HBU: Human Behavior Understanding by Choice Reaching

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Abstract

Existing psychophysiological measures (fMRI, EEG) are impractical for a large-scale behavioral study due to their exorbitant data acquisition cost. Psychological tests (Stroop task) are economical but are too coarse to inform dynamic interactions among perceptual, cognitive, and affective processes. By augmenting standard cognitive tests with choice-reaching measures, the complex interaction of motivation, action and cognition can be examined by analyzing the movement of the computer cursor pixel by pixel. Open source software and R library mousetrap help researchers to collect mouse-cursor trajectory data easily. With continued interest and innovation, the mouse-cursor trajectory method is likely to become a standard procedure for psychological tests, especially for the study investigating individual differences underlying cognitive, affective, and perceptual processing (Xiao & Yamauchi, 2014; Yamauchi et al., 2015; Yamauchi & Xiao 2017; Leontyev, Sun, Wolfe, & Yamauchi, 2018).