

Apprentissage Profond



Component

École Nationale
Supérieure
d'Électrotechnique
d'Électronique
d'Informatique
d'Hydraulique
et des
Télécommunications

In brief

> **Code:** N8EN12B

Presentation

Description

In this half-EU, a brief review of the basic notions of supervised learning will first be given. Then we will introduce neural networks and activation functions. We will explain how to train neural networks by gradient descent, introducing cost functions and the gradient backpropagation algorithm.

In a second step, we will introduce convolutional neural networks and their applications in image processing. Finally, we will detail advanced convolutional architectures of the state of the art.

The course is accompanied by practical labs (7 in total) to illustrate and put into practice the course concepts. After a lab on binary classification and a second lab on regression, the 5 remaining labs detail image processing problems (image classification, pose estimation, object detection) and different methods to solve these problems.

Finally, the students have to use the notions seen in class in an image classification project that they will have chosen themselves, and for which they have to build their learning database.

Useful info

Place

➤ Toulouse