
Privacy inferences via hand motions

Augmented reality (AR) is a promising new field that combines virtual content with the real world. In this context, freehand gestures are becoming more prominent as an input modality as they can be performed in almost any situation. AR headsets (e.g. Microsoft HoloLens) capture freehand gestures via cameras and then process them as a 3D model. This high-resolution capture of hand motions is privacy-sensitive as hand motions are a behavioral biometric trait. The goal of this project is to show that via the captured hand model of an AR headset, privacy inferences about its users can be made, including the identity and private attributes.

As this is a new approach for recognizing humans multiple challenges have to be addressed. First, a study has to be designed and performed to capture the hand motions of multiple subjects. Second, the captured data has to be processed, segmented, and transformed into a representation that can be used by machine learning classifiers. Third, a methodology for evaluating the inference methods has to be developed.