# Review of: "FLAML-Boosted XGBoost Model for Autism Diagnosis: A Comprehensive Performance Evaluation"

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Potential competing interests: No potential competing interests to declare.

## FLAML-Boosted XGBoost Model for Autism Diagnosis: A Comprehensive Performance Evaluation

### Abstract

- Need to include the relevance of the contribution to solve the issue addressed.

### Introduction

- The contribution is not clear and must be specified and supported as there research work including the methodology proposed.
- Need more related work to back up the assumption that FLAML-Boosted XGBoost Model is better for this type of classification.
- Need to include a methodology figure so the reader can get a better idea of what is planted.
- "we demonstrate the discriminative power, calibration, and overall performance of our model", this phrase should not be in the introduction, as this is more a conclusion.

### Dataset and Preprocessing

- You have to mention the exact number of columns
- You have to mention the percentage of the data partition and support it with related work using the same technique.
- In the treatment of the data, you are creating synthetic samples with RandomOverSampler, you need to back it up why this technique is better than others.
- Need to provide further analysis on the RandomOverSampler method, as on this crucial part of your experiment, you are creating observations, meaning, patients that are not real ones (this is not recommended when you treat medical data), this could result in a biased analysis.

### AutoML with FLAML

- Need to specify how this method works, how is the feature selection?, what does internally with the data?, present the math formula or explain the procedure.

Performance Evaluation

- You used repeat or rephrase text:

AutoML with FLAML: In FLAML's ability to handle imbalanced classification tasks is crucial in our case study, as it allows us to effectively address the class imbalance in the dataset and improve the model's ability to accurately detect autism spectrum disorder (Chen et al., 2020).

Performance Evaluation: FLAML's ability to handle imbalanced classification tasks is crucial, as it allows us to effectively address the class imbalance in the dataset and improve the model's ability to accurately detect autism spectrum disorder (Chen et al., 2020).

Please eliminate one.

- You did the same with:

AutoML with FLAML: XGBoost, a widely recognized gradient boosting algorithm, is known for its exceptional performance and interpretability (Zheng et al., 2021).

Performance Evaluation: XGBoost is a widely recognized gradient boosting algorithm known for its exceptional performance and interpretability (Zheng et al., 2021).

Please eliminate one.

- And then again:

AutoML with FLAML: With FLAML's automated hyperparameter optimization, we can fine-tune XGBoost's parameters and maximize its potential in capturing complex patterns and relationships in the autism diagnosis dataset.

Performance Evaluation: With FLAML's automated hyperparameter optimization, we can fine-tune XGBoost's parameters and maximize its potential in capturing the complex patterns and relationships present in the autism diagnosis dataset.

You need to create an entire first part of the Performance Evaluation, repeating and rephrasing text is not allowed in a research work.

- The ROC curve appears to be overfitted. Explain this behavior.

Conclusion

This text does not conclude why this combination is better, there is no real contribution specified.

The whole paper feels plain and lacking any real contribution, some parts of the text feels created by Chat GPT or some IA text creator.

Not recommended for publication at this stage.