REVIEW QUESTIONS FOR PROJECT REPORTS

CS-E4740 - Federated Learning

ABSTRACT

This document contains the peer review questions for evaluating project reports in the CS-E4740 Federated Learning course. The evaluation criteria ensure that the project report aligns with the provided instructions and guidelines.

1. REVIEW QUESTIONS

Instructions: The following review questions assess the quality and completeness of the project report. Each question follows a clear grading criterion based on the project report instructions.

1.1. Title and Introduction

1. **Is the title informative and specific?**
   - 1p – The title clearly describes the project's focus.
   - 0p – The title is vague or misleading.
2. **Does the introduction present a clear motivation and background for the FL application?**
   - 1p – The introduction defines the FL application in a real-world scenario with networked devices training personalized models.
   - 0p – The introduction lacks clear motivation or background.
3. **Does the introduction provide a concise outline of the report structure?**
   - 1p – The report outline is clearly stated.
   - 0p – The structure is unclear or missing.

1.2. Problem Formulation

4. **Does the report clearly define the empirical graph used for FL modeling?**
   - 1p – Nodes, edges, and their relationships are clearly explained.
   - 0p – The empirical graph is missing or not well explained.
5. **Are the local models and their loss functions properly described?**
   - 1p – The report specifies the local models and their respective loss functions.
   - 0p – The description of models or loss functions is unclear or missing.

1.3. Methods

6. **Does the report justify the choice of the variation measure for FL?**
   - 2p – The variation measure is clearly explained and justified.
   - 1p – The measure is mentioned but lacks justification.
   - 0p – The variation measure is unclear or missing.
7. **Does the report specify and motivate the federated learning algorithm?**
   - 2p – The algorithm is well described, including message passing implementation.
   - 1p – The algorithm is stated but lacks motivation.
   - 0p – The algorithm description is missing or unclear.

1.4. Numerical Experiments

8. **Does the report explain model validation and selection?**
   - 2p – Model validation strategies are clearly explained (e.g., cross-validation).
   - 1p – Some validation is discussed but lacks clarity.
   - 0p – Model validation is missing.
9. **Are the training, validation, and test losses reported and discussed?**
   - 2p – The report presents loss values for training, validation, and test sets with analysis.
   - 1p – Loss values are provided but lack discussion.
   - 0p – Loss reporting is unclear or missing.

1.5. Conclusion and Reproducibility

10. **Does the conclusion summarize key findings and suggest improvements?**

    - 2p – The conclusion summarizes key results and suggests future improvements.
    - 1p – The conclusion is present but lacks depth.
    - 0p – The conclusion is unclear or missing.

11. **Is the report accompanied by a reproducible Python notebook?**

    - 2p – The notebook is included and allows full reproducibility on `https://jupyter.cs.aalto.fi/`.
    - 1p – Some results are reproducible, but details are missing.
    - 0p – The notebook is missing or insufficient for reproduction.

1.6. Plagiarism Check

12. **Does the report contain existing material without proper citation?**

    - 1p – No signs of plagiarism; all sources are correctly cited.
    - -100p – Yes, there is suspected plagiarism (please report to the course staff for investigation).