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Computer Vision and Machine Learning in Industry 4.0: Use case

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In this course we will cover the basic concepts of Neural Networks and Convolutional Neural Networks with an application to the classification of inserts of a milling machine according to their wear level.

Objectives

1. Know the concept of convolution and its applications in image processing.
2. Identify the building blocks of a Neural Network and a Convolutional Neural Network.
3. Learn to use pretrained CNNs to get descriptors to classify the level of wear of milling inserts 3.1. Get started with non-handcrafted descriptors 3.2. Application to Industry 4.0 problem

Outcomes

1. To know the basics about image convolution
2. To learn what a -neural Network is and its main concepts (neuron, layer, etc.).
3. To define the working of a Convolutional Neural Network and its basic building blocks
4. To classify inserts as having high or low wear using features extracted using pre-trained CNNs

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