

Sehyun Kwon

[email] kagok@snu.ac.kr [website] [google scholar]

Research interest

Vision-Language Models, Language Models

Education

| | |
|---|---------------------|
| Seoul National University <i>Ph.D in the Interdisciplinary Program in Artificial Intelligence (Advisor: Ernest K. Ryu)</i> | Sep 2022 – Feb 2025 |
| Seoul National University <i>M.S. in the Department of Mathematical Sciences (Advisor: Ernest K. Ryu)</i> | Feb 2020 – Sep 2022 |
| Dankook University <i>B.S. in the Department of Mathematics Education</i> <ul style="list-style-type: none">Teacher's Certificate for Secondary Regular Teacher of Mathematics.Military service in South Korea, 2016.05 - 2018.02. | Feb 2014 – Feb 2020 |

Work Experiences

| | |
|---|---------------------------------------|
| Samsung Research <i>-Staff Engineer</i> <ul style="list-style-type: none">Multi-modal Retrieval and Clustering | Mar 2025 – present Seoul, Korea |
| NAVER AI Lab <i>- Research Internship</i> <ul style="list-style-type: none">Research topic: Vision Language RepresentationsAdvised by Sanghyuk Chun | Jun 2024 – Nov 2024 Jeongja, Korea |
| KRAFTON <i>- Research Internship</i> <ul style="list-style-type: none">Research topic: Large Language ModelsAdvised by Kangwook Lee and Dimitris Papailopoulos | Jun 2023 – Jan 2024 Seoul, Korea |
| Military Service <i>- Army sergeant</i> | May 2016 – Feb 2018 Korea |

Publications

- [Preprint] Task Diversity Shortens the In-Context Learning Plateau**
 - Jaeyeon Kim*, **Sehyun Kwon***, Joo Young Choi, Jongho Park, Jaewoong Cho, Jason D.Lee, Ernest K. Ryu
 - * Co-first author.
 - Under review at ICLR 2025.
 - Link, Code.
- [C3] Image Clustering Conditioned on Text Criteria**
 - Sehyun Kwon**, Jaeseung Park, Minkyu Kim, Jaewoong Cho, Ernest K. Ryu, Kangwook Lee
 - International Conference on Learning Representations (ICLR), 2024.
 - Link, Summary 1, Summary 2, Code.
- [C2] Rotation and Translation Invariant Representation Learning with Implicit Neural Representations**
 - Sehyun Kwon**, Joo Young Choi, Ernest K. Ryu
 - International Conference on Machine Learning (ICML), 2023.
 - Learning invariant representations from real-world data, such as semiconductor data.
 - Link, Code.
- [W1] Diffusion Probabilistic Models Generalize when They Fail to Memorize**
 - Taeho Yoon, Joo Young Choi, **Sehyun Kwon**, Ernest K. Ryu
 - International Conference on Machine Learning Workshop (ICML Workshop), 2023.
 - Link.
- [C1] WGAN with an Infinitely Wide Generator Has No Spurious Stationary Points**
 - Albert No, Taeho Yoon, **Sehyun Kwon**, Ernest K. Ryu
 - International Conference on Machine Learning (ICML), 2021.
 - Link, Code.

Fellowships and Awards

- 2024 Youlchon AI Star Fellowship (Link)
- 2023 Samsung DS excellent paper award
- 2023 3rd Prize for Best Poster Award at the SNU AI Spring Retreat. (Link).
- 2022 Outstanding TA Award for the Mathematical Foundations of Deep Neural Networks course. (Link)

Teaching Experiences

Seoul National University, Teaching Assistant

Mar 2020 - 2024

- Generative AI and Foundation Models (Spring 2024)
- Mathematical Foundations of Deep Neural Networks (Spring 2024)
- Mathematical Foundations of Deep Neural Networks (Fall 2022)
- Mathematical Foundations of Deep Neural Networks (Fall 2021) - *Outstanding TA Award Winner*
- Calculus for Humanities and Social Sciences 2 (Fall 2021)
- Mathematical Algorithms 1 (Graduate) (Spring 2021)
- Engineering Mathematics 2 (Spring 2021)
- Mathematics for Business (Fall 2020)
- Information Society and Mathematics (Fall 2020)
- Calculus 1 (Spring 2020)

Young Hoon High School

May 2019

- Teaching Practicum

Talks

- 2024 Poster presentation in exchange meeting of SNU & Samsung DS
- 2023 Poster presentation in exchange meeting of SNU & Samsung DS
- 2023 Oral presentation in SNU AI Spring Retreat

Services

- Reviewer, NeurIPS Workshop on Video-Language Models 2024
- Reviewer, AAAI 2024
- Reviewer, ICML 2024
- Reviewer, NeurIPS Workshop on RO-FoMo 2023