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Machine Learning and Computer Vision in Industry 4.0: Use case 1

Friday, 12 April 2024 12:00 (1h 30m)

Syllabus outline:

Use pretrained Support Vector Machine (SVM) traditional model to classify steel plates. Hands-on: 120 minutes.

Visualization of a classifier trained on computer vision.

Training and test data visualization.

Estimation of the class of independent examples using a pretrained model.

Objective competences:

1. To observe in practice the application of a SVM in image processing and classification.
2. To identify the parameters of SVM models and how they can affect the performance.
3. To learn to use traditional computer vision techniques to get descriptors to classify steel plates.
 - 3.1. To get started with handcrafted descriptors.
 - 3.2. To apply this knowledge to an Industry 4.0 problem.

Intended learning outcomes:

To classify steel plates depending on the type of surface defects in stainless steel plates, with six types of possible defects (plus "other") using traditional computer vision techniques.

To identify the parts of an image processing system.

To know how to evaluate the performance of a machine learning model.

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