Researchers develop secure audio captchas

May 2 2016

Many websites require users to prove that they are human by entering symbols that are difficult to read. For partially sighted users, acoustic solutions have been devised. IT researchers aim to improve their quality.

Words are synthetically generated and distorted

Anyone who surfs on the Internet will sooner or later encounter captchas, text boxes with machine-altered letters and symbols, used to distinguish human Internet users from machines. As partially sighted people are unable to read those symbols, an alternative to the graphic captcha is available: the audio captchas. They consist of synthetically generated and more or less distorted sequence of words, letters, or digits that the user has to transcribe using the keyboard.

However, audio captchas often don't work very well. Human users have difficulties in solving them, whereas computers often show superior performance on the task, according to IT expert Hendrik Meutzner. Together with Prof Dr Dorothea Kolossa, both from the research group Cognitive Signal Processing at the Institute of Communication Acoustics, he investigates the development of secure audio captchas.

Machine does not distinguish between words and gibberish

One of his captchas makes use of human speech comprehension. It presents a sequence of words to the listener, some of which make sense,

while the rest is gibberish. "A human will be able to spot and recognise the meaningful words. The machine will find the task difficult, because the meaningful words and the gibberish sounds exhibit very similar characteristics in the time-frequency domain," says Meutzner.

For that nonsense captcha, the human success rate was measured to be 60 per cent; as opposed to 14 per cent in machines. In contrast: an audio captcha currently deployed by a large online search engine is cracked by 63 per cent of the machines, as Meutzner's tests have unveiled.

Provided by Ruhr-Universitaet-Bochum

Citation: Researchers develop secure audio captchas (2016, May 2) retrieved 24 April 2024 from https://phys.org/news/2016-05-audio-captchas.html