Project

Machine Learning II
2023-2024
UMONS

1 Overview

The goal of this project is to use your knowledge of machine learning to study new algorithms/models within the field. You will focus on an assigned reference paper (see paper assignments below). Initially, you are to read the assigned reference paper, along with any relevant literature. Subsequently, you will run some experiments related to your topic. Then, you are required to write a report, not to exceed **15 pages**, which details your understanding of the assigned topic and includes experimental results. We ask you to concentrate on the key theoretical properties/theorems and related proofs. Finally, you will present your findings in a **20-minute** seminar, providing the necessary background and using no more than **15 slides**.

2 Grading

Overall, you will be graded based on your report, slides, and presentation. Your report and slides will be evaluated based on clarity of writing, quality of the presentation, level of machine learning content, and technical communication of main ideas. You need to provide code for your experiments, and it should run without errors. Your presentation should be clear and meet the time limits. We would like to remind the students that **plagiarism** will be taken very seriously.

3 Paper assignments

- **IAKOVENKO Maksym**: Understanding Diffusion Models: A Unified Perspective
- **Moreau Nicolas**: Transformers are RNNs: Fast Autoregressive Transformers with Linear Attention
- **Desobry Naomi**: Dropout Drops Double Descent
- **Ndjonkam Innocent**: Bias/Variance is not the same as Approximation/Estimation

4 Deadlines and deliverable

- **May 19, 11:59 pm**: Upload to Moodle your project **report** and **code**.
- **May 22, 11:59 pm**: Upload to Moodle your final **slides**. Note that you will not be able to change it after submission.
- **May 24**: Give your seminar.

Late submissions will not be allowed.