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Testing Sphinx's language model fault-tolerance for the Holy Quran (Conference Paper)

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Abstract

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The Carnegie Mellon University's (CMU) Sphinx framework is increasingly used for the Arabic speech recognition in general and applied to the Holy Quran in particular. Generating the language model includes a tedious task of preparing the transcriptions for all the data. In this paper, we investigate the fault-tolerance of the automatically generated language model as compared to a corrected and uncorrected transcription with and without silence tagging. This editing addresses the different repetitions and pauses encountered during recitations. Experiments show that the average difference between the lowest and highest Word Error Rate (WER) for each configuration of the number of Senones is 0.6% when using all files for the training and 1.6% when using 80% of the files for training the language model of 17 chapters of the Holy Quran. Results show that the performance of trained models without any correction can be close to when all required rectifications of transcriptions are performed. © 2016 IEEE.

Author keywords

Automatic speech recognition; CMU Sphinx 4; Holy Quran recognition

Indexed keywords

Engineering controlled terms: Computational linguistics; Fault tolerance; Transcription

Arabic speech recognition; Automatic speech recognition; Automatically generated; Average difference; Carnegie Mellon University; CMU Sphinx 4; Holy Quran recognition; Word error rate

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