

## *Machine Learning : from Theory to Practice*

Teaching staff: F. d'Alché-Buc and E. Le Pennec with S. Gaiffas and Y. Ollivier

Cours : 20 heures

### *Plan*

#### **Machine Learning 1:**

lecture 1 : Introduction to Machine Learning, Probabilist framework for supervised learning, linear methods

lecture 2 : Kernel methods (à la Nadaraya-Watson) / validation and selection

lecture 3 : Aggregation and trees

lecture 4 : Representation and features

lecture 5 : SVM (SVR:exercice)

practical session 6 : practical session

lecture 7 : RKHS point of view and regularization – Télécom ParisTech

lecture 8 : Kernel selection and learning, applications – Télécom ParisTech [ course + practical session]

#### **Machine Learning 2:**

lecture 9 : Deep learning I (Y. Ollivier, Télécom ParisTech)

lecture 10 : Deep learning II (Y. Ollivier, Polytechnique)

lecture 11 : Unsupervised learning (F. d'Alché, Télécom ParisTech)

lecture 12 : Semi-supervised learning (F. d'Alché, Polytechnique)

lecture 13/14 : Collaborative filtering (S. Gaiffas, Polytechnique)

Practical session : (E. Le Pennec, Polytechnique)