**Rebuttals Note**

**Reviewer 1**

1. **The specific novel contribution of this work needs to be more explicitly highlighted. Many studies exist on ML/DL for lung cancer prediction and hyperparameter tuning. What makes this comparative analysis stand out?**

It is improved in the Significance of study

1. **Provide a detailed description of the 16 numerical attributes used, including their types, ranges, and any specific characteristics relevant to lung cancer prediction.**

Added the dataset description as a table 1.

Table 1: Feature descriptions of the lung cancer dataset

|  |  |  |
| --- | --- | --- |
| **Feature** | **Data Description** | **Type** |
| Gender | Patient’s gender. | Categorical |
| Age | Patient’s age in years. | Numerical |
| Smoking | Whether the patient smokes. | Categorical |
| Yellow Fingers | Presence of yellow fingers. | Categorical |
| Anxiety | Whether the patient experiences anxiety. | Categorical |
| Peer Pressure | Influence from peers affecting lifestyle. | Categorical |
| Chronic Disease | Presence of chronic disease(s). | Categorical |
| Fatigue | Whether the patient experiences fatigue. | Categorical |
| Allergy | Whether the patient has allergies. | Categorical |
| Wheezing | Wheezing sound during breathing. | Categorical |
| Alcohol | Whether the patient consumes alcohol. | Categorical |
| Coughing | Presence of persistent cough. | Categorical |
| Shortness of Breath | Breathing difficulties. | Categorical |
| Swallowing Difficulty | Difficulty swallowing. | Categorical |
| Chest Pain | Whether the patient reports chest pain. | Categorical |
| Lung Cancer | Diagnosis outcome for lung cancer (YES/NO). | Numerical |

1. **Clearly describe the methods used for data preprocessing**.

It is addressed in the data gathering and data preprocessing part.

1. **Explain why ensemble models consistently outperformed other models.**

It is addressed in the conclusion section.

1. **Discuss the implications of the varying training times for practical deployment.**

It also addresses in the collusion section.

**Reviewer 2**

1. **better to explain data that they used. And correlation among those parameters. If the target is to improve cancer identification, I think higher accuracy may be achieved by using images.**

Added the dataset description as a table 1.

**Reviewer 3**

1. **Properly cite the dataset. Justify the dataset selection. Include detailed dataset description.**

Dataset was properly cited and added the dataset description as a table 1 in the data gathering and preprocessing section.

1. **Enhance literature review**

Modified and addressed the literature review in the related work section

1. **Describe in detail how cross-validation was used in both hyperparameter tuning and final model evaluation.**

It was addressed in the model evaluation section.

1. **Justify the choice of k to 5**

It was addressed in the conclusion section.