

## Comment on wes-2021-53

Anonymous Referee #1

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Referee comment on "On sensor optimisation for structural health monitoring robust to environmental variations" by Tingna Wang et al., Wind Energ. Sci. Discuss.,  
<https://doi.org/10.5194/wes-2021-53-RC1>, 2021

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In this paper, the authors have proposed two SHM strategies for considering temperature variation in the sensor placement optimization problem. The proposed technique employs a genetic algorithm by introducing an objective function based on a linear support vector machine classifier in order to maximize the damage detection ability of an SHM system. The model is well-structured, and the results sound promising. The writing quality of the paper is also nice. The reviewer has some comments which would like the authors to consider in the revision of the paper:

- The authors have claimed that their proposed SHM method is robust to environmental variations but only have considered temperature variation. The robustness of the method to the other parameters, such as wind speed, should be discussed, and if necessary, be evaluated by considering these parameters.
- The proposed method selects different sensors in different damage cases (based on the damage location). In other words, there is no unique solution for all states. Therefore, in order to reach an optimum selection, the data from all sensors should be used in each damage case. What can be done to reduce the number of sensors (not dependent on the damage location) in real applications where the damage source is unknown? Please explain about this issue.
- There are some typos within the text that the authors need to correct in the revised version of the paper:
  - In line 11, "number and location **location** of sensors"
  - In line 81, "n is the dimension of **the** a sample"
  - In line 231, "To **D**emonstrate"