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Earth Surface Dynamics Discussions

Interactive comment on "Systematic Identification of External Influences in Multi-Year Micro-Seismic Recordings Using Convolutional Neural Networks" *by* Matthias Meyer et al.

Anonymous Referee #2

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This paper proposed a new method for identifying external influences such as winds or mountaineers in micro-seismic recordings. Because the external influences may cause bias interpretations, its identification is very important for understanding micro-seismic recordings. In addition, the method may help to interpret the external influences which are keys to improve our understanding of rock-slope failure processes. The similar idea using machine learning is already applied to seismic wave discrimination such as Li et al., 2018. This study is interesting and suitable for the publication after moderate revisions. I suggest the authors revise this manuscript and pay attention to the following list as general suggestions: 1. Acknowledge previous studies on this topic or related topics and make sure the readers understand your contribution; 2. Introduce more

about methods especially for Convolution Neural Network since readers may not be familiar with this method at all; 3. Discuss more future works such as how to automatically learn signal pattern in the external influences to improve the classification and interpretation of rock-slope failure processes; Here are more specific comments: Page 9, line 1-4: I am confused about this part. Does this part mean that the dataset may be mislabeled due to fog, lens flares or other reasons? Have this data been included in the training dataset? Similar problem for the rockfalls in line 8-10?

Page 11, line 12-15, the dataset including training dataset and test dataset seems to be small and may have serious overfitting problem. The authors need to address this issue during the discussion part and prove the trained model can handle it well.

Page 14, line 12-14 The results with ten iterations are presented in this paper, but it will be better to show how the results change for a different number of iterations (such as 1, 5, 10, 20 iterations).

Page 15, Line 10: The learning rate is very small, which may make the code very slow. Is there any specific reason to set this small value?

Page 16, line 10-16: Since it needs to manually relabel for the dataset in some cases, it will be worth to discuss how the potential human errors during data labeling will influence the classifier performance.

Page 20 line 14-22: The method is trained based on negative examples. But in most conditions, we should pay more attention to the phenomena of interest. In the discussion part, the author should discuss how this method can improve our interpretation of the processes of interest.

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