Hankook Lee

Homepage: https://hankook.github.io
Github: https://github.com/hankook
Email: hankook.lee@kaist.ac.kr

OBJECTIVE

I am a Ph.D. candidate in the School of Electrical Engineering at Korea Advanced Institute of Science and Technology (KAIST), advised by Jinwoo Shin. My research has investigated how to learn deep neural networks with limited human prior knowledge. Specifically, my interests include self-supervised learning [2,6-8], transfer learning [1-2,7], data augmentation [2,7], and real-world applications with limited labels [3-6].

EDUCATION

M.S. & Ph.D. *Mar. 2016 - Aug. 2022 (Expected)*
School of Electrical Engineering, KAIST, Republic of Korea
Advised by Prof. Jinwoo Shin

B.S. *Mar. 2010 - Feb. 2016*
Mathematics and Computer Science (double major), KAIST, Republic of Korea
GPA: 3.93/4.3 (Magna Cum Laude)

EXPERIENCE

External Collaborator *Mar. 2021 - May. 2021*
Honglak Lee (University of Michigan), Kibok Lee (AWS), Kimin Lee (Berkeley)
- Developed a self-supervised learning algorithm for improving transferability of learned representations [7].

Visiting Student *Jan. 2020 - Mar. 2020*
Samsung Advanced Institute of Technology (SAIT), Republic of Korea
- Developed ML-based retrosynthesis algorithms [4-5].

Research and Development Engineer *Aug. 2013 - Dec. 2014*
Watcha Inc., Republic of Korea
- Built an automatic movie tagging system using Latent Dirichlet Allocation.
- Built a movie rating prediction system using non-negative matrix factorization.

PUBLICATIONS
(*: equal contribution)

[8] Sukmin Yun, **Hankook Lee**, Jaehyung Kim and Jinwoo Shin, "Patchlevel Representation Learning for Selfsupervised Vision Transformers", IEEE Conference on Computer Vision and Pattern Recognition (CVPR), *Oral Presentation*, 2022

[7] **Hankook Lee**, Kibok Lee, Kimin Lee, Honglak Lee and Jinwoo Shin, "Improving Transferability of Representations via AugmentationAware SelfSupervision", Advances in Neural Information Processing Systems (NeurIPS), 2021

[6] Junsu Kim, Sungsoo Ahn, **Hankook Lee** and Jinwoo Shin, "Self-Improved Retrosynthetic Planning", International Conference on Machine Learning (ICML), 2021

[5] **Hankook Lee**, Sungsoo Ahn, Seung-Woo Seo, You Young Song, Eunho Yang, Sung Ju Hwang and Jinwoo Shin, "RetCL: A Selectionbased Approach for Retrosynthesis via Contrastive Learning", International Joint Conference on Artificial Intelligence (IJCAI), 2021

[4] Seung-Woo Seo*, You Young Song*, June Yong Yang, Seohui Bae, **Hankook Lee**, Jinwoo Shin, Sung Ju Hwang and Eunho Yang, "GTA: Graph Truncated Attention for Retrosynthesis", AAAI Conference on Artificial Intelligence (AAAI), 2021

[3] Sungsoo Ahn, Junsu Kim, **Hankook Lee** and Jinwoo Shin, "Guiding Deep Molecular Optimization with Genetic Exploration", Advances in Neural Information Processing Systems (NeurIPS), 2020

[2] **Hankook Lee**, Sung Ju Hwang and Jinwoo Shin, "Self-supervised Label Augmentation via Input Transformations", International Conference on Machine Learning (ICML), 2020

[1] Yunhun Jang*, **Hankook Lee***, Sung Ju Hwang and Jinwoo Shin, "Learning What and Where to Transfer", International Conference on Machine Learning (ICML), 2019

HONORS & AWARDS

Winner *2019*
Qualcomm-KAIST Innovation Award, Republic of Korea

ICPC World Finalist *2013*
International Collegiate Programming Contest World Finals, St. Petersburg, Russia

1st Place (2012), **2nd Place** (2010) *2010-2012*
International Collegiate Programming Contest Asia Daejeon Regional, Republic of Korea

Gold Prize *2009*
Problem Solving Division, Korea Olympiad in Informatics (KOI), Republic of Korea

ACADEMIC SERVICES

Conference Reviewer: NeurIPS (2020-2021), ICLR (2020-2022), ICML (2020-2022), AAAI (2022), Self-supervised Learning Workshop (ICML 2021, NeurIPS 2021)
Journal Reviewer: ACM ToMPECS

INVITED TALKS

"Self-supervised Label Augmentation via Input Transformations", *2021*
Samsung Electronics DIT Center, Republic of Korea

"Learning What and Where to Transfer". *2020*
Samsung Electronics DIT Center, Republic of Korea

"Learning What and Where to Transfer", *2019*
Summer Annual Conference of the Institute of Electronics and Information Engineers (IEIE), Republic of Korea

"Anytime Neural Prediction via Slicing Networks Vertically", *2018*
NAVER Labs, Republic of Korea

TEACHING EXPERIENCE

TA, "Segmentation and Object Detection", Samsung DS AI Expert Program *2020*
TA, "Optimization and Regulaization", SK Hynix ML Program *2019*
TA, "Transfer and Multitask Learning", Samsung DS AI Expert Program *2019*
TA, "Regression", Seongnam-KAIST AI Program *2018*
TA, "Regression", KB-KAIST AI Program *2017-2018*

TECHNICAL SKILLS

C/C++, Python, Pytorch, Tensorflow