

## ELENCO 1

## Domanda 1

Il candidato illustri la struttura del framework ROS (Robot Operating System), mettendo in evidenza gli elementi fondamentali per la gestione di un robot.

## Domanda 2

Il candidato introduca le librerie OpenCV, illustrando una classe o un algoritmo a scelta.

## Domanda 3

Il candidato illustri cosa si intende per risoluzione di un'immagine.

Testo in inglese**History**

OpenCV stands for Open Source Computer Vision Library, which is widely used for image recognition or identification. It was officially launched in 1999 by Intel. It was written in C/C++ in the early stage, but now it is commonly used in Python for the computer vision as well.

The first alpha version of OpenCV was released for the common use at the IEEE Conference on Computer Vision and Pattern Recognition in 2000, and between 2001 and 2005, five betas were released. The first 1.0 version was released in 2006.

The second version of the OpenCV was released in October 2009 with the significant changes. The second version contains a major change to the C++ interface, aiming at easier, more type-safe, pattern, and better implementations. Currently, the development is done by an independent Russian team and releases its newer version in every six months.



## ELENCO 2

Domanda 1

Il candidato illustri cosa si intende per feature di un'immagine.

Domanda 2

Il candidato discuta il sistema di comunicazione usato da ROS, basato sui topic.

Domanda 3

Il candidato illustri cosa si intende per robot otonomo.

Testo in inglese

## How OpenCV Works

In this tutorial, we will learn how computers perform image recognition.

### How does computer recognize the image?

Human eyes provide lots of information based on what they see. Machines are facilitated with seeing everything, convert the vision into numbers and store in the memory. Here the question arises how computer convert images into numbers. So the answer is that the pixel value is used to convert images into numbers. A pixel is the smallest unit of a digital image or graphics that can be displayed and represented on a digital display device.

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