Dear Dr. Kalaycioglu and co-authors

Thank for submitting your manuscript to our Special Issue on the use of Machine Learning in Natural Hazards Risk Assessment. We have received comments from two reviewers who are intrigued by the idea of applying machine learning to identify predictors of social vulnerability but would like to see major revisions made to ensure the manuscript can be accepted for publication. To be considered for future publication in this SI, the following points from the reviewers must be addressed.

- **Providing an improved description, literature review, and discussion on social vulnerability indices, methods, and theory.** Both reviewers pointed out several areas of research that are not acknowledged in the manuscript, including empirical modeling for social vulnerability, critiques of social vulnerability indices, the underlying theory for social vulnerability, and social science research in the event of an earthquake, among many others. The authors should engage with this literature throughout the manuscript—in the introduction, methods, results, and discussion. This also includes using the correct terminology for social vulnerability research and avoiding phrasing that contradicts basic concepts of social vulnerability.
- **Addressing comments on the proposed framework to predict SVI (an index) with household-level social variables.** Both reviewers would like to read justification of this approach. This broadly requires a thorough description of using SVI as the predicted outcome (as opposed to other measures), and ensuring that SVI is not equated with disaster impact/losses/recovery. The selection of predictor variables should be described, including more detail on why/how they were selected, how they were developed, and whether they'd be available at the household level in order to apply this approach in the future. A practical comparison between this approach and the traditional SVI approach in Istanbul should also be completed. Methodologically, this includes a detailed description of the construction of the SVI score that was used as an outcome since the documentation is not easily accessible and addressing concerns about using this as a binary outcome.
- **Addressing concerns about whether this approach is specific to earthquakes.**
- **Clarifying, in a thorough manner, how this approach could be implemented by stakeholders.** This includes clearly stating who those stakeholders are, how they would apply the ML approach proposed in this manuscript, and a potential use case.

Sabine Loos, PhD
Editor | NHESS Special Issue on Advances in machine learning for natural hazards risk assessment