

# Hankook Lee

PH.D CANDIDATE @ ALIN LAB IN KAIST

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## Research Interests

- Self-supervised learning
- Transfer and few-shot learning
- Data augmentation techniques
- Neural architectures

## Education

### KAIST (Korea Advanced Institute of Science and Technology)

Ph.D. in Electrical Engineering

- Advisor: Jinwoo Shin

Daejeon, South Korea

Sep. 2018 - Sep. 2022 (expected)

### KAIST (Korea Advanced Institute of Science and Technology)

M.Sc. in Electrical Engineering

- Advisor: Jinwoo Shin

Daejeon, South Korea

Mar. 2016 - Aug. 2018

### KAIST (Korea Advanced Institute of Science and Technology)

B.Sc. in Mathematics and Computer Science (Double major)

- GPA: 3.93/4.3 (Magna Cum Laude)

Daejeon, South Korea

Mar. 2010 - Feb. 2016

## Publications

C: Conference, W: Workshop, P: Preprint, \*: Equal contribution

### [C7/W] Improving Transferability of Representations via Augmentation-Aware Self-Supervision

Online

Hankook Lee, Kibok Lee, Kimin Lee, Honglak Lee, Jinwoo Shin

Dec. 2021

- Neural Information Processing Systems (NeurIPS), 2021
- International Conference on Machine Learning (ICML) 2021 Workshop: Self-Supervised Learning for Reasoning and Perception

### [C6] Self-Improved Retrosynthetic Planning

Online

Junsu Kim, Sungsoo Ahn, Hankook Lee, Jinwoo Shin

Jul. 2021

- International Conference on Machine Learning (ICML), 2021

### [C5/W] RetCL: A Selection-based Approach for Retrosynthesis via Contrastive Learning

Online

Hankook Lee, Sungsoo Ahn, Seung-Woo Seo, You Young Song, Eunho Yang, Sung Ju Hwang, Jinwoo Shin

Aug. 2021

- International Joint Conference on Artificial Intelligence (IJCAI), 2021
- NeurIPS Workshop for Machine Learning for Molecules, 2020

### [C4] GTA: Graph Truncated Attention for Retrosynthesis

Online

Seung-Woo Seo, You Young Song, June Yong Yang, Seohui Bae, Hankook Lee, Jinwoo Shin, Sung Ju Hwang, Eunho Yang

Feb. 2021

- AAAI Conference on Artificial Intelligence (AAAI), 2021

### [C3] Guiding Deep Molecular Optimization with Genetic Exploration

Online

Sungsoo Ahn, Junsu Kim, Hankook Lee, Jinwoo Shin

Dec. 2020

- Neural Information Processing Systems (NeurIPS), 2020

### [C2] Self-supervised Label Augmentation via Input Transformations

Online

Hankook Lee, Sung Ju Hwang, Jinwoo Shin

Jul. 2020

- International Conference on Machine Learning (ICML), 2020
- Received Qualcomm-KAIST Innovation Awards (2019)

### [C1] Learning What and Where to Transfer

Long Beach, CA, USA

Yunhun Jang\*, Hankook Lee\*, Sung Ju Hwang, Jinwoo Shin

Jul. 2019

- International Conference on Machine Learning (ICML), 2019

## [P1] Anytime Neural Prediction via Slicing Networks Vertically

Hankook Lee, Jinwoo Shin

Jul. 2018

- arXiv preprint

## Work Experience

### SAIT (Samsung Advanced Institute of Technology)

Suwon, South Korea

Visiting student

Jan. 2020 - Mar. 2020

- Developed ML-based retrosynthesis algorithms (AAAI 2021, IJCAI 2021 papers).

### Programs

Seoul, South Korea

Research and Development Engineer

Aug. 2013 - Dec. 2014

- Built an automatic movie tagging system using movies' news/reviews based on Latent Dirichlet Allocation (LDA).
- Built a Scala-based movie rating prediction system based on non-negative matrix factorization.
- The incorporation name was changed to Watcha Inc. at 2018.

## Honors & Awards

2019	<b>Winner</b> , Qualcomm-KAIST Innovation Awards (ICML 2020 paper)	Daejeon, South Korea
2019	<b>Travel award</b> , International Conference on Machine Learning (ICML) 2019	Long Beach, CA, USA
2013	<b>Finalist</b> , International Collegiate Programming Contest (ICPC) World Finals	St. Petersburg, Russia
2012	<b>1st Place (Grand Prize)</b> , International Collegiate Programming Contest (ICPC) Asia Daejeon Regional	Daejeon, South Korea
2010	<b>2nd Place (Gold Prize)</b> , International Collegiate Programming Contest (ICPC) Asia Daejeon Regional	Daejeon, South Korea
2009	<b>Gold Prize</b> , Problem Solving Division, Korea Olympiad in Informatics (KOI)	Seoul, South Korea

## Services

2022	<b>Conference Reviewer</b> , ICLR 2022
2021	<b>Conference Reviewer</b> , ICLR 2021, ICML 2021, NeurIPS 2021
2020	<b>Conference Reviewer</b> , ICLR 2020, NeurIPS 2020
2020	<b>Journal Reviewer</b> , ACM ToMPECS 2020
2018	<b>Journal Reviewer</b> , ACM ToMPECS 2018

## Invited Talks

2021	<b>Self-supervised Label Augmentation via Input Transformations</b> , Samsung Electronics DIT Center	Hwaseong, South Korea
2020	<b>Learning What and Where to Transfer</b> , Samsung Electronics DIT Center	Hwaseong, South Korea
2019	<b>Learning What and Where to Transfer</b> , Summer Annual Conference of IEIE	Jeju, South Korea
2018	<b>Anytime Neural Prediction via Slicing Networks Vertically</b> , NAVER Labs	Seongnam, South Korea

## Teaching Experience

2020	<b>TA: "Semantic Segmentation and Object Detection"</b> , Samsung DS AI Expert Program (Instructor: Jinwoo Shin)	Yongin, South Korea
2019	<b>TA: "Optimization and Regularization"</b> , SK Hynix ML Program (Instructor: Jinwoo Shin)	Daejeon, South Korea
2019	<b>TA: "Transfer and Multi-task Learning"</b> , Samsung DS AI Expert Program (Instructor: Jinwoo Shin)	Daejeon, South Korea
2018	<b>TA</b> , Seongnam-KAIST AI Program (Instructor: Jinwoo Shin)	Seongnam, South Korea
2018	<b>TA</b> , KB-KAIST AI Program (Instructor: Jinwoo Shin)	Daejeon, South Korea
2017	<b>TA</b> , KB-KAIST AI Program (Instructor: Jinwoo Shin)	Seoul, South Korea