

Curriculum Vitae of Hoyong Kim

AI Graduate School
Gwangju Institute of Science and Technology (GIST)
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EDUCATION

Mar. 2021 ~ Present	Gwangju Institute of Science and Technology (GIST) AI Graduate School <i>Ph.D candidate of Artificial Intelligence</i> (Advisor) Prof. Kangil Kim	Gwangju, Rep. of Korea
Mar. 2018 ~ Aug. 2020	University of Science and Technology (UST) Department of Big-Data Science, KISTI <i>Master of Big-Data Science</i> (Advisor) Prof. Dong-min Seo (Thesis) Study on Text Mining and Clustering for Issue Analysis on News Articles	Daejeon, Rep. of Korea
Mar. 2014 ~ Feb. 2018	Ajou University Department of Software <i>Undergraduate Student</i>	Suwon, Rep. of Korea

RESEARCH INTEREST

- **Representation Learning**
 - ✓ Supervised/Unsupervised/Self-supervised Learning, Manifold Learning, Hyperspherical Learning, Few-shot Learning
- **Computer Vision**
 - ✓ Continual Learning, Imbalanced Learning, Out-of-Distribution Detection
- **Natural Language Processing**
 - ✓ Unsupervised Neural Machine Translation, Knowledge Distillation, Word Analogy Test

PUBLICATIONS

1. **H. Kim**, S.-W. Lee, H.-J. Jang, and D.-M. Seo, "Hierarchical and Incremental Clustering for Semi-Real-time Issue Analysis on News Articles", Journal of the Korea Contents Association, 20(6): 556-578 (2020) in Korean
2. **H. Kim**, J.-J. Kim, S.-M. Park, I.-H. Song, and B.-W. On, "Feature selection and visualization based on expectation maximization and principal component analysis for traffic accidents point prediction", Journal of The HCI Society of Korea, 14(4): 13-23 (2019) in Korean

CONFERENCES

1. **H. Kim** and K. Kim, "Fixed Non-negative Orthogonal Classifier: Inducing Zero-mean Neural Collapse with Feature Dimension Separation", The Twelfth International Conference on Learning Representations (2024) – Poster
2. **H. Kim** and K. Kim, "Spherization Layer: Representation Using Only Angles", Advances in Neural Information of Processing Systems 35, 16398-16410 (2022) – Poster
3. K.-M. Ngoc, D. Yang, I. Shin, **H. Kim**, and M. Hwang, "Dprelu: Dynamic parametric rectified linear unit", In The 9th International Conference on Smart Media and Applications, 121-125 (2020) – Poster

4. D. Yang, I. Shin, K.-M. Ngoc, **H. Kim**, C. Yu, and M. Hwang, "Out-of-Distribution Detection Based on Distance Metric Learning", In The 9th International Conference on Smart Media and Applications, 214-218 (2020) – Poster
5. **H. Kim**, H.-J. Jang, S.-W. Lee, and D.-M. Seo, "Hierarchical Clustering of News Articles for Semi-Real-time Issue Analysis", Korean Institute of Information Scientists and Engineers, KIISE 2019 KSC, Pyeongchang, Korea (2019) – Poster. in Korean
6. D.-M. Seo, **H. Kim**, J.-H. Lee, S.-H. Hwang, "Development of Web Crawler and Network Analysis Technology for Occurrence and Prediction of Flooding", Korea Contents Association, KCA 2019 Spring Conference, Sangmyung Univ., Seoul, Korea (2019) – Poster in Korean
7. S.-K. Jin, **H. Kim**, and S.-K. Song, "Prediction of Korean Basketball League playoff power-ranking based on Recurrent Neural Networks using KBL Efficiency", Korea Contents Association, ICCA 2019, Medini, Johor, Malaysia (2019), – Poster, *Best Paper Award*.
8. **H. Kim**, M.-H. Lee, and D.-M. Seo, "A Word Semantic Similarity Measure Model using Korean Open Dictionary", Korea Contents Association, KCA 2018 Spring Conference, Mokpo Univ., Mokpo, Korea (2018) – Oral, *Best Paper Award* in Korean

RESEARCH EXPERIENCES

- **Research Assistant** at IRR Lab (Intelligence Representation & Reasoning Lab.) in *AI Graduate School, Gwangju Institute of Science and Technology (GIST)* Sep. 2020 ~ Feb. 2021
 - ✓ Analyze the search space of neural networks
 - Find the effective search space based on the assumption that there is an effective search space when optimizing classification models and restricting the models to converge to it is useful to training
- **Research Student** at Research Data Sharing Center in *Div. of National S&T Data, KISTI* Mar. 2019 ~ Aug. 2020
 - ✓ Develop Clustering Module for Issue Analysis from News Articles
 - ✓ Improve the performance of Clustering Module in terms of speed and accuracy
 - Make Gold Standard Dataset of Synonym in Korean from 'Korea Open dictionary'
 - Construct Deep Learning Model based on Siamese Neural Network for measuring Cosine Similarity between synonyms
- **Research Intern** at DILAB(Data Mining & Artificial Intelligence Lab.) in *Department of Software Convergence Engineering, Kunsan National University* Jul. 2015 ~ Feb. 2018
 - ✓ Classification of Web Documents for people with the same name
 - When searching specific person on search engine, classify web documents whether the document is about that person or not.
 - ✓ Find Trouble makers from E-mail Record Data
 - Gather the E-mail data from Company DB, analyze how many times he or she sends and receives e-mails about each person and find some Trouble makers from that analysis.
 - ✓ Emotional analysis on News Articles about Hyun-dai Car.
 - Gather news articles from web site by using web crawler, and analyze whether the article about Hyun-dai Car is positive or negative.
 - ✓ Deep Learning Model for Traffic Accident Points Prediction
 - By using about 10,000 sensing data about the Traffic Accidents, which occurred in Daegu, Korea, predict the place where traffic accidents will be occurred by using Feedforward Neural Network.

TEACHING EXPERIENCE

- **Teaching Assistant** at IRR Lab (Intelligence Representation & Reasoning Lab.) in *AI Graduate School, Gwangju Institute of Science and Technology (GIST)* Mar. 2021 ~ Present
 - ✓ 2022, Natural Language Processing

SKILLS

- **Programming**
 - ✓ C, java, Python, PyTorch, Tensorflow
- **Softwares**
 - ✓ Window series, LaTeX, Vim, git, and other Linux based tools
- **Background Knowledge**
 - ✓ Linear Algebra, Data Mining, Text Mining, Machine Learning, Deep Learning, Artificial Intelligence, Natural Language Processing, Computer Vision, Numerical Optimization

Last updated: June 12, 2024