

Analyze and Visualize Eye-Tracking Data

Authors : Aymen Sekhri, Emmanuel Kwabena Frimpong, Bolaji Mubarak Ayeyemi, Aleksii Hirvonen, Matias Hirvonen, Tedros Tesfay Andemichael

Abstract : Fixation identification, which involves isolating and identifying fixations and saccades in eye-tracking protocols, is an important aspect of eye-movement data processing that can have a big impact on higher-level analyses. However, fixation identification techniques are frequently discussed informally and rarely compared in any meaningful way. With two state-of-the-art algorithms, we will implement fixation detection and analysis in this work. The velocity threshold fixation algorithm is the first algorithm, and it identifies fixation based on a threshold value. For eye movement detection, the second approach is U'n' Eye, a deep neural network algorithm. The goal of this project is to analyze and visualize eye-tracking data from an eye gaze dataset that has been provided. The data was collected in a scenario in which individuals were shown photos and asked whether or not they recognized them. The results of the two-fixation detection approach are contrasted and visualized in this paper.

Keywords : human-computer interaction, eye-tracking, CNN, fixations, saccades

Conference Title : ICMASML 2022 : International Conference on Multi-Agent Systems and Machine Learning

Conference Location : San Francisco, United States

Conference Dates : June 02-03, 2022