Qeios

Peer Review

Review of: "Turkey’s Earthquakes: Damage Prediction and Feature Significance Using A Multivariate Analysis"

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Abstract

The abstract is concise and clearly outlines the study's purpose and findings. Consider briefly mentioning the limitations addressed later in the paper to provide a balanced overview.

Introduction

The introduction effectively contextualizes the research, but the transition between Turkey's earthquake statistics and the significance of predictive modeling could be smoother.

Suggestion: Rephrase sentences for a logical flow, such as linking the need for prediction models more directly to the provided earthquake statistics.

Methodology

The methodology is detailed and clear. However:

In Section 2.1, when explaining the circular approximation for seismic wave damage, briefly acknowledge alternative approaches to strengthen the rationale for your choice.

In Section 2.3, the explanation of model hyperparameters is thorough but might benefit from a table summarizing the key parameters for each model to enhance readability.

Results

The results are well-presented with supporting tables. Consider adding more context to Tables 1 and 2, such as explaining why certain models underperform (e.g., Ridge Regression) compared to others.

The discussion of Random Forest's performance could include an example scenario where its

 doi.org/10.32388/6R8MT9

predictive accuracy positively impacts disaster response.

Figures

Figures 1 and 2 are visually clear, but the captions could be more descriptive. For example, explain how the factor significance values might guide policymakers.

Discussion

The discussion touches on the limitations, which is commendable. It would benefit from:

A clearer outline of potential future research directions. For example, exploring hybrid models or incorporating real-time data from seismic sensors.

Highlighting how the findings can influence disaster preparedness strategies beyond Turkey.

Conclusion

The conclusion summarizes the findings but could emphasize the societal impact of the study more strongly, particularly in reducing fatalities and improving urban planning.

References

The references are comprehensive, but ensure consistent formatting. For instance, verify that all citations include complete publication details (e.g., [12] and [13]).

Refer to the following for better flow -[1] N. Agarwal and D. K. Tayal, "FFT based ensembled model to predict ranks of higher educational institutions," Multimed Tools Appl, vol. 81, no. 23, 2022, doi: 10.1007/s11042-022-13180-9.

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Language and Grammar

The language is generally clear and formal. However:

Replace phrases like "our team realized" in Section 5 with more academic language (e.g., "It was identified that").

Address minor grammatical errors, such as in the sentence "Nonetheless, there are important limitations we hope to address in future iterations of this model."

General Suggestions

Include a brief appendix if additional technical details (e.g., hyperparameter tuning) or source code links can benefit reproducibility.

Enhance the title's impact by specifying the study's focus, e.g., "Multivariate Analysis of Earthquake Damage Prediction and Feature Significance: A Case Study from Turkey."

Declarations

Potential competing interests: No potential competing interests to declare.