

Dear Reviewers/Editor,

In response to the major concerns raised, we have undertaken substantial revisions to the paper. Specifically, we developed a novel, audio-inspired feature set for SKNA signals rather than relying on predefined features, some of which were speech-related and offered low interpretability. We now provide a full mathematical derivation of these features and perform statistical analyses on each feature individually to assess their contributions and behavior under different states.

For reasons of space, we now focus on reporting results for only one of the originally presented tests (SCWT). Instead of a comparator study, we opted, given the preliminary nature of this work, to emphasize statistical characterization and provide a brief exploration of classification.

To address the comments of Reviewers 2 and 3, we substantially expanded the results section and reorganized the paper. We also provide a detailed discussion of why each audio feature, and audio-inspired features in general, are particularly beneficial for SKNA processing. Finally, we added standard deviation measures to the LOSO accuracy reports.