

Checklist

1. For all authors...
 - (a) Do the main claims made in the abstract and introduction accurately reflect the paper’s contributions and scope? [\[Yes\]](#)
 - (b) Did you describe the limitations of your work? [\[Yes\]](#) We did both in the problem formulation and in the numerical studies.
 - (c) Did you discuss any potential negative societal impacts of your work? [\[No\]](#) We do not believe that the methods proposed here could cause a negative impact in the society of any kind and this discussion was not necessary.
 - (d) Have you read the ethics review guidelines and ensured that your paper conforms to them? [\[Yes\]](#)
2. If you are including theoretical results...
 - (a) Did you state the full set of assumptions of all theoretical results? [\[Yes\]](#) Please refer to 4
 - (b) Did you include complete proofs of all theoretical results? [\[Yes\]](#) Proofs are in the main text and in the supplementary material.
3. If you ran experiments...
 - (a) Did you include the code, data, and instructions needed to reproduce the main experimental results (either in the supplemental material or as a URL)? [\[Yes\]](#) The codes and data used are available online and in the supplementary material. Please, refer to the supplementary material.
 - (b) Did you specify all the training details (e.g., data splits, hyperparameters, how they were chosen)? [\[Yes\]](#) Please refer to Section 5 and the supplementary material.
 - (c) Did you report error bars (e.g., with respect to the random seed after running experiments multiple times)? [\[Yes\]](#) In the main text we reported results with 3folds cross-validation. In the online supplementary material we report results with synthetic data with error bars for the seed and additional validation.
 - (d) Did you include the total amount of compute and the type of resources used (e.g., type of GPUs, internal cluster, or cloud provider)? [\[No\]](#) The algorithms are simple and all the methods run in standard computers. Cloud computer and GPUs were not used.
4. If you are using existing assets (e.g., code, data, models) or curating/releasing new assets...
 - (a) If your work uses existing assets, did you cite the creators? [\[Yes\]](#) Please, see Section 5
 - (b) Did you mention the license of the assets? [\[Yes\]](#) Please, see Section 5
 - (c) Did you include any new assets either in the supplemental material or as a URL? [\[No\]](#) The existing assets are already available online.
 - (d) Did you discuss whether and how consent was obtained from people whose data you’re using/curating? [\[No\]](#) The assets used are already available for public use.
 - (e) Did you discuss whether the data you are using/curating contains personally identifiable information or offensive content? [\[No\]](#) The data is not identifiable or offensive. Please, refer to the description provided in Section 5
5. If you used crowdsourcing or conducted research with human subjects...
 - (a) Did you include the full text of instructions given to participants and screenshots, if applicable? [\[N/A\]](#)
 - (b) Did you describe any potential participant risks, with links to Institutional Review Board (IRB) approvals, if applicable? [\[N/A\]](#)
 - (c) Did you include the estimated hourly wage paid to participants and the total amount spent on participant compensation? [\[N/A\]](#)