

Checklist

The checklist follows the references. Please read the checklist guidelines carefully for information on how to answer these questions. For each question, change the default **[TODO]** to **[Yes]**, **[No]**, or **[N/A]**. You are strongly encouraged to include a **justification to your answer**, either by referencing the appropriate section of your paper or providing a brief inline description. For example:

- Did you include the license to the code and datasets? **[Yes]** See Section XXX.
- Did you include the license to the code and datasets? **[No]** The code and the data are proprietary.
- Did you include the license to the code and datasets? **[N/A]**

Please do not modify the questions and only use the provided macros for your answers. Note that the Checklist section does not count towards the page limit. In your paper, please delete this instructions block and only keep the Checklist section heading above along with the questions/answers below.

1. For all authors...
 - (a) Do the main claims made in the abstract and introduction accurately reflect the paper’s contributions and scope? **[Yes]** see section 6 and 5
 - (b) Did you describe the limitations of your work? **[Yes]** see section 5
 - (c) Did you discuss any potential negative societal impacts of your work? **[No]**
 - (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]** see section 5
 - (b) Did you include complete proofs of all theoretical results? **[No]** they will be uploaded in 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]** they will be provided in the supplementary material
 - (b) Did you specify all the training details (e.g., data splits, hyperparameters, how they were chosen)? **[Yes]** they will be provided in the supplementary material
 - (c) Did you report error bars (e.g., with respect to the random seed after running experiments multiple times)? **[Yes]** they will be provided in the supplementary material
 - (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)? **[Yes]**
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]** We use Torch as our baselien implementation
 - (b) Did you mention the license of the assets? **[Yes]**
 - (c) Did you include any new assets either in the supplemental material or as a URL? **[No]**
 - (d) Did you discuss whether and how consent was obtained from people whose data you’re using/curating? **[N/A]** We use our own synthetic data
 - (e) Did you discuss whether the data you are using/curating contains personally identifiable information or offensive content? **[No]**
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]**