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Speech Separation and Recognition Using CASA Segmentation and Language-Based Grouping

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We consider a monaural speech recognition problem in the case of multi-talker environment and difficult non-stationary noises. We propose a new method of computational auditory scene analysis (CASA) that uses a language model along with acoustic continuity for speech separation. Unlike previous works, our algorithm does not depend on a fixed set of speakers, so it could be used in a general-purpose speech recognition system. The algorithm works in two stages. First, it produces time-frequency signal segmentation. Then, a grouping stage composes segments into streams, with each stream corresponding to either speech or noise. In our approach, text recognition and separation are parts of a single process. Our experiments show 17% WER improvement over the baseline for a 0 dB environment.

Keywords: Speech recognition, monaural speech separation, cocktail-party problem, CASA.

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Pattern-Matching Based for Arabic Question Answering: A Challenge Perspective

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In the 21st century, the Arabic language is amongst the most spoken language of all time, having about 300 million speakers in the globe. Thus, Arabic question answering systems are becoming highly needful for the intellectual benefit internet users. Contrary to the need of Arabic Question Answering, there are only a few reports concerning it. In view of the aforementioned hence the need for more information in this regard. Question classification covers tasks, which identifies a response in the file. It is the basic and important module of a question-answering task to assign one or several classes to a given question. Errors in question classification will result in failure to answer in essence the needed question. In this survey, we focus on the problem of classifying users' questions and methods to enhance meanings to questions in order to get correct answers that are commensurate. Categorizing users' questions are daunting due to the Natural Language flexibility issues, in which the questions can be written in divers' forms and the little information available is not sufficient to base questions. Little research has been focused on the classification for Arabic question answering. Previous Arabic research has used hand-crafted rules and keywords matching that cannot be adopted in a new domain and is not suitable for a new language. Major challenges of the Arabic language are explained in this paper. This study highlighted the Arabic Question Answering Systems as answer identification of the Arabic language domain in the Hadith context.

Keyword: N-gram, Headword, Pattern, Question Answering, Natural Language Processing