

Course : AI Python for image processing

Transform, extract and analyze images with libraries: Pilow, Matplotlib, OpenCV, Scikit,...

Practical course - 3d - 21h00 - Ref. PYI

Price : 1940 CHF E.T.

 4,6 / 5

This Python artificial intelligence course will enable you to perform machine learning data analysis. You'll learn how to transform an image and extract information from it. We'll introduce you to the image processing libraries most commonly used in deep learning projects.

Teaching objectives

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

- ✓ Deepen your knowledge of the Python language
- ✓ Performing Machine Learning data analysis in Python
- ✓ Discover Python image processing libraries
- ✓ Transforming an image
- ✓ Extract information from an image

Intended audience

Python developers wishing to familiarize themselves with the main automated learning and image processing tools.

Prerequisites

Python language skills and knowledge of NumPy and SciPy.

Course schedule

1 Image processing

- The Pillow library for transforming images.
- Presentation of image analysis libraries.
- Simple image manipulation with NumPy.
- Introducing Matplotlib for fast display.

Hands-on work

Use Pip or Conda, simple manual image transformations with Numpy.

PARTICIPANTS

Python developers wishing to familiarize themselves with the main automated learning and image processing tools.

PREREQUISITES

Python language skills and knowledge of NumPy and SciPy.

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 More advanced image processing

- Filtering, analysis and information retrieval with Scikit-image.
- Presentation and transformations with OpenCV.
- OpenCV: contour and pattern detection.

Hands-on work

Set up libraries, manipulate and analyze images with Scikit-image and OpenCV.

3 Automated learning

- Setting up Scikit-learn.
- Example of usable data and classification of automated learning processes.
- Choosing and using an estimator.
- Enhanced supervised learning and transformers.

Hands-on work

Multiple supervised learning on datasets with Scikit-learn.

4 Additional cases of automated learning

- Decomposition - principal component analysis and linear discriminant analysis.
- Unsupervised learning: multiple approaches.
- Various classification algorithms.

Hands-on work

Use of additional learning algorithms from Scikit-learn.

5 Learning for images

- Image classification with Scikit-learn, review of available algorithms.
- Introducing and installing scikit-image.
- Library for adapting machine learning to digital images
- Scikit-image inputs and outputs.
- Image analysis with Scikit-image: segmentation, detection, measurement.
- Simple image transformations with Scikit-learn: convolutions and other filters.
- Image comparison and stitching with Scikit-image.
- Image enhancement with Scikit-image.

Hands-on work

Image classification, face detection, reconstructions and enhancements with scikit-learn and scikit-image.

Dates and locations

REMOTE CLASS

2026: 16 Mar., 15 June, 26 Oct.

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.

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.