

## 63 OpenCV interview questions to assess developer skills

### Questions

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1. What is OpenCV and why is it used?
2. Can you explain the difference between RGB and BGR color spaces in OpenCV?
3. How would you load and display an image using OpenCV?
4. What is image thresholding and when would you use it?
5. How would you detect edges in an image using OpenCV?
6. What is image blurring and why is it useful in image processing?
7. Can you explain what image moments are and how they're used in OpenCV?
8. What is template matching in OpenCV and when would you use it?
9. How would you perform basic drawing operations in OpenCV?
10. What is histogram equalization and why is it useful?
11. How would you resize an image in OpenCV while maintaining its aspect ratio?
12. Can you explain the difference between `cv2.imread()` and `cv2.imshow()` functions?
13. What is the purpose of `cv2.waitKey()` in OpenCV applications?
14. How would you convert a color image to grayscale using OpenCV?
15. Can you describe the process of applying a Gaussian blur to an image?
16. What is the difference between erosion and dilation in image processing?
17. How would you detect circles in an image using OpenCV?
18. Can you explain what a kernel is in the context of image convolution?
19. How would you draw a rectangle on an image using OpenCV?
20. What is the purpose of `cv2.findContours()` and when would you use it?
21. How can you access and modify individual pixel values in an image using OpenCV?
22. Can you explain the difference between `cv2.bitwise_and()` and `cv2.add()` operations?
23. How would you rotate an image by a specific angle in OpenCV?
24. What is the purpose of `cv2.inRange()` function and how is it commonly used?
25. Can you describe how to perform basic color filtering in OpenCV?
26. How would you save a processed image to disk using OpenCV?
27. What is the difference between `cv2.THRESH_BINARY` and `cv2.THRESH_OTSU` in thresholding?
28. How can you detect and draw lines in an image using Hough Line Transform?
29. Can you explain what a mask is in image processing and how it's used in OpenCV?
30. How would you implement a simple motion detection system using OpenCV?
31. Can you explain what image segmentation is and why it is used in OpenCV?
32. How do you perform image rotation in OpenCV without losing vital parts of the image?
33. What is contour detection and how is it used in OpenCV?
34. Can you describe the process of histogram analysis in image processing?
35. What is morphological image processing and where is it applied?
36. How is feature matching performed using OpenCV?
37. What is the role of image pyramids in OpenCV?
38. Can you explain the concept of optical flow in image processing?
39. What is the difference between global and local thresholding in image processing?
40. Can you explain the concept of image pyramids and their applications in OpenCV?
41. How would you implement a feature matching algorithm using SIFT or SURF in OpenCV?
42. Describe the process of image segmentation using the watershed algorithm in OpenCV.
43. How can you use OpenCV for real-time object tracking in video streams?
44. Explain the concept of camera calibration and how it's performed using OpenCV.
45. How would you implement a basic facial recognition system using OpenCV?
46. Can you describe the process of image stitching to create panoramas using OpenCV?
47. How would you use OpenCV for text detection and recognition in natural images?
48. Explain the concept of non-maximum suppression in the context of object detection.
49. How can you implement a simple augmented reality application using OpenCV?
50. Describe the process of image inpainting for object removal in OpenCV.
51. How would you use OpenCV for gesture recognition in a video stream?
52. Can you explain the concept of optical flow and its implementation in OpenCV?
53. How would you approach the task of 3D reconstruction from multiple 2D images using OpenCV?
54. How would you approach improving the performance of an existing OpenCV application that is running slowly?
55. Imagine you're tasked with creating a real-time face detection system. What steps would you take to ensure it runs efficiently on limited hardware?
56. Suppose you encounter a situation where the image quality is poor due to low lighting. What techniques would you use to enhance the image for better analysis?
57. If you were required to detect and track multiple objects in a video stream, how would you organize your workflow using OpenCV?
58. Imagine a scenario where you have to extract features from a series of images taken from different angles. How would you ensure consistency in feature extraction?
59. If an application fails to detect objects in a crowded scene, what methods would you apply to improve detection accuracy?
60. How would you implement a system that can automatically adjust parameters based on feedback from previous processing results?
61. If you find that your image segmentation results are not satisfactory, what strategies would you use to troubleshoot and refine your approach?
62. How would you approach integrating OpenCV with other machine learning frameworks for a comprehensive project?
63. Suppose you need to create a custom filter to enhance specific features of an image. How would you go about designing and implementing that filter?