Abstract

This paper presents novel combination of a high-performance speaker identification system and an isolated word recognizer. The front-end text-independent speaker identification system determines the most likely speaker for an input word. The speaker identity is then used to choose the reference word models for the speech recognizer. When used with a closed set of speakers, the combination is a system capable of automatically producing speech and speaker identification. For an open set of speakers, the speaker recognizer acts as a "speaker quantizer" which associates the unknown speaker with an acoustically similar speaker. The matching speaker's word models are used in the speech recognizer. The application of this front-end speaker recognizer is described for a DTW and HMM speech recognizer. Results on a combination using a DTW word recognizer are 100% for closed set experiments. Open set results are 92.4%; an increase of 11.4% from cross-speaker word recognition rates and comparable to the speaker-dependent performance.