

MINIMIZING WORD ERROR RATE IN A DYSLEXIC READING-ORIENTED ASR ENGINE USING PHONEME REFINEMENT AND ALTERNATIVE PRONUNCIATION

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Little attention has been given to detecting miscues in the text space read by dyslexic children over an automatic speech recognition (ASR) engine. In an ASR system, the miscues are represented by word error rate (WER) and miscue detection rate (MDR). At all time, WER must be kept low, and MDR high so as to achieve better recognition. This paper focus on minimizing word error rate by formulating a better model for perspicuous representation of input data. Such representation takes into account phoneme refinement and alternative pronunciation for a particular Bahasa Melayu (BM) speech data uttered by dyslexic children. Based on literature, a few other optimal models of input data and their recognition results were compared. It is found that phoneme refinement and alternative pronunciation produced better recognition results as evidenced in the performance metrics --lower WER and higher MDR-- which are 25% and 80.77% respectively.

Keywords: Automatic speech recognition, miscue detection, phoneme refinement, dyslexic children reading.