**Review comments of:**

**Integrating brain and biomechanics for the study of Parkinson’s disease**

**General:**

The authors are proposing an integrated platform of a brain model with a neuromuscular model of the eye for the study of the saccadic motion in PD.

**Review comments:**

The introduction section depicts clearly the need of such a model.

The second section presents a clear architecture of the platform components and the overall methodology. However, there is not a strong mathematical support of the algorithms used. The BRAHMS and SpineML could be just mentioned and not analysed as much, so that the gained space could be used for the mathematical background of the algorithms. More analysis should be performed regarding the connection of the Brain model and the muscular components, as it is there where the main novelty of the platform resides; thus, please explain thoroughly how the SC Map signal is converted into the 6 time-dependent moto-neuron activation signals.

The results section contains a methodology portion regarding the model’s training, so please consider of transferring it to the 2nd section. Moreover, there is not any reference to the training data that were used, i.e. what exactly was the nature of the data input in the training process. Finally, a validation protocol of the simulated results is not mentioned at all, so please consider of adding any error metrics.

The reference section lacks of the titles of the journal papers and has to be revised.

**Overall Evaluation:**

Accept, if the above review comments are justified in the document.

**Reviewer's confidence:**

High