UE Introduction to Machine Learning and Deep Learning

Niveau d'étude
Bac +5

ECTS
3 crédits

Composante
UFR PhITEM (physique, ingénierie, terre, environnement, mécanique)

Période de l'année
Automne (sept. à dec./janv.)

- **Langue(s) d'enseignement:** Anglais, Français
- **Ouvert aux étudiants en échange:** Oui
- **Code d'export Apogée:** PAX9GIAY

Présentation

Description

Introduction to the statistical learning theory and prediction (regression/classification)

- Review of Models/Algorithms for supervised/unsupervised learning
- Illustration de ces algorithmes sur différents jeux de données on different dataset (intelligence artificielle, Bioinformatics, vision, etc ...)

Content:

- General introduction to the statistical learning theory and prediction (regression/classification)
- Generative approaches: Gaussian discriminant analysis, naïve Bayes hypothesis
- Discriminative approaches: logistic regression
- Prototype approaches: support vector machines (SVM)
- Unsupervised classification (kmeans and mixture model)
- Dictionnary learning / Sparse reconstruction
- Source separation

This course is given at Phelma-INP.

Heures d'enseignement

UE Introduction to Machine Learning and Deep Learning - CMTD	Cours magistral - Travaux dirigés	12h

Pré-requis recommandés

Basic elements of probability/statistics, filtering

Période : Semestre 9

Bibliographie

- Trevor Hastie, Robert Tibshirani et Jerome Friedman (2009), "The Elements of Statistical Learning," (2nd Edition) Springer Series in Statistics
- Christopher M. Bishop (2006), "Pattern Recognition and Machine Learning," Springer
- Richard O. Duda, Peter E. Hart et David G. Stork (2001), "Pattern classification," (2nd edition) Wiley

Infos pratiques

Campus

- Grenoble - Domaine universitaire
- Grenoble - Polygone scientifique