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E-book to sign-language translation program based on morpheme analysis

형태소 분석 기반 전자책 수화 번역 프로그램

Han, Sol-Ee (Department of Computer Engineering, Hanbat National University) ;
Kim, Se-A (Department of Computer Engineering, Hanbat National University) ;
Hwang, Gyung-Ho  (Department of Computer Engineering, Hanbat National University)
한솔이 ; 김세아 ; 황경호 

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Abstract

As the number of smart devices increases, e-book contents and services are proliferating. However, the text based e-book is difficult for a hearing-impaired person to understand. In this paper, we developed an android based application in which we can choose an e-book text file and each sentence is translated to sign-language elements which are shown in videos that are retrieved from the sign-language contents server. We used the Korean sentence to sign-language translation algorithm based on the morpheme analysis. The proposed translation algorithm consists of 3 stages. Firstly, some elements in a sentence are removed for typical sign-language usages. Secondly, the tense of the sentence and the expression alteration are applied. Finally, the honorific forms are considered and word positions in the sentence are revised. We also proposed a new method to evaluate the performance of the translation algorithm and demonstrated the superiority of the algorithm through the translation results of 100 reference sentences.

Keywords

sign-language; translation; smart phone application; e-book; morpheme analysis
수화; 번역; 스마트폰 애플리케이션; 전자책; 형태소 분석;

File

References

1. H. S. Paeng, J. H. Lee and J. Y. Cho, "Research for Sign Language Translation Application Development Base on Smartphone Environment," in Proceedings of HCI Korea, pp. 62-65, Jan. 2012.
2. S. H. Kim, E. Y. Chang and J. C. Park, "Translating a Complex Sentence in Korean into a Sign Language Script for an Automatic Sign Language Generation," in Proceeding of the 19th Annual Conference on Human and Cognitive Language Technology, pp. 15-22, Oct. 2007.
3. J. W. Choi and J. Chul Park, "Analysis and Computational Processing of Sentences in Korean for Automatic Sign Language Generation," in Proceeding of the 15th Annual Conference on Human and Cognitive Language Technology, pp. 219-226, Oct. 2003.
4. H. Y. Jung, E. J. Min, S. J. Ahn, Y. J. Oh and J. H. Lee, "Sense-Tagged Dictionary based Machine Translation from Korean to Korean Sign Language," in Proceeding of Korea Computer Congress, pp. 583-585, June 2014.
5. J. Y. Kim, J. W. Chung and J. C. Park, "Analyzing and Mapping Expressions of Tense for Korean-Korean Sing Language Translation," in Proceeding of the 39th KIISE Fall Conference, pp. 121-123, Nov. 2012.
6. Shineware. Komoran 2.0 software [Internet]. Available: <http://www.shineware.co.kr>.
7. Korean standard sing-language specification committee, Korean sign language, 2nd ed. National Institute of Korean Language, 2010.
8. National Institute of Korean Language. Korean Sign Language Dictionary [Internet]. Available: <http://sldict.korean.go.kr>.

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(34141) Korea Institute of Science and Technology Information, 245, Daehak-ro, Yuseong-gu, Daejeon TEL 042)869-1004
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Be able to acknowledge sign language graphically. Multiple uses. 31 commits. Be able to successfully recognize American Sign Language through live video and translate successfully into text through the following steps: Render video footage (of average phone camera quality) into frames using python and opencv scripting to compare with sign language database Segment the area of interest from the frames using image processing techniques in python, specifically the scikit library to achieve imaging labeling. The Random forest algorithm is a supervised learning algorithm based on the idea that using a lot of different combinational learning models increase the overall accuracy of the result. T. Poudel morphology I: Morpheme analysis: segmentation and classification 1 MORPHEME ANALYSIS: 1 Segmenting Morpheme analysis refers to segmenting parts of words into meaningful units. Such segmented units are called MORPHEMES. A native speaker knows the different MORPHEMES of a word or string of words intuitively. To review more data than those on which the morpheme analysis is based (possibly in fieldwork): ? 'You are going.' natbeq And also a more complex example of a familiar language, German, to practice the simple method: er schaut 'he looks' du schaust 'you look' schau- 'look' -t SBJ: 3SG -st SBJ: 2SG Or -t SBJ -s 2SG null 3SG 3 er schaut 'he looks' ich schau I look' -e SBJ: 1SG er schaut 'he.