

Hankook Lee

PH.D STUDENT @ ALIN LAB IN KAIST

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Research Interests

My research goal is to develop efficient and scalable deep learning algorithms that require few or no human annotation, and ultimately apply them to real-world applications with massive data. More specifically, my research interests lie in neural architectures, data augmentations, transfer/few-shot learning and un/self-supervised learning in various domains such as vision, chemistry, and tabular data.

Education

KAIST (Korea Advanced Institute of Science and Technology)

Ph.D. in Electrical Engineering

- Advisor: Jinwoo Shin

Daejeon, South Korea

Sep. 2018 - Present

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

[W1] Improving Transferability of Representations via Augmentation-Aware Self-Supervision

Online

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

Jul. 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

[P] Anytime Neural Prediction via Slicing Networks Vertically

Hankook Lee, Jinwoo Shin

Jul. 2018

- arXiv preprint

Work Experience

SAIT (Samsung Advanced Institute of Technology)

Visiting student

Suwon, South Korea

Jan. 2020 - Mar. 2020

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

Programs

Research and Development Engineer

Seoul, South Korea

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

Services

2022	Conference Reviewer , ICLR 2022
2021	Conference Reviewer , ICLR 2021, ICML 2021, NeurIPS 2021
2020	Conference Reviewer , ICLR 2020, NeurIPS 2020
2020	Journal Reviewer , ACM ToMPECS 2020
2018	Journal Reviewer , ACM ToMPECS 2018

Invited Talks

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

Teaching Experience

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