Title: A Novel Technique Voice Biometrics

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Brief:

Speaker verification (SV) is done to validate the identity of speaker and confirm that they are who he/she claims to be. SV requires a comparison of the reference template of the speaker stored on the system with the signature of the unknown speech (test). The acoustic feature set is extracted from speech utterances.

SV is regularly used by banks, and government agencies such as Centrelink. The single biggest provider for voice biometrics solutions in Australia is Vecommerce Ltd. However, the current SV is either text dependent where the speaker has to speak something specific or is text independent and requires a larger set of examples of the speech. These reduce the accuracy and reliability and thus the possible applications.

As a partnership between the biosignals laboratory in RMIT, TAFE and the InfoSec-Informatics Group in SMGS we have gone about the process of source identification using a novel approach. The technique is based on identifying the independence measure of two or more signals, and the technique determines the presence of mutual entropy between the sources of the 2 signals (Naik and Kumar, IEE Signal Proc, (2010)). The advantage of such a measure is that it is time invariant and thus is text independent and requires a very small segment of the signal. Thus, the technique does not require the speaker to speak any specific text.

Preliminary experiments have given us excellent results. These results have been discussed by Dr Mike Banbrook, Technical Director, VEcommerce Ltd, who sees a large potential and VeCommerce is now keen to be engaged with this research activity but is waiting for further validation. They require tests to be conducted on a dataset of their choice, and using appropriate biometrics measures of false acceptance and false rejection so that they can compare the outcomes of this promising new technique with current techniques.