Tak-Sung Heo

Contact Information	77, Seongsin-ro, Deogyang-gu, Goyang-si, Gyeonggi-do, 10483 Republic of Korea	**Military Service**	2014.07.15. ~ 2016.04.14. Army Sergeant, Honorable Discharge
Date of Birth	1994.02.21.	**E-mail**	gjxkrtjd221@gmail.com
Phone	(+82)-10-3997-4664	**Github**	https://github.com/HeoTaksung
Company	NHN Diquest (2021.02.01 ~), NLP AI Researcher		

Interests Interested in Natural Language Processing, Biomedical Natural Language Processing, and Deep Learning, especially about Natural Language Understanding.

Education

Hallym University, Chuncheon-si, Gangwon-do, Republic of Korea **Mar. 2019 – Feb. 2021**
Department of Convergence Software
Master of Science (CGPA: 4.25/4.5)
Advisor: Professor Yu-Seop Kim
Research Area: Natural Language Processing, Biomedical Natural Language Processing and Deep Learning

Hallym University, Chuncheon-si, Gangwon-do, Republic of Korea **Mar. 2013 – Feb. 2019**
Major Department of Life Science and Double Major Department of Convergence Software
Bachelor of Science (CGPA: 3.53/4.5)

Experienced Task/Level

- Sentence Classification ■■■■■
- Document Classification ■■■■■
- Sentence Similarity Measuring ■■■■■
- Topic Change Detection ■■□□□

Projects

● Development of Self-detection Technology for Online Grooming in Social Networks **Apr.2022 ~ Dec.2024**
Aim: Development of online grooming detection intelligence to understand the semantics of media services of SNS and chatting apps
Role: Grooming data preprocessing and building, developing models for grooming detection

● Building language resources and developing deep learning/natural language processing for automatic language disorder diagnosis **Apr.2019 ~ Feb.2021**
Aim: Automating language analysis using conversation data from early childhood through high school.
Role: Used LDA and Sent2Vec to automate topic change detection, which is one of the methods of measuring the development of conversational ability.

● Development of an automatic prognosis prediction system for cerebral infarction through natural language processing based on deep learning **Jan.2019 ~ Feb.2021**
Aim: Development of a deep learning algorithm that can predict important clinical outcomes using text from electronic medical records.
Role: Applied a deep learning algorithm (CNN, LSTM, BERT) to the text of electronic medical record.

● Reliability and validity verification of automatic evaluation of machine translation and application to the evaluation of human translation **Jan.2019 ~ Jun.2019**
Aim: Establishing a system to verify the reliability and validity of automatic translation evaluation.
Role: Direct implementation of BLEU and METEOR, the metrics for evaluating the quality of machine translation.

AWARDS

- **Excellence Award at KSC 2019 Undergraduate/Junior Paper Contest (2019)**
  Korean Institute of Information Scientists and Engineers (KIISE)
- **2018 SW WEEK Contest Code Ground Gold Award (2018) – 1st place**
  Hallym University, Chuncheon-si, Gangwon-do, Republic of Korea

SKILLS

- **Language:** Python, Java
- **Frameworks:** TensorFlow, Keras
- **Others:** Pycharm, Jupyter notebook

CONFERENCES

[*ICMLA* '21] Medical Code Prediction from Discharge Summary: Document to Sequence BERT using Sequence Attention
Tak-Sung Heo*, Yongmin Yoo*, Yeongjoon Park*, Byeong-Cheol Jo*, Kyoungsun Kim
The 20th IEEE International Conference on Machine Learning and Applications (ICMLA), 2021 [IEEE]
*These authors contributed equally

[*ClinicalNLP* '20] Various Levels of Representation for Predicting Stroke Prognosis using Text Records of Magnetic Resonance Imaging
Tak-Sung Heo, Chulho Kim, Jeong-Myeong Choi, Yeong-Seok Jeong, Yu-Seop Kim
The 3rd Clinical Natural Language Processing Workshop (ClinicalNLP), 2020 [EMNLP]

[*HCLT* '20] Korean sentence spacing correction model using syllable and morpheme information
Jeong-Myeong Choi, Byoung-Doo Oh, **Tak-Sung Heo**, Yeong-Seok Jeong, Yu-Seop Kim
The 32nd Annual Conference on Human & Cognitive Language Technology (HCLT), 2020 [KIISE]

[*HCLT* '20] Attention based multimodal model for Korean speech recognition post-editing
Yeong-Seok Jeong, Byoung-Doo Oh, **Tak-Sung Heo**, Jeong-Myeong Choi, Yu-Seop Kim
The 32nd Annual Conference on Human & Cognitive Language Technology (HCLT), 2020 [KIISE]

[*KSC* '19] Depression Judgment System based on Deep Neural Network
Seok-Ju Park, Byoung-Doo Oh, **Tak-Sung Heo,** Yu-Seop Kim
Proceedings of Korea Software Congress (KSC), 2019 [KIISE]

[*KSC* '19] The performance comparison of Korean text tokenizing and defining stopwords for sentiment analysis
Yeong-Seok Jeong, **Tak-Sung Heo,** Yu-Seop Kim
Proceedings of Korea Software Congress (KSC), 2019 [KIISE]

[*KSC* '19] Measurement of the number of topics in children's speech using LDA and Affinity propagation algorithm
Se-Eun Oh, **Tak-Sung Heo,** Yoonkyoung Lee, Yu-Seop Kim
Proceedings of Korea Software Congress (KSC), 2019 [KIISE]

[*HCLT* '19] Detection of Topic Changes in Child Speech Using Sent2Vec
Tak-Sung Heo, Yoonkyoung Lee, Yu-Seop Kim
The 31st Annual Conference on Human & Cognitive Language Technology (HCLT), 2019 [KIISE]

[*HCLT* '18] Prediction of the age of speakers based on Convolutional Neural Networks and polarization model
Tak-Sung Heo, Ji-Soo Kim, Byoung-Doo Oh, Yu-Seop Kim
The 30th Annual Conference on Human & Cognitive Language Technology (HCLT), 2018 [KIISE]

[*HCLT* '18] Automatic Analysis Service for Korean Speaking by Age
Ji-Eun Choi, Byoung-Doo Oh, **Tak-Sung Heo**, Yu-Seop Kim
The 30th Annual Conference on Human & Cognitive Language Technology (HCLT), 2018 [KIISE]

JOURNALS

[(KCI), *zfdsl* '21] Die Applikabilität der automatischen Evaluation von Humanübersetzungen
(English: The applicability of the automatic evaluation of human translations)
Hyeyeon Chung, Hye-jeong Myeong*, Hye-Rim Choi*, **Tak-Sung Heo***
***These authors contributed equally**
Zfdsl, Aug.2021 [KDSL]

[(SCIE), *Symmetry* '21] A Novel Hybrid Methodology of Measuring Sentence Similarity
Yongmin Yoo*, **Tak-sung Heo***, Yeongjoon Park*, Kyoungsun Kim
***These authors contributed equally**
Symmetry, Aug.2021 [MDPI]

[(SCIE), *Appl. Sci.* '21] Global and Local Information Adjustment for Semantic Similarity Evaluation
Tak-Sung Heo, Jong-Dae Kim, Chan-Young Park, Yu-Seop Kim
Applied Sciences, Mar.2021 [MDPI]

[(SCIE), *Sens. Mater.* '21] Prediction of Atrial Fibrillation Cases: Convolutional Neural Networks using the Output Texts of Electrocardiography
Tak-Sung Heo, Chulho Kim, Jong-Dae Kim, Chan-Young Park, Yu-Seop Kim
Sensors and Materials, Jan.2021 [MYU]

[(SCIE), *Sci. Rep.* '21] Deep learning based prediction of prognosis in nonmetastatic clear cell renal cell carcinoma
Seok-Soo Byun, **Tak-Sung Heo**, Jeong-Myeong Choi, Yeong-Seok Jeong, Yu-Seop Kim, Won-Ki Lee, Chulho Kim
Scientific Reports, Jan.2021 [Nature]

[(SCIE), *J. Intell. Fuzzy Syst.* '21] Sentence Similarity Evaluation using Sent2Vec and Siamese Neural Network with Parallel Structure
Tak-Sung Heo, Jong-Dae Kim, Chan-Young Park, Yu-Seop Kim
Journal of Intelligent and Fuzzy Systems, Jan.2021 [IOS Press]

[(SCIE), *J. Pers. Med.* '20] Prediction of Stroke Outcome Using Natural Language Processing-Based Machine Learning of Radiology Report of Brain MRI
Tak-Sung Heo, Yu-Seop Kim, Jeong-Myeong Choi, Yeong-Seok Jeong, Soo-Young Seo, Jun-Ho Lee, Jin-Pyeong Jeon, Chulho Kim
Journal of Personalized Medicine, Dec.2020 [MDPI]

[(KCI), *Journal of Translation Studies* '20] Application of Automatic Evaluation to Human Translation
Bo-Young Kim, Yeon-Joo Kim, Seung-Hee Seo, Shin-Ae Song, Jin-Hyun Lee, Kyoung-Ah Jeon, Ji-Soo Choi, Seung-Bin Hong, Hye-yeon Chung, **Tak-Sung Heo**
Journal of Translation Studies, Mar.2020 [KATS]

PENDING PAPER

[Arxiv'22] DAGAM: Data Augmentation with Generation And Modification
Byeong-Cheol Jo*, **Tak-Sung Heo***, Yeongjoon Park, Yongmin Yoo, Won Ik Cho, Kyungsun Kim
***These authors contributed equally**

SUMMARY

Tak-Sung Heo is a researcher and developer specializing in natural language processing. Interested in automating various problems through natural language processing techniques, especially natural language understanding. Good at Python programming language and TensorFlow framework for deep learning. Still doing a lot of studies so that it can be applied in real life.