

Sanghyun Jo

Principal AI Researcher, OGQ · Affiliated Researcher, SNU AIBL

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Biography

My research focuses on reducing annotation and optimization burdens in visual learning through generative priors and lightweight interaction mechanisms. By leveraging the implicit knowledge embedded in large-scale foundation models, I explore data-efficient and training-free approaches to overcome the limitations of resource-intensive pipelines. This methodology drives my work across diverse applications, spanning weakly-supervised segmentation, multimodal alignment, and controllable generation.

I have been with **OGQ** since 2017, currently serving as the **Principal AI Researcher** and leading industrial AI research and development to maximize tangible real-world impact. In parallel, I have been pursuing my research under the official advisement of **Prof. Kyungsu Kim** since 2021. Following his appointment at Seoul National University, I joined the **SNU AIBL Lab** as an **Affiliated Researcher**. In this role, I mentor graduate and undergraduate researchers and lead core projects, including recent works where I serve as a co-corresponding author. Integrating industrial R&D leadership with academic rigor, I aim to develop machine learning systems that are both scientifically grounded and practically deployable.

Research Interests

- Label- and Data-Efficient Learning via Generative Priors 2024 – Present
- Generative Multimodal Alignment 2023 – Present
- Weakly-Supervised Segmentation 2021 – Present

Appointments

- Principal AI Researcher** Jul. 2017 – Present
OGQ (Acquired GYN in 2022), Seoul, Korea
- Affiliated Researcher** Sep. 2024 – Present
SNU AIBL Lab (Adviser: Prof. Kyungsu Kim), Seoul National University, Korea

Education

- B.S., Computer Science** Feb. 2026
National Institute for Lifelong Education, Seoul, Korea
Degree conferred by the Minister of Education via the Bachelor's Degree Examination for Self-Education.
- Incheon Electronic Meister High School** Mar. 2015 – Jan. 2018
Incheon, Korea
1st Place (Overall) in Meister Development Program (MDP) during sophomore and senior years.

Publications: Conference Papers

- [C1] **Sanghyun Jo**, Seo Jin Lee, Seohyung Hong, Yoorim Gang, Hyeongsu Kim, Hyungseok Seo[†], Kyungsu Kim[†].
"One Click per Cell Type Suffices: Training-free Group Interaction for Cell Instance Segmentation"
MICCAI 2026 [Early Accept, Top 9% — Selected out of 4,601 submissions].
(2026 Google h5-index: 98, Google Top Pub. Rank 4th for Medical Imaging [🔗](#)). [Sanghyun Jo: The first author]
- [C2] **Sanghyun Jo**^{*}, Ziseok Lee^{*}, Wooyeol Lee, Jonghyun Choi, Jaesik Park[†], Kyungsu Kim[†].
"TRACE: Your Diffusion Model is Secretly an Instance Edge Detector"
ICLR 2026 [Oral, Top 1.13% — 223 papers selected out of 19,735 submissions].
(2026 Google h5-index: 362, Google Top Pub. Rank 2nd for Artificial Intelligence [🔗](#)). [Sanghyun Jo: The co-first author^{*}]
- [📄 PDF](#) [📖 OpenReview](#) [🔄 Code](#) [🌐 Project](#)
- [C3] Ziseok Lee^{*}, Minyeong Hwang^{*}, **Sanghyun Jo**, Wooyeol Lee, Jihyung Ko, Young Bin Park, Jae-Mun Choi, Eunho Yang[†],
Kyungsu Kim[†].
"On the Collapse of Generative Paths: A Criterion and Correction for Diffusion Steering"

ICML 2026 [Acceptance Rate: 26.6% — 6,352 accepted out of 23,918 submissions].

(2026 Google h5-index: 272, Google Top Pub. Rank 3rd for Artificial Intelligence .

[Sanghyun Jo: The co-author]

 OpenReview  Project

[C4] **Sanghyun Jo**^{*}, Seo Jin Lee^{*}, Seungwoo Lee, Seohyung Hong, Hyungseok Seo[†], Kyungsu Kim[†].

"COIN: Confidence Score-Guided Distillation for Annotation-Free Cell Segmentation"

ICCV 2025 [Acceptance Rate: 24.0% — 2,698 accepted out of 11,239 submissions].

(2026 Google h5-index: 256, Google Top Pub. Rank 3rd for Computer Vision .

[Sanghyun Jo: The co-first author^{*}]

 PDF  Code  Project

[C5] Joowon Kim^{*}, Ziseok Lee^{*}, Donghyeon Cho, **Sanghyun Jo**, Yeonsung Jung, Kyungsu Kim[†], Eunho Yang[†].

"Early Timestep Zero-Shot Candidate Selection for Instruction-Guided Image Editing"

ICCV 2025 [Acceptance Rate: 24.0% — 2,698 accepted out of 11,239 submissions].

(2026 Google h5-index: 256, Google Top Pub. Rank 3rd for Computer Vision .

[Sanghyun Jo: The co-author]

 PDF  Code  Project

[C6] **Sanghyun Jo**, Fei Pan, In-Jae Yu, Kyungsu Kim[†].

"DHR: Dual Features-Driven Hierarchical Rebalancing in Inter- and Intra-Class Regions for Weakly-Supervised Semantic Segmentation" **ECCV 2024** [Acceptance Rate: 27.9% — 2,395 accepted out of 8,585 submissions].

(2026 Google h5-index: 262, Google Top Pub. Rank 2nd for Computer Vision .

[Sanghyun Jo: The first author]

 PDF  Code

[C7] **Sanghyun Jo**^{*}, Soohyun Ryu^{*}, Sungyub Kim, Eunho Yang, Kyungsu Kim[†].

"TTD: Text-Tag Self-Distillation Enhancing Image-Text Alignment in CLIP to Alleviate Single Tag Bias"

ECCV 2024 [Acceptance Rate: 27.9% — 2,395 accepted out of 8,585 submissions].

(2026 Google h5-index: 262, Google Top Pub. Rank 2nd for Computer Vision .

[Sanghyun Jo: The co-first author^{*}]

 PDF  Code

[C8] **Sanghyun Jo**, In-Jae Yu, Kyungsu Kim[†].

"MARS: Model-agnostic Biased Object Removal without Additional Supervision for Weakly-Supervised Semantic Segmentation" **ICCV 2023** [Acceptance Rate: 26.7% — 2,160 accepted out of 8,088 submissions].

(2026 Google h5-index: 256, Google Top Pub. Rank 3rd for Computer Vision .

[Sanghyun Jo: The first author]

 PDF  Code

[C9] **Sanghyun Jo**, In-Jae Yu[†]. "Puzzle-CAM: Improved Localization via Matching Partial and Full Features"


ICIP 2021. (2026 Google h5-index: 55, Google Top Pub. Rank 16th for Computer Vision .

[Sanghyun Jo: The first author]

 PDF  Code

Conference Under Review

[U1] **Sanghyun Jo**^{*†}, Donghwan Lee^{*}, Eunji Jung^{*}, Seong Je Oh, Kyungsu Kim[†]. "EraseLoRA: MLLM-Driven Foreground Exclusion and Background Subtype Aggregation for Dataset-Free Object Removal", *Under Review*. [Sanghyun Jo: The co-first^{*} & co-corresponding[†]]

 PDF (arXiv:2512.21545)

[U2] **Sanghyun Jo**^{*}, Wooyeol Lee^{*}, Ziseok Lee^{*}, Kyungsu Kim[†]. "ISAC: Training-Free Instance-to-Semantic Attention Control for Improving Multi-Instance Generation", *Under Review*. [Sanghyun Jo: The co-first author^{*}]

 PDF (arXiv:2505.20935)

Preprint

[1] **Sanghyun Jo**, In-Jae Yu, Kyungsu Kim[†]. "RecurSeed and EdgePredictMix: Pseudo-Label Refinement Learning for Weakly Supervised Semantic Segmentation", *arXiv preprint arXiv:2204.06754*. [Sanghyun Jo: The first author]

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Awards & Honors

- **Outstanding Reviewer, CVPR 2025** Jun. 2025
Selected as top 5.6% (711 of 12,593 reviewers).
- **1st Place, Legal Judgment Prediction AI Challenge** Jul. 2023
1st place out of 1,153 participants. Developed case representation and multi-branch modeling for civil court ruling prediction.
- **5th Place, Synthetic Data Object Detection AI Challenge** Jun. 2023





5th place out of 1,747 participants. Built a robust vehicle detector under domain shift.

Academic Service

Conference Reviewer: NeurIPS (2026), ICLR (2026), ECCV (2026), MICCAI (2026), CVPR (2025–2026), ICCV (2025), ICPR (2024), ICIP (2022–2024), ICML (2022).

Journal Reviewer: International Journal of Computer Vision (IJCV) (2024–2026), IEEE TCSVT (2022).

Invited Talks

- **ICLR 2026**, Rio de Janeiro, Brazil Apr. 2026
TRACE Oral Presentation (Oral Session 5B: Video and Scene Generation) 
- **MODULABS**, Seoul, Korea Dec. 2024
ECCV 2024 Paper Presentation (DHR, TTD) 
- **Yonsei University**, Seoul, Korea Nov. 2023
Advanced AI Developments
- **Google Developer Groups (GDG)**, Incheon, Korea Oct. 2023
Strategies for Reducing Labeling Costs in Vision AI
- **MODULABS**, Seoul, Korea Nov. 2022
Experience Sharing Session: Vision Research 
- **MODULABS**, Seoul, Korea Oct. 2022
RSEPM Paper Presentation 

Patents

- [P1] Seungon Bang, Kyungsu Kim, **Sanghyun Jo**. "Confidence Score-Guided Self-Distillation Method for Annotation-Free Instance Segmentation", Korean Patent Application No. 10-2025-0162415, Oct. 2025.
- [P2] Seungon Bang, Kyungsu Kim, **Sanghyun Jo**. "Instruction-Guided Image Editing Method Using Early-Stopped Background Inconsistency Score Evaluation", Korean Patent Application No. 10-2025-0162189, Oct. 2025.
- [P3] Seungon Bang, Kyungsu Kim, **Sanghyun Jo**. "Instance-Aware Edge Map Generation Without Pixel Annotations Using a Diffusion Model and Segmentation Mask Refinement Method Based Thereon", Korean Patent Application No. 10-2025-0162165, Oct. 2025.
- [P4] Kyungsu Kim, In-Jae Yu, **Sanghyun Jo**, Seungon Bang. "Object De-Identification Method Through Segmentation and Server That Performs the Same Method", Korean Patent No. 10-2025-0018458, Feb. 2025.
- [P5] **Sanghyun Jo**, Kyungsu Kim, Seungon Bang. "Method for Synthesizing Virtual Objects for Virtual Advertising Performed by a Computing Device and Computing Device", Korean Patent No. 10-2024-0198877, Dec. 2024.
- [P6] **Sanghyun Jo**, Kyungsu Kim, Seungon Bang. "Method for Background Composition of Error Object Area Performed on a Computing Device and Computing Device for Performing the Same", Korean Patent No. 10-2024-0198644, Dec. 2024.
- [P7] **Sanghyun Jo**, Kyungsu Kim, Seungon Bang. "Dual Feature-Based Image Segmentation Method Performed by a Computing Device and Computing Device for Performing the Same", Korean Patent No. 10-2024-0171236, Nov. 2024.
- [P8] **Sanghyun Jo**, Kyungsu Kim, Seungon Bang. "Method for Image Tagging Based on Image Matching Performed by a Computing Device and Computing Device for Performing the Same", Korean Patent No. 10-2024-0171187, Nov. 2024.
- [P9] Kyungsu Kim, In-Jae Yu, **Sanghyun Jo**, Seungon Bang. "Debiased Segmentation Method and Server That Performs the Same Method", Korean Patent No. 10-2023-0164587, Nov. 2023.
- [P10] Kyungsu Kim, In-Jae Yu, **Sanghyun Jo**, Seungon Bang. "Obtaining Method of Object Mask Information for Public Safety and Server System Performing the Same", Korean Patent Application No. 10-2022-0176164, Dec. 2022.
- [P11] Kyungsu Kim, In-Jae Yu, **Sanghyun Jo**, Seungon Bang. "Method of Acquiring Object Segmentation Information Through Trained Neural Network and Server System Performing the Same Method", Korean Patent Application No. 10-2022-0141458, Oct. 2022.
- [P12] Seungon Bang, **Sanghyun Jo**. "Method for Safety Management by Object Segmentation Based on Deep-Learning and System", Korean Patent No. 10-2021-0164131, Nov. 2021.