:

```
    # Release the video capture object
    cap.release()
```

9. Close all active windows before exiting the code:

```
    # Close all active windows
    cv2.destroyAllWindows()
```

10. The full code is given in the `video_capture.py` file that's already provided to you for reference. If you run this code, you will see the video from the webcam, similar to the following screenshot:


Webcam