

# Sunjae Yoon

Postdoctoral Researcher, KAIST

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## Research Interests

Computer Vision, Generative AI, Diffusion, Video Editing/Generation, Video Retrieval/Dialogue, 3D Reconstruction/Editing, Gaussian-Splatting, LLM, LVLM, Multimodal AI, Causal Inference, Debiasing, Dialogue.

## Education

### KAIST, Daejeon, South Korea

*Ph.D. in Electrical Engineering (Outstanding Ph.D. Dissertation Award)*

Feb. 2021 – Feb. 2025

*Advisor: Chang D. Yoo*

### KAIST, Daejeon, South Korea

*M.S. in Electrical Engineering*

Sep. 2019 – Feb. 2021

*Advisor: Chang D. Yoo*

### DGIST, Daegu, South Korea

*B.S. in Computer Science (Cum Laude)*

Feb. 2015 – Feb. 2019

### Johns Hopkins University, MD, USA

*Visiting Student, Summer Session*

Jun. 2016 – Jul. 2016

## Research Experience

### KAIST, Daejeon, South Korea

Mar. 2025 – Feb. 2026

*Postdoctoral Researcher*

- 3D Generative AI: Gaussian Splatting, Text-to-3D Generation/Editing, Image-to-3D Generation

### KAIST, Daejeon, South Korea

Feb. 2019 – Feb. 2025

*Graduate Student Researcher*

- Generative AI: Diffusion, Text-to-Image/Video Generation and Editing, Image-to-Video
- Multimodal AI: Text-to-Video Retrieval, Video-grounded Dialogue, Debiasing, LVLM

### ETRI, Daejeon, South Korea

Jan. 2018 – Feb. 2018

*Research Intern*

- 3D Reconstruction: Mobile 3D Scene Reconstruction

### DGIST, Daegu, South Korea

Jul. 2015 – Aug. 2015; Dec. 2016 – Jan. 2017

*Research Intern*

- 3D Vision: Camera Calibration for Augmented Reality

## Selected Publications (Recent 3 years), Total: 28 publ.(15 first), citation: 360+, [Link]

- [1] S. Yoon, et al. Novel View Editing Adaptor for Unseen View Consistent 3D Editing. ([Under review, ICLR](#))
- [2] S. Yoon, G. Koo, Y. Lee, and C. D. Yoo. Occlusion-robust Styling for Drawing-based 3D Animation. International Conference on Computer Vision ([ICCV](#)), **2025**. [paper] [demo] [code] **Review score: 6,6,5(avg. 5.67/6)**
- [3] G. Koo, S. Yoon, et al. FlowDrag: 3D-aware Drag-based Image Editing with Mesh-guided Deformation Vector Flow Fields. International Conference on Machine Learning ([ICML](#)), **2025**. [paper] [demo] [code] **Spotlight(<2.6%)**
- [4] S. Yoon, G. Koo, G. Kim, and C. D. Yoo. TPC: Test-time Procrustes Calibration for Human Image Animation. Advances in Neural Information Processing Systems ([NeurIPS](#)), **2024**. [paper] [demo] [code]
- [5] S. Yoon, G. Koo, J. W. Hong, and C. D. Yoo. Dilutional Noise Initialization for Diffusion Video Editing. European Conference on Computer Vision ([ECCV](#)), **2024**. [paper] [demo] [code] **KAIA Best Paper Award**
- [6] G. Koo, S. Yoon, J. W. Hong, and C. D. Yoo. FlexiEdit: Frequency-Aware Latent Refinement for Enhanced Non-Rigid Editing. European Conference on Computer Vision ([ECCV](#)), **2024**. [paper] [demo] [code]
- [7] S. Yoon, G. Koo, G. Kim, and C. D. Yoo. FRAG: Frequency Adaptive Group for Diffusion Video Editing. International Conference on Machine Learning ([ICML](#)), **2024**. [paper] [demo] [code]
- [8] S. Yoon, et al. HEAR: Hearing Enhanced Audio Response for Video-grounded Dialogue. Findings of the Association for Computational Linguistics ([EMNLP](#)), **2023**. [paper] [code] **Samsung Humantech Paper Award**
- [9] S. Yoon, G. Koo, D. Kim, and C. D. Yoo. Scene Complexity Aware Network for Weakly-supervised Video Moment Retrieval. International Conference on Computer Vision ([ICCV](#)), **2023**. [paper] [code]
- [10] S. Yoon, E. Yoon, H. S. Yoon, J. Kim, and C. D. Yoo. Information-Theoretic Text Hallucination Reduction for Video-grounded Dialogue. Empirical Methods in Natural Language Processing ([EMNLP](#)), **2022**. [paper] [code]
- [11] S. Yoon, J. W. Hong, E. Yoon, D. Kim, et al. Selective Query-guided Debiasing for Video Corpus Moment Retrieval. European Conference on Computer Vision ([ECCV](#)), **2022**. [paper] [code] (Patent: US 1,232,384)

## Honors & Awards

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**ICCV 2025 Doctoral Consortium, Ph.D. thesis selected for presentation**, 2025 (Travel Grants)

**Outstanding Ph.D. Dissertation Award**, KAIST, 2025 (Golden Medal)

Encouragement Prize, **30th Samsung HumanTech Paper Award**, 2024 (\$1,500)

1st Prize, 2nd Seoul National University Bundang Hospital Datathon, 2024 (\$2,000)

Best Paper Award, Winter Conference of Korean AI Association, 2023 (\$1,500)

**Certificate of Commendation for Cum Laude Graduation**, DGIST, 2019

Certificate of Commendation from Dalseong-gun Office, Daegu, 2019

Bronze Prize, International Creative Car Competition (Autonomous Driving), 2018

Excellence Prize, Autonomous Vehicle Creation Technology Competition, 2018

## Languages and Skills

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Languages: English (professional working proficiency), Korean (native)

Programming and Tools: Python, C/C++, Matlab, CUDA, Docker, Git, Linux, Hugging Face

Experienced Library: PyTorch, Transformers, Diffusers, Blender, nerfstudio, OpenCV, Open3D

## Project Experiences

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**Independent Work (KAIST)**: Diffusion Video Editing and Generation (ICML'24, ECCV'24, NeurIPS'24, ICCV'25)

**Collaborative Work (UIUC)**: Natural Language Processing (EMNLP'22)

**Collaborative Work (Chung-Ang Univ.)**: Video Retrieval and LLM (ECCV'22, EMNLP'22, EMNLP'23, EMNLP'25)

**Industrial Work (Samsung Research)**: Video Moment Retrieval (ICASSP'23 Oral)

**Industrial Work (Hanhwa System)**: Target Detection SAR image (Journal of IEIE'24)

## Open-source Software

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**TPC**: Image-to-Video System (Released 2025, **50+ stars**) [code]

**FRAG**: Video Editing System (Released 2024, **70+ stars**) [code]

**HEAR**: Video Dialogue System (Released 2023, **50+ stars**) [code]

**SQuIDNet**: Video Retrieval System (Released 2022, **70+ stars**) [code]

## Academic Activities

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**Area Chair**: ACL ARR(2025-)

**Reviewer Conf.**: NeurIPS (2023-), CVPR (2022-), ICCV (2023-), ECCV (2022-), ICML (2024-), ICLR (2024-), ACL (2023-), EMNLP (2022-), AAAI (2025-), ICASSP (2023-), WACV (2023-), AISTATS (2025-).

**Reviewer Journals**: IEEE Transactions on Big Data, IEEE TCSV, International Journal of Human-Computer Interaction, ACM TOMM, Expert Systems With Applications, IEEE Access.

## Patent

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METHOD AND DEVICE FOR WAVELET-GUIDED ACCELERATION OF TEXT INVERSION IN DIFFUSION-BASED IMAGE EDITING No. KR 10-2837290 (2025-07-17)

METHOD AND DEVICE FOR VIDEO MOMENT RETRIEVAL BASED ON SELECTIVE DEBIASING No. US 1,232,384 (2025-06-03), No. KR 10-2022-0154621 (2022-11-17)

WEAKLY-SUPERVISED MOMENT RETRIEVAL NETWORK FOR VIDEO CORPUS MOMENT RETRIEVAL No. KR 10-2021-0172582 (2021-12-06)

Artificial Intelligence-based Radar Target Detection System No. KR 10-2557458 (2023-07-14)

## Invited Talks & Professional Activities

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[Chung-Ang Univ.] Multimodal Learning: Towards Robust and Flexible Diffusion-based Video Editing, Sep. 2025

[KAIST EE] Alumni Association, Distinguished Graduate Panel Discussion, Feb. 2025

[IITP] Panelist, Consultation on AI Education and Talent Retention, Innovation Academy, Seoul, Feb. 2025

[Chung-Ang Univ.] AI Core Technology Seminar: Empirical Methods for Video Moment Retrieval, May. 2023

## References

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Chang D. Yoo, Professor, KAIST (cd\_yoo@kaist.ac.kr)

Junyeong Kim, Assistant Professor, Chung-Ang University (junyeongkim@cau.ac.kr)