

Sehyun Kwon

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Education

Seoul National University <i>Ph.D in the Graduate School of Artificial Intelligence (Advisor: Ernest K. Ryu [website])</i>	Sep 2022 – Feb 2025 (Expected)
Seoul National University <i>M.S. in the Department of Mathematical Sciences (Advisor: Ernest K. Ryu [website])</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

Research interest

Vision Language Models (ex. LLaVA, CLIP) [C3, W2], **Large Language Models** [Preprint, C3, W2], **2D Vision tasks** (ex. Clustering, Retrieval) [C2, C3], **Generative Models** (Diffusion, VAE) [C1, W1].

Publication

- [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, W2] **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.
 - Neural Information Processing Systems Workshop (NeurIPS Workshop), 2023.
 - 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.

Experience

NAVER AI Lab - Research Internship <ul style="list-style-type: none">Research topic: Vision Language RepresentationsClosely work with Sanghyuk Chun [website].	Jun 2024 – present Seoul, Korea
KRAFTON - Research Internship <ul style="list-style-type: none">Research topic: Foundation models and Generative modelsClosely work with Kangwook Lee [website] and Dimitris Papailiopoulos [website].	Jun 2023 – Jan 2024 Seoul, Korea
Military Service - Army sergeant	May 2016 – Feb 2018 Korea

Award

- 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 Experience

Seoul National University, Teaching Assistant

Mar 2020 – Present

- 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

Talk

- 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

Service

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