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Response to Reviewers

Dear Dr. Magdalena,

Thank you for giving us the opportunity to submit a revised draft of the manuscript “CNN Based Smart Sleep Posture Recognition System” for publication in the Journal of Health and Technology. We appreciate the time and effort that you and the reviewers dedicated to providing feedback on our manuscript and are grateful for the insightful comments on and valuable improvements to our paper. We have done an extensive revision and incorporated most of the suggestions made by the reviewers. The text has been changed significantly due to which we have not highlighted the changes, as they would be meaningless. Please see below, in blue, for a point-by-point response to the reviewers’ comments and concerns.

Reviewer #1:

1. This paper presents design and implementation of sleep postures monitoring system using Convolution Neural Network. This paper is more like a technical report rather than a research paper.

Author response: Thank you for pointing this out. The reviewer is correct, and we have omitted all unnecessary details and emphasized more on the fundamental issues.

1. Authors described the research problem well. However, there is not proper description of the algorithms and especially to highlight the novelty of this work as a research paper.

Author response: Thank you for pointing this out. We have revised the manuscript and highlighted the novelty of work in this paper.

1. There are also some technical errors. For example, on page 9, author(s) mention TensorFlow as "an image classifier". Also, the "difficult to classify images" were filtered without explaining how that may affect the accuracy. To extract features of interest in the images used in this case study should be relatively easy as the images do not have high level of complexity.

Author response: Thank you for pointing this out. The reviewer is correct, and we have addressed this issue in the manuscript.

1. The training process is also questionable as author(s) did not explain how using Inception V3 trained on ImageNet can be used in this case study.

Author response: We have addressed this point in the revised version.

1. The validity and reliability of the results were not discussed.

Author response: We have discussed the validity and reliability of the result in more detail in the revised manuscript.

1. The literature review was not done well and most references refer to relatively older papers. Overall, the paper do not have novelty to be accepted as a Journal research paper.

Author response: We have updated literature review and included latest related work. Regarding novelty, while we appreciate the reviewer’s feedback, we respectfully disagree. We think this study makes a valuable contribution to the field. This study presents an IoT enabled smart sleep posture recognition system which uses CNN for classifying the postures alongside generating fall warning, pressure sore, and unoccupied bed alerts. The system is unobtrusive, affordable, and accessible through a smartphone. We are unaware of any such system, which incorporates all these features. Furthermore, it is stand-alone system and easy to use.

1. There are also many grammatical errors and typos in the paper. Also, American and British English were mixed (for example using "color" and "colour" on page 8 or "analog" and "analouge" in some other places).

Author response: We have done extensive proofreading and corrected all grammatical errors and typos.