

SUBJECTBOOK: WEB-BASED VISUALIZATION OF MULTIMODAL AFFECTIVE DATASETS RESIDING ON THE CLOUD

Salah Taamneh Malcolm Dcosta Kyeongan Kwon Ioannis Pavlidis

University of Houston

Exploratory Data Analysis (EDA) is critical in quality control and abstraction. Conducting EDA for affective data sets is challenging because they include multi-modal data, such as psychometrics, imaging sequences, and wearable sensors, with the latter streaming continuously for hours on end. The complexity and size of these data sets renders them unique intellectual products, for which reproducibility of test results and information sharing acquire paramount importance. To facilitate EDA in affective sciences we developed **SubjectBook** - an interactive, Internet-based visualization tool. Assuming a properly organized file structure in the cloud, the investigator needs to communicate through a user-friendly interface the study's size, its explanatory and response variables, as well as its covariates. Based on this information, SubjectBook generates a web site for the study, presenting the covariates at the top, followed by the time-registered explanatory and response variables - a visualization fusion that aims to bring together possible cause, effect, and context. For each subject, SubjectBook summarizes context information along with the explanatory and response measurements in a construct reminiscent of an ID card - the **SubjectPortrait**. SubjectPortrait is a second level of abstraction, enabling the investigator to appreciate phenomena at the subject level. Finally, the investigator can communicate to SubjectBook specific tests on the study's variables, for producing a third level of abstraction, the **StudyPortrait** - a grid visualization of the study's significant outcomes.