Course : Machine vision, the basics

Practical course - 2d - 14h00 - Ref. RWM
Price : 1310 € E.T.

Machine vision is booming in a variety of applications: presence control, aspect control, measurement, robot guidance, or 2D or 3D code reading. The image obtained is the basis of the entire program. This training course will help you understand the importance of the environment in camera decision-making.

Teaching objectives

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

- ✓ Understand the basic principles of machine vision
- ✓ Determine the role of the various components
- ✓ Use software environment functions
- ✓ Determine the influence of certain control parameters
- ✓ Defining the right lighting

Intended audience

Operators, set-up personnel, technicians, occasional workers, anyone wishing to learn the basics of machine vision.

Prerequisites

No special knowledge required.

Practical details

Hands-on work

Demonstrations and practical exercises on a machine vision simulator.

Teaching methods

This course can be delivered in-house on a real vision system, subject to logistical conditions.

Course schedule

1 **Vision principles**

- The nature of light: reminders of physics and optics (electromagnetic waves, frequency, etc.).
- How can a vision system be used?

PARTICIPANTS

Operators, set-up personnel, technicians, occasional workers, anyone wishing to learn the basics of machine vision.

PREREQUISITES

No special knowledge required.

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.

(2) How a vision system works

- Role and principle of components.
- Advantages and constraints of use.
- Lighting sources: nature and positioning.

(3) Feasibility study, approach to specifications

- CCD and CMOS sensors, choice and performance.
- Optical mechanics: diaphragm, focal length, depth of field.
- Calculation method for sensor and lens selection.

Hands-on work
Setting up a vision station and testing the influence of optical mechanics without affecting software settings.

(4) Software processing

- Principle of image acquisition.
- Image processing.
- The main acquisition parameters: speed, gain, contrast, trigger, delay, white balance, etc.

Hands-on work
Case studies using vision software (and its settings) and different light sources, independently or with the trainer.