MARIPA* :

Speaker independant recognition of speech on IBM-PC

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ABSTRACT

IBM-PC's and compatibles have become a kind of reference for professional or semi-professionnal applications on micro-computers. A lot of software, with different functionnalities are available, some of which may include the use of a mouse. Speech input can bring to these tools a better user-friendliness, because speech is the easiest way to communicate for humans.

The idea, which has been developed here, is to give the possibility of using speech recognition for entering some commands into a pre-existing software, on the IBM-PC.

For that purpose, a SKY-320 board, with a TMS-320 digital signal processor has been added to the standard IBM-PC. Real-time analysis of speech, using 9 Mel Frequencies Cepstrum Coefficients and an energy parameter, has been implemented on this processor. This analysis can be used for any kind of speech recognizer.

Dynamic time warping, based on Sakoe and Chiba algorithm, has also been implemented. It allows the comparison of about fifty words in quasi real time, without any pre-classification. Fast lexical access techniques will allow extension of the number of words of the recognizer, without modification of the response time.

An application of this recognizer has been implemented on the IBM-PC : it corresponds to the adjonction of a vocal input to some available software, using a vocabulary of about fifteen words. No training is necessary, because the reference set is speaker independent.

Other applications, with larger vocabularies, and connected word recognition will be implemented later.

The IBM-PC with speaker-independent word recognition will be demonstrated during the poster session.

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