

# APEM: Automatic paraphrase evaluation using morphological analysis for the Korean language

Sung Won Moon\*, Gahgene Gweon\*, Hojin Choi\*\*, Jeong Heo\*\*\*

\*Dep. Of Knowledge Service Engineering, KAIST, Daejeon, Rep. Of Korea

\*\* Dep. Of Computer Science, KAIST, Daejeon, Rep. Of Korea

\*\*\* Knowledge Mining Research Team, ETRI, Daejeon, Rep. Of Korea

augustmoon@kaist.ac.kr, hojinc@kaist.ac.kr, ggweon@kaist.ac.kr, jeonghur@etri.re.kr

**Abstract**— Paraphrase evaluation is used to determine whether two input sentences share a same meaning. The automatic analysis for paraphrase evaluation technology has a potential use in the area of information retrieval technology since correctly paraphrased sentences can be used as alternative input sentences in the retrieval process. In this paper, we suggest an automatic paraphrase evaluation method using morphological analysis (APEM), which is suitable for the Korean language. Using APEM and its variations, we present preliminary results on how our automatic evaluation scores compare to the existing method of bilingual evaluation understudy (BLEU).

**Keyword**— Morphological analysis, Paraphrase evaluation



Sungwon Moon is a master student in the department of knowledge service engineering, Korea Advanced Institute of Science and Technology (KAIST). He received his Bachelor's degree from Handong Global University, Korea (2013). His current interests are in the area of natural language processing, data mining and computer supported collaborative learning.



Ho-Jin Choi is an associate professor in KAIST Computer Science Dept. In 1995, he received a PhD in artificial intelligence (AI) from Imperial College London. Since 2010, he participates in Systems Biomedical Informatics Research Center at Seoul National University Medical School. He is in the boards of directors for Software Engineering Society of Korea, for Artificial Intelligence Society of Korea, and for Korean Society of Medical Informatics. His current interests include AI, knowledge engineering, data mining, topic mining, intelligent personal assistant, natural language QA, and biomedical informatics.



Gahgene Gweon is an assistant professor in the department of knowledge service engineering, Korea Advanced Institute of Science and Technology (KAIST). She received her PhD in human computer interaction from Carnegie Mellon University, United States (2012). Her current interests are in the area of human computer interaction, computer supported collaborative learning, and natural language processing.



Jeong Heo is a senior researcher in Electronics and Telecommunications Research Institute, Daejeon, Rep. of Korea. He received his MS degree in computer science for the University of Ulsan (2001). His research interests include natural language processing, text mining, social big data analytics, and question answering.