School of Computer Science and Applied Mathematics
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ADAPTIVE COMPUTATION AND MACHINE LEARNING (COMS4030A/COMS7047A)

Project

Submission due date: Friday 18th June, 2022

April 22, 2022

1   Description

ACML project is part of continuous assessments and will form an important component of the course. This is an open ended project and students are free to work on problems that interests them. Included is the brief description of the different phases and grading policy. Any changes to these will be communicated timely using Ulwazi announcements.

1.1   Phase 1

In this phase you will explore a project idea/question, explore its viability and scope. You will also forms groups and submit both project and group details. (Comments: This phase is now complete).

1.2   Phase 2

In this phase, students/groups will explore the following aspects. Please do note the following points provide general guidelines.

1. Understand the data to be used for the project. It is crucial that you have access to the relevant data and you understand its structure.

2. Explore the different machine learning paradigms, tools, algorithms that can be used to solve the recognised project idea/question.

3. Finalise on a ML technique/algorithm.Note: You are required to only explore one model/algorithm. However, if you do want to perform a comparative analysis between couple of algorithms you are free to do so.

4. Implement the baseline algorithms, run the experiments and understand the first phase of outcomes.

5. Employ optimization techniques(for both model parameters, algorithm parameters).

6. Analyse the final results.

1.3 Phase 3

In this phase you will prepare your final report and a presentation.

Your final submissions include:

1. A final report in a scientific paper format (any standard scientific format is acceptable).

   Note: Refer to scientific papers on your chosen problem and understand what aspects should be included in your report.

2. A 10-15 presentation by the student/group. You will need to prepare a presentation for this purpose. Presentations will be face-to-face unless we are faced with unforeseen circumstances due to COVID. If face-to-face presentations are not feasible, we will have online presentations.

3. A zipped folder containing your implementation (Jupyter notebook, data used for project etc).

4. Signed honor code, along with contributions made by each group member. The contributions listed should be agreed upon by all the group members.

2 Grading:

Grading will be based on the following:

1. Choice of appropriate ML techniques, data-sets for the project. Motivation should be provided in the report. - 10 points

2. Implementation of the ML techniques/ algorithms, data handling, analysis of baseline results etc- 25 points

3. Employing techniques for improved learning, analysis of the outcomes - 20 points

4. Data/results visualization (for all phases of the project) - 15 points

5. Quality of the report - 15 points

6. Presentation - 15 points

Note: Your presentation and report play a crucial role during assessing your overall implementation, results and analysis.