

**A survey on presentation attack detection for automatic speaker verification systems: State-of-the-art, taxonomy, issues and future direction**

**ABSTRACT**

The emergence of biometric technology provides enhanced security compared to the traditional identification and authentication techniques that were less efficient and secure. Despite the advantages brought by biometric technology, the existing biometric systems such as Automatic Speaker Verification (ASV) systems are weak against presentation attacks. A presentation attack is a spoofing attack launched to subvert an ASV system to gain access to the system. Though numerous Presentation Attack Detection (PAD) systems were reported in the literature, a systematic survey that describes the current state of research and application is unavailable. This paper presents a systematic analysis of the state-of-the-art voice PAD systems to promote further advancement in this area. The objectives of this paper are two folds: (i) to understand the nature of recent work on PAD systems, and (ii) to identify areas that require additional research. From the survey, a taxonomy of voice PAD and the trend analysis of recent work on PAD systems were built and presented, whereby the recent and relevant articles including articles from Interspeech and ICASSP Conferences, mostly indexed by Scopus, published between 2015 and 2021 were considered. A total of 172 articles were surveyed in this work. The findings of this survey present the limitation of recent works, which include spoof-type dependent PAD. Consequently, the future direction of work on voice PAD for interested researchers is established. The findings of this survey present the limitation of recent works, which include spoof-type dependent PAD. Consequently, the future direction of work on voice PAD for interested researchers is established.