Alzheimer’s is the sixth leading cause of death in the America. It accounts for 60-70% of all forms of dementia. It is primarily characterized by a gradual loss of memory and cognitive abilities, as well as by altered behavior, which ultimately causes disability and dependency. [3][4] Clinical research attempts to prevent the neurodegenerative process before clinical signs become visible. [5] Thus, the presence of non-invasive biomarkers that can precisely measure cognitive decline to the extent of comparing a CDR value of 0.5 and 1 would be novel to this process.

The Consonant-Vowel Odd-Even task (CVOE, Minear & Shah, 2008) is a simple task-switching paradigm that allows the measurement of both local and global task switching costs. In switch tasks such as the CVOE, individuals with mild cognitive impairment perform worse relative to younger and non-impaired adults on switch trials relative to a set of pure trials in which the task does not change. [1] Additionally, work by Huff et al. (2015) has shown that global switch costs (switch trials compared to pure trials) increase as a function of age and AD. Previous work in this area has used only an alternating runs framework to construct switch trials. In this sequence, subjects complete the same task twice before the instructions switch to the second task (i.e., CV, CV, OE, OE, CV, CV). Thus, every other trial is a switch block. The present study incorporates both an alternating runs switch task and a randomized switch task (i.e., CV, OE, OE, OE, CV, OE) in which no discernable pattern of task switching can be detected. Overall, it is expected that mean error rates and RTs will be higher on the switch tasks. Specifically, we hypothesize this local switch cost will be higher on the randomized task relative to the alternating runs task due to the lack of pattern.

We dive further than the original manuscript and provide a second task switch segment for more precise results. We also hope to be able to fulfill an additional effective measurement for cognitive impairment, [C] of the AT[N][C] framework proposed for the new NIA-AA Research Framework for biologically defining Alzheimer’s as a continuum, rather than a disease. [2]