# OpenCV e-learning channel

*Practical course - 1d - 06h09 - Ref. 8CV*
*Price : 190 CHF E.T.*

Wondering how autonomous cars 'see' and analyze the world around them? Find out how OpenCV is revolutionizing computer vision on our dedicated channel. OpenCV, an open-source computer vision and image processing library. By combining algorithms with great flexibility, it gives developers the tools they need to create intelligent, responsive applications, from object detection to facial recognition, automated surveillance and much more. You'll learn how to use this library to create object detection and tracking algorithms to make your programs increasingly autonomous.

## Teaching objectives

**At the end of the training, the participant will be able to:**

- Know the applications and general methodology of object detection.
- Describe several types of detection algorithms available in OpenCV.
- Use the library's Python interface and the Jupyter notebook application.
- Identify object tracking applications and issues.
- Learn the theoretical basis of functions for tracking objects in video.
- Play and save a video.
- Use OpenCV's tracking functions.

## Intended audience

Developers and anyone developing image analysis and processing applications.

## Prerequisites

Basic knowledge of Python.

**PARTICIPANTS**

Developers and anyone developing image analysis and processing applications.

**PREREQUISITES**

Basic knowledge of Python.

**TRAINER QUALIFICATIONS**

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

**ASSESSMENT TERMS**

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

**TEACHING AIDS AND TECHNICAL RESOURCES**

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

## Practical details

### Digital activities

IT structure: recorded courses, expert videos and best practice sharing.

### Mentoring

L'option tutorat propose un accompagnement personnalisé par un formateur référent ORSYS, expert du domaine. Adapté aux besoins, aux capacités et au rythme de chaque apprenant, ce tutorat combine un suivi asynchrone (corrections personnalisées d'exercices, échanges illimités par message…) et des échanges synchrones individuels. Bénéfice : une meilleure compréhension, le développement des compétences et un engagement durable dans la formation.

### Pedagogy and practice

A wealth of content produced by trainers following a rigorous pedagogical approach. During each course, operational cases are commented on by experts to help learners put into practice what they have just learned. To help learners anchor their memory, each content item is broken down into short sequences of 3 to 10 minutes. This enables each learner to learn dynamically and independently.

**TERMS AND DEADLINES**

Registration must be completed 24 hours before the start of the training.

**ACCESSIBILITY FOR PEOPLE WITH DISABILITIES**

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

## Course schedule

### 1 OpenCV, object detection

- Introduction.
- A few concepts.
- Machine learning and Viola-Jones detector.
- Deep learning.

### 2 OpenCV, tracking objects in a video

- Introduction.
- Video management in OpenCV.
- Followed by a single object.
- Multiple object tracking.

### 3 OpenCV, basic image processing functions with the Python language

- Discover OpenCV.
- Basic image processing with OpenCV.
- Combine images.
- Smoothing and denoising.
- Histograms.