1SC2694 – Automatic land cover classification

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Department: DOMINANTE - PHYSIQUE ET NANOTECHNOLOGIES
Language of instruction: FRANCAIS
Campus: CAMPUS DE PARIS - SACLAY
Workload (HEE): 40
On-site hours (HPE): 27,00

Description

This project is an opportunity to use machine learning while learning about satellite imagery. Preligens team will first introduce the relevant machine learning and remote sensing concepts, as well as the tools needed to get started with the project. You will then apply the algorithm of your choice to analyze the type of ground cover on images from the Sentinel 2 mission. On each image, it will be a question of deciding on the nature of each pixel: is it an area artificial, cultivated, herbaceous, aquatic forest?

Quarter number
ST2

Prerequisites (in terms of CS courses)
none

Syllabus
autonomous research (library and visualizations) on the different sources and platforms for downloading data and on spectral indices
To identify the physical characteristics of signals from different land covers.
Propose and test classification algorithms.
To model the performances

Class components (lecture, labs, etc.)
Project-based, the students work in small teams for the whole week.
Regular discussions are planned with the custormers/supervisors.

Grading
The session will be evaluated with an oral presentation.
Skills C4, C7 and C8 are evaluated during the oral defense.

Description of the skills acquired at the end of the course
C4-1 Identify and reformulate the need

C4-2 Define and present one or more solutions
C7-1 Structure your ideas and arguments, be synthetic (assumptions, objectives, expected results, approach, and value created)
C7-2 Understand in an evolving way the needs and expectations of your interlocutors. Encourage interactions, be an educator, and create a climate of trust.
C7-4 Master spoken, written, and body language and master basic communication techniques