

NOISE REDUCTION BASED ON MICROPHONE ARRAY AND POST-FILTERING FOR ROBUST SPEECH RECOGNITION IN CAR ENVIRONMENTS

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ABSTRACT

Robust speech recognition in car environments has been an important application and attracted great research interests in recent years. Its performance dramatically degrades due to various kinds of noises existing in car environments. To deal with acoustic noises, we have proposed two noise reduction systems which are based on microphone array and post-filtering. In this paper, we first describe the two noise reduction systems previously suggested. Then, we are devoted to investigate the performance improvements of the automatic speech recognition (ASR) system when the two noise reduction systems are used as the front-end processors. The speech recognition experiments were conducted using multi-channel car noise recordings and AURORA-2J speech database, the recognition results are also reported. Some discussions on the proposed noise reduction systems are finally presented based on the experimental results.