Syllabus for **INF436 Machine Learning 2 (Prof. Jae Yun JUN KIM / jae-yun.jun-kim@ece.fr / E1-EM202)**

1) Course description

The main objective of this course is to guide students to have a solid basis on Machine Learning in Computer Science. The development of such basis is possible by designing the present course such that students will learn the theory, reason themselves on the learned topics (to deepen their knowledge), apply the theory by implementing it from scratch (programming in Python), and share the gained knowledge with their peers (to truly appropriate the knowledge). This course covers from the initial to intermediate levels of Machine Learning with applications in various domains (such as robotics, finance, biology, and more).

2) Course program

Session 1 (the week of February 13, 2023)

[Lecture 1 (online) / Lab 1 (offline)] Linear Regression (Supervised Learning)

Session 2 (the week of March 6, 2023)

[Lecture 2 (online) / Lab 2 (offline)] Feedforward Neural Network (Supervised Learning)

Session 3 (the week of March 13, 2023)

[Lecture 3 (online) / Lab 3 (offline)] Reinforcement Learning

Session 4 (the week of March 20, 2023)

[Lecture 4 (online) / Lab 4 (offline)] K-means (Unsupervised Learning)

3) Course evaluation

Continuous Evaluation: 50% (Lab)

Exam: 50% (MCQ (Multiple-Choice Questions) in English)

- Each question can have multiple correct answers.
- The scale for each question is:
    - +1 point, when only all the correct answers are chosen,
    - 0 point, otherwise.
- No document will be allowed during the exam.
- No laptop will be allowed during the exam.
- No calculator will be allowed during the exam.

4) Details about Lab

- In groups: only groups of two or three accepted (**preferably of three**). Forbidden groups of one or larger than three people.
- No plagiarism. If it happens, both the lender and the borrower will have a zero.
- In this course, it is FORBIDDEN to use any ML library (PyTorch, TensorFlow, Keras, Caffe, Scikit-Learn, etc.).
  Code yourself from scratch. No work will be considered for evaluation if you use any ML library.
- Do thoroughly all the demanded tasks.
- There is NO lab solution distributed to the students after each lab session. If any students have questions on the lab work, these students can come to see the Professor, show their code on which they would have worked, and Professor may give some feedback on their code.

5) Absences

- Presence is mandatory.
- All the lecture sessions will be ONLINE.
- All the lab sessions will be OFFLINE. NO online participation is allowed.
- To excuse absences, you must do it with *Scolarité*. After you justified your absence, let Professor know about this.
- Non-excused absences for Lab will imply zero grade.
- There is no make-up lab session.

6) Miscellaneous

- Eating in class is strictly forbidden. Drinking in class with discretion is permitted.
- Take lecture notes using your notebook and pen because the PDF that you will get at the end of each lecture is a summary and does NOT contain the entire course lecture content. I will teach mainly using the whiteboard.
- For lab sessions, bring your personal laptop with the battery fully charged (for about two-hour work).