

# Sehyun Kwon

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## Education

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- Seoul National University** Sep 2022 – Expected Feb 2025  
*Ph.D in the Graduate School of Artificial Intelligence (Advisor: Ernest K. Ryu [website])*
- Seoul National University** Feb 2020 – Sep 2022  
*M.S. in the Department of Mathematical Sciences (Advisor: Ernest K. Ryu [website])*
- Dankook University** Feb 2014 – Feb 2020  
*B.S. in the Department of Mathematics Education*
- Teacher's Certificate for Secondary Regular Teacher of Mathematics.
  - Military service in South Korea, 2016.05 - 2018.02.

## Publication

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### [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**, Jooyoung Choi, Ernest K. Ryu
- International Conference on Machine Learning (ICML), 2023.
- [Link](#), [Code](#).

### [W1] Diffusion Probabilistic Models Generalize when They Fail to Memorize

- Taeho Yoon, Jooyoung 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](#).

## Research interest

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

## Experience

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- Naver AI Lab** Jun 2024 – present  
- *Research Internship*  
• Research topic: TBD  
• Closely work with TBD  
*Seoul, Korea*
- KRAFTON** Jun 2023 – Jan 2024  
- *Research Internship*  
• Research topic: Foundation models and Generative models  
• Closely work with *Kangwook Lee [website]* and *Dimitris Papailiopoulos [website]*.  
*Seoul, Korea*
- Military Service** May 2016 – Feb 2018  
- *Army sergeant*  
*Korea*

## Award

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- 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

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### 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

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- 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