TOULOUSE INP N7

APPRENTISSSAGE MACHINE ET OPTIMISATION

ECTS
5 credits

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

In brief

> **Code:** N8EN07

Presentation

Description

Optimisation 2:
Machine learning application often lead to optimisation problems of a composite nature: a typical fit-to-data term is penalized so as to enforce some geometrical properties in the solution. Typical properties include sparcity, low rank in matrices. Such problems are often non-differentiable but convex. We review the most popular sub-gradient based methods for solving such problems, insisting on the convergence properties and the complexity of such methods. We will also focus on efficient implementation of such methods on image processing applications. Finally, we will develop in the SPARK software a movie recommendation system.

Statistique 2:
In this course, the basic regression model is introduced along with its applications and extensions (generalized linear models especially logistic regression). Linear models provide an indispensable basis for later approaches to more modern methods used in big data.
Algorithms will be used in practical works with R to automatically select predictors and a procedure to evaluate the models will be detailled.

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