Reproducibility Checklist for the Manuscript "A Spatio-temporal Cluster-aware Supervised Learning Framework for Predicting County-level Drug Overdose Deaths" Submitted to AAAI-AISI 2025

This paper:

- Includes a conceptual outline and/or pseudocode description of AI methods introduced (**yes**/partial/no/NA)
- Clearly delineates statements that are opinions, hypothesis, and speculation from objective facts and results (**yes**/no)
- Provides well marked pedagogical references for less-familiare readers to gain background necessary to replicate the paper (**yes**/no)

Does this paper make theoretical contributions? (yes/**no**)

If yes, please complete the list below.

- All assumptions and restrictions are stated clearly and formally. (yes/partial/no)
- All novel claims are stated formally (e.g., in theorem statements). (yes/partial/no)
- Proofs of all novel claims are included. (yes/partial/no)
- Proof sketches or intuitions are given for complex and/or novel results. (yes/partial/no)
- Appropriate citations to theoretical tools used are given. (yes/partial/no)
- All theoretical claims are demonstrated empirically to hold. (yes/partial/no/NA)
- All experimental code used to eliminate or disprove claims is included. (yes/no/NA)

Does this paper rely on one or more datasets? (**yes**/no)

If yes, please complete the list below.

- A motivation is given for why the experiments are conducted on the selected datasets (**yes**/partial/no/NA)
- All novel datasets introduced in this paper are included in a data appendix. (**yes**/partial/no/NA)
- All novel datasets introduced in this paper will be made publicly available upon publication of the paper with a license that allows free usage for research purposes. (**yes**/partial/no/NA)
- All datasets drawn from the existing literature (potentially including authors' own previously published work) are accompanied by appropriate citations. (**yes**/no/NA)
- All datasets drawn from the existing literature (potentially including authors' own previously published work) are publicly available. (**yes**/partial/no/NA)
- All datasets that are not publicly available are described in detail, with explanation why publicly available alternatives are not scientifically satisficing. (yes/partial/no/**NA**)

Does this paper include computational experiments? (**yes**/no)

If yes, please complete the list below.

- Any code required for pre-processing data is included in the appendix. (**yes**/partial/no).
- All source code required for conducting and analyzing the experiments is included in a code appendix. (**yes**/partial/no)

- All source code required for conducting and analyzing the experiments will be made publicly available upon publication of the paper with a license that allows free usage for research purposes. (**yes**/partial/no)
- All source code implementing new methods have comments detailing the implementation, with references to the paper where each step comes from (**yes**/partial/no)
- If an algorithm depends on randomness, then the method used for setting seeds is described in a way sufficient to allow replication of results. (**yes**/partial/no/NA)
- This paper specifies the computing infrastructure used for running experiments (hardware and software), including GPU/CPU models; amount of memory, operating system; names and versions of relevant software libraries and frameworks. (**yes**/partial/no)
- This paper formally describes evaluation metrics used and explains the motivation for choosing these metrics. (**yes**/partial/no)
- This paper states the number of algorithm runs used to compute each reported result. (**yes**/no)
- Analysis of experiments goes beyond single-dimensional summaries of performance (e.g., average; median) to include measures of variation, confidence, or other distributional information. (yes/**no**)
- The significance of any improvement or decrease in performance is judged using appropriate statistical tests (e.g., Wilcoxon signed-rank). (yes/partial/**no**)
- This paper lists all final (hyper-)parameters used for each model/algorithm in the paper's experiments. (**yes**/partial/no/NA)
- This paper states the number and range of values tried per (hyper-) parameter during development of the paper, along with the criterion used for selecting the final parameter setting. (**yes**/partial/no/NA)