

8 September 2020

Editorial Office, *Journal of Vision*

Dear members of the editorial board:

We have enclosed an original submission of original research for the *Journal of Vision* entitled, “Convolutional neural networks can decode eye movement data: A black box approach to predicting task from eye movements.”

The enclosed manuscript presents a novel approach to classifying task from minimally processed eye movement data. Previous attempts to classify eye movements have focused on processing data and developing models designed to emulate cognitive and neural component processes. Our approach used a convolutional neural network (CNN) framework unconstrained by such theoretical assumptions. The CNN successfully decoded two eye movement datasets, each of which was processed into timeline and image formats. Additional analyses were conducted to the further understand the effect of task set, feature set, and data format. To our knowledge, this study was the first to use a deep learning approach to decode minimally processed eye movement data formatted into timelines and images. Our manuscript demonstrates the potential to implement a practical and reliable black box approach to decoding eye movement data. We believe that the findings presented in this manuscript have the potential to advance future data processing and model development approaches to classifying task from eye movement data.

**Suggested Reviewers:**

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Thank you for taking the time to consider this manuscript for publication.

Best Regards,

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