Labex INTERACTFS (https://labex-interactifs.pprime.fr/)

I. Informations générales :

Employeur de l'intervenant ***Employer***	**UP ENSMA CNRS**
TITRE du cours en français ***French title***	**APPRENTISSAGE AUTOMATIQUE POUR LES PHYSICIENS**
TITRE du cours en anglais ***English title***	**MACHINE LEARNING FOR PHYSICISTS**
Adéquation avec les thèmes du Labex ***Adequacy with Labex Research project topics***	1 - COUPLAGE ENTRE LES MATÉRIAUX ET DES CONDITIONS SPÉCIFIQUES D'ENVIRONNEMENT 2 - FONCTIONNALISATION DES SURFACES 3- FLUIDES ET PHÉNOMÈNES ÉLECTRIQUES AUX INTERFACES
Enseignant ***Teacher***	**Nom :** CORDIER **Prénom :** Laurent **Tel :** 05 49 49 69 22 **Email : Laurent.Cordier@univ-poitiers.fr**

Nb d'heures de cours :	10	ENSMA
Wednesday, November 26th	17:30 pm to 19:30 pm	B139
Tuesday, December 2nd	17:30 pm to 19:30 pm	B139
Wednesday, December 3rd	17:30 pm to 19:30 pm	B139
Tuesday, December 9th	17:30 pm to 19:30 pm	B139
Thursday, December 11st	15:30 pm to 17:30 pm	B139

II. Description du cours proposé, objectifs et plan

Voir verso.

Machine Learning for Physicists

Course proposal – Labex INTERACTIFS

10 h

Lecturer: Laurent CORDIER (Laurent.Cordier@univ-poitiers.fr) - Directeur de Recherche CNRS – UPR 3346.
Language: This course will be given in English.

In recent years, Machine Learning methods have become increasingly important in many areas of Physics. This is mainly due to three reasons: an unprecedented abundance of data, considerable computational power associated with remote platforms (cloud computing), and freely available libraries written in Python. The objective of this introductory course on Machine Learning is to show that many problems at the heart of our disciplinary issues can be addressed by generic approaches. Machine learning is classically divided into three branches: supervised learning methods, unsupervised learning methods and reinforcement learning methods, see figure. We will illustrate each of these branches with emblematic techniques.

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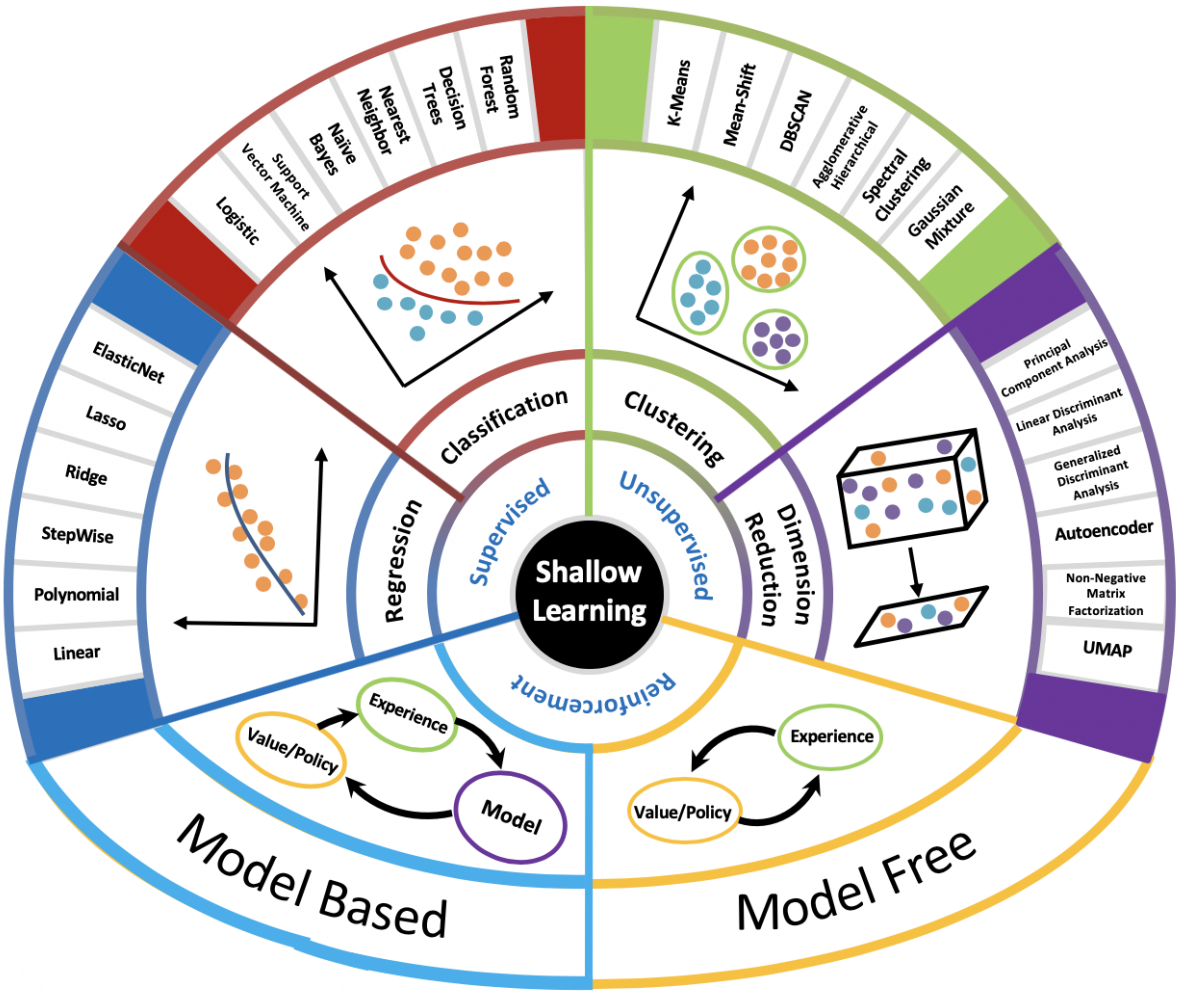
We will illustrate the methods as much as possible with Jupyter notebooks or Python programs.



Classification of machine learning methods.