Distinguishing Humans from Automated Programs by a novel Audio-based CAPTCHA

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Abstract

CAPTCHA (Completely Automated Public Turing Test to Tell Computer and Humans Apart) has become a ubiquitous guard utilized to prevent exploitation in web services like account registration. They are universally secure measure to distinguish real users from automated programs by using computer-generated tests that should be easy for users to solve but should be hard for malicious program. However, implementing CAPTCHAs is becoming increasingly hard due to advances in machine learning system. Furthermore, all current audio-based CAPTCHAs have been broken by automated programs and research shows that the existing implementations are very difficult and time consuming. In addition to this, more than 50 percent of people are unable to bypass the current audio-based CAPTCHAs owing to the intrinsic hardness of interpreting the noisy sound message. Consequently, the implementation of a novel voice CAPTCHA is demanded. In this paper, a technique for telling the human beings and computer programs apart based on submitting the right colour name of the object announced by the speaker has been introduced. In this technique, an object is selected from database at random, and then the selected object will be pronounced from the audio message. After that the
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CAPTCHA request users to submit the colour name of that object. If the colour name is submitted accurately, the system is able to decide that the client is a human and not an automated program. The main advantage of the proposed CAPTCHA is that users don’t have to memorise a group of random digits and words, which stretches the limits of individuals’ short-term mind. Finally, the usability test is conducted with some individuals. In addition, discussion, limitations, and suggestions for further study are illustrated.

References

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CAPTCHA, Audio CAPTCHA, Automated program.