

## Assignment 1- Part 2 - Modern Computing Techniques- S2, 2024

This assignment is worth 20% of your total mark and includes selecting an article and presenting it on September 18<sup>th</sup> during the lecture time. You must submit the presentation on Canvas, no later than September 17<sup>th</sup>, 23:59pm.

### Paper Selection:

- **Objective:** Students select a peer-reviewed data science or machine learning paper that includes an algorithm or model.
- **Criteria:** The paper should ideally be published in reputable journals or conferences (e.g., NeurIPS, ICML, Machine Learning, and many more journals in your field of interest). They should be after 2020 and contain at least one of the methods/topics that we have taught in MXN442.
- **Approval:** Students must submit their chosen paper for approval to ensure it meets the requirements and is not overly complex or simple.

### Presentation:

Your project presentation should be less than 10 minutes long. It should include the following information.

1. Title of the paper you have chosen.
2. Brief description of the problem that was solved, the main research question or objective of the study.
3. Brief description of the solution technique used in the paper, including key equations.
4. Summarize the main findings and results.
5. What ideas, if any, you have for improving the solution technique, applying other methods, and/or whether you will replicate the results.
6. Whether you are going to get new data or using the data from the chosen study.

### NOTE For Final Project Report:

For your final project (Assignment 2), you will need to submit a report (less than 7 pages) at the end of the semester that contains the above-mentioned parts with your code and data, together with a copy of the original paper, all in one Zip folder. So, choose your article and data carefully and feel free to start early. You can write the code preferably in R, or any other language that you choose but you will need to host them on a GitHub page. We will share more details as we go. The final report is due on October 18, 23:59 pm.

## **Final Project (Assignment 2):**

For your final project you need to hand in a report that is in total 7 pages. The report should contain the sections 1-6 as mentioned before.

### **Regarding sections 5 and 6:**

You are strongly recommended to find a paper that has the data available. But if you choose to replicate a study on a new dataset that is not provided in the paper, that is fine. Make sure you replicate the results of the paper on the new data and report whether the results are similar on the paper or not.

If the code is available, you need to replicate their code and also implement two of the appropriate methods that you have learned in MXN442 to compare it with the methods and results in the paper. You can choose any method, but you need to ensure you are choosing the right method for addressing the research question.

If the code is not available, then you can replicate their results as much as possible and compare your results with them in the report. Make sure the paper you have chosen contains at least one of the methods that you have learned in MXN442.

The report should contain a link to your code and data, that is ideally hosted on GitHub. We will aim to reproduce your results, so make sure your code is clean and works fine.