



Speech Age Estimation Using a Ranking Convolutional Neural Network



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Abstract The age of 18 has been chosen as the legal age to enter many sites, receive any service or to get some license. Since age has a huge effect on the human being voice, many researchers have worked on automatic age estimation (AAE) in speech analysis. Through this work, a new approach has been designed to estimate the age of the human being depending on his speech. This work has regarded common voice dataset in its experiments with 60 different languages and seven age limits. The features depended were the smoothness and pitch features for their strong capability in recognizing the human voice frequency properties that have a strong relationship with human age. The chi square feature selection was utilized in this work. A ranking convolutional neural network (CNN) was used to calculate the performance of the designed approach. The results gained through this work outperformed the results gained through the state of the art in the field of age recognition. The highest accuracy age estimation was 87.97%, gained through the common voice dataset, testing both genders and all age limits.

Keywords Automatic age estimation · Common voice dataset · Smoothness features · Convolutional neural network

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