ABSTRACT

Spoofing attack is one of the many issues in the authentication system. The most vulnerable authentication system is face authentication since the popularity of social media has increased, so it also attracts studies in the field of face spoofing detection. However, the existing studies have not shown optimal results, since most of them focused only on static images and only on the face area. The most vulnerable type of spoofing attack is a video replay attack, because it will be difficult to distinguish between the real face video and spoof face video. This study proposed video-based face spoofing detection using analysis of motion in the whole video frame, which analyzed motion between the object/user and background. To optimize the segmentation process between the object and the background area, the model-based segmentation was implemented so that all parts of the object's/user's body were able to be analyzed as well. The data used were 1200 video clips from IDIAP Replay-Attack database and 500 video clips from personal synthesized database for additional experiment data. The results of the experiment showed that Half Total Error Rate (HTER) was 4% for IDIAP Replay-Attack testing data and 1% for the synthesized data.

Keywords: Face Spoofing Detection, Image Segmentation, Motion Analysis