Junsuk Choe (최준석) | Ph.D.

Associate Professor at Sogang University
Department of Computer Science and Engineering
Department of Artificial Intelligence (*Affiliated*)
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As of June 2026 (Google Scholar): Citations 11,189 h-index 15 i10-index 19

Appointments

Associate Professor Sep 2025 – Present
Department of Computer Science and Engineering, Sogang University *Seoul, South Korea*

Assistant Professor Sep 2021 – Aug 2025
Department of Computer Science and Engineering, Sogang University *Seoul, South Korea*

Program Chair (전공주임) Feb 2022 – Present
Graduate School of AI·SW, Sogang University *Seoul, South Korea*

Visiting Scholar Jul 2023
Tübingen AI Center, University of Tübingen *Baden-Württemberg, Germany*
Hosted by Prof. Seong Joon Oh and Prof. Zeynep Akata

Research Scientist May 2020 – Aug 2021
NAVER AI Lab *Seongnam, South Korea*
Research focus: Advanced Visual Representation Learning

Graduate Research Assistant Sep 2013 – May 2020
Computer Vision and Machine Learning Lab., Yonsei University *Seoul, South Korea*
Supervisor: Prof. Hyunjung Shim

Education

Ph.D. in Engineering Aug 2020
Yonsei University, School of Integrated Technology Seoul, South Korea
Thesis: *Weakly Supervised Object Localization, What Are the True Limitations?*
Advisor: Prof. Hyunjung Shim

B.S. in Engineering Aug 2013
Yonsei University, School of Electrical and Electronic Engineering Seoul, South Korea

Research Interests

My research centers on large multimodal foundation models—vision–language and video–language models—and aims to make them sustainable to manage and reliable to deploy without costly retraining. I pursue this goal along two complementary directions: knowledge editing and grounding.

Knowledge Editing: Acquisition, Retention, and Forgetting. I develop methods for selectively modifying the knowledge stored in large models, spanning machine unlearning and continual learning. Motivated by the observation that post-hoc removal often suppresses rather than truly erases knowledge, I am increasingly interested in model structures in which knowledge is localized and composable, so that editing becomes a matter of adding or detaching components rather than disentangling intertwined parameters.

Grounding: Hallucination and Cross-Modal Consistency. I work on keeping model outputs faithful to the given input evidence, addressing hallucination, cross-image information leakage, and cross-modal interaction imbalance in multimodal models. I am interested in how to measure whether an output is grounded in the intended evidence and how to correct it when it is not.

Methodologically, I draw on semi- and weakly supervised learning as scalable tools for training and adapting models with reduced annotation. Beyond vision and language, I am extending these directions to broader data domains, including generative modeling for financial stress scenarios and symbolic regression for scientific discovery.

Teaching Experience

Extensive teaching record with up to 13 credits per semester in recent years, covering 37 course sessions from CS fundamentals to advanced AI.

Course Title	Semesters
Graduate Level	
CSE6100 Deep Learning	Spring 2024, 2026
GITA405 Transformers and LLMs	Spring 2026
CSE6506 Topics in Computational Linguistics	Fall 2025
AIE6681 Topics in Digital Human and Entertainment	Spring 2025
CSE6517 Topics in Representation Learning	Fall 2023, 2024
GITA385 Introduction to Deep Learning	Spring/Fall 2023–2026 (6×)
GITA388 Pattern Recognition	Spring/Fall 2023–2025 (4×)
CSE6528 Bigdata Computing (Capstone Design)	Fall 2022–2025
Undergraduate Level	
CSE4130 Introduction to Machine Learning	Spring 2023–2026
COR1010 Introduction to AI Programming	Spring 2024–2026
CSE4014 Introduction to Deep Learning	Fall 2024, 2025
CSEG321 Introduction to Natural Language Processing	Fall 2023
CSE3080 Data Structure	Spring 2022, 2023
CSE2003 Computer Programming I	Spring 2022
CSE4120 Fundamentals of Compiler Construction	Fall 2021, 2022
CSE3015 Fundamentals of Digital Circuit	Fall 2021

Grants

Research Grants

- **(PI) 우수신진연구**, 한국연구재단(NRF). 2024–2027
  신뢰가능한 거대 시각 언어 모델을 위한 환각 문제 완화 방법 개발 - 데이터 수집, 평가, 학습 및 추론 관점에서
  Total Budget: 912,660,000 KRW
- **(Co-PI) 독자 AI 파운데이션 모델 프로젝트**, 정보통신기획평가원(IITP). 2025–2027
  정예 연구진 결집을 통한 초거대 LLM/VLM 고도화 및 아세안 언어 확장 기술 개발 (Upstage)
- **(Co-PI) 글로벌인문사회융합연구지원사업**, 한국연구재단(NRF). 2024–2027
  AI와 VR을 활용한 몰입형 음악 교육 콘텐츠 개발 및 적용
- **(PI) 기본연구**, 한국연구재단(NRF). 2023–2024
  포인트 레이블 기반 인스턴스 세그멘테이션을 위한 학습기술 개발
- **(PI) 기본연구**, 한국연구재단(NRF). 2022–2024
  약지도기반 위치인식기술의 한계극복을 위한 네거티브샘플 수집활용기술 개발
- **(PI) 한-독 연구협력 네트워크 구축사업**, 한국연구재단(NRF). 2023
  최소지도 및 설명가능성을 활용한 보다 강건한 시각인지기술 연구

Educational & Institutional Grants

- **(Co-PI) 인공지능혁신대학원 (서강대학교)**, 정보통신기획평가원(IITP). 2026–2031

- **(Co-PI) AI중심대학 (서강대학교)**, 정보통신기획평가원(IITP). 2026–2033
- **(Co-PI) 생성AI 선도인재양성사업**, 정보통신기획평가원(IITP). 2025–2028
- **(Co-PI) 미래형자동차 핵심기술 R&D 전문인력양성사업**, 한국산업기술진흥원(KIAT). 2022–2027
- **(Co-PI) SW중심대학 (서강대학교)**, 정보통신기획평가원(IITP). 2024–2025
- **(Co-PI) 4단계 BK21 사업 (BrainKorea21 FOUR)**, 한국연구재단(NRF). 2021–2027

Academic Services

Area Chair	**NeurIPS** (2026), **ICLR** (2026), **COLM** (2025, 2026)
Journal Reviewer	**TPAMI**, **IJCV**
Conference Reviewer	**ML&AI:** NeurIPS, ICML, ICLR, AAAI, AISTATS, CoLLAs
	Vision: CVPR, ICCV, ECCV, WACV, ACCV
Organization	**Organizer**, Korean Conference on Computer Vision (KCCV), 2025–2026
	Organizer, IEIE Summer/Winter School on Image Processing, 2023–2025

Honors and Awards

Sogang University Excellence in Teaching Award (Academic Year 2024) 2025
Awarded to faculty members with outstanding educational achievements.

Sogang College of Engineering Young Fellow Award 2023
Awarded annually to one young professor in the college to recognize excellence in research.

Sogang College of Engineering Outstanding Lecture Award 2022
Awarded annually to one professor in the college to recognize excellence in teaching.

Papers Under Review

Bold text: Lab members, *: Co-first authors, †: Co-corresponding authors.

1. **Dongjun Hwang**, **Yejin Kim**, **Beomyun Kwon**, **Junsuk Choe**. "ALISE: Alignment-aware Data Selection for Unlearning in Contrastive Vision–Language Models," *Under review*, 2026.
2. **Yejin Kim**, **Dongjun Hwang**, Sungmin Cha, **Junsuk Choe**. "Knowledge Vector Weakening: Efficient Training-free Unlearning for Large Vision–Language Models," *Under review*, 2026.
3. **Yeji Park**, **Minyoung Lee**, Sanghyuk Chun, **Junsuk Choe**. "Mitigating Cross-Image Information Leakage in Multi-Image Understanding with Large Vision–Language Models," *Under review*, 2026.
4. **Jimin Hong**, **Minyoung Lee**, **Junsuk Choe**. "Inserting Random Tokens at the Tail: A Simple Training-Free Input Perturbation for LVLMs," *Under review*, 2026.
5. **Minyoung Lee**, **Jimin Hong**, **Junsuk Choe**. "Enhancing Cross-Modal Interactions in Audio–Visual LLMs via Training-Free Attention Injection," *Under review*, 2026.

Conference Papers

Bold text: Lab members, *: Co-first authors, †: Co-corresponding authors.

1. Seungho Eum, Ihjjoon Cho, Jeonghyeon Kim, **Junsuk Choe†**, Unsang Park†. "Rarr: Real-Time Attention-Driven Rain Removal With Hierarchical Scale-Aware Efficient Network," in the Proceedings of the International Conference on Pattern Recognition (ICPR), 2026.
2. Sungwon Woo, **Dongjun Hwang**, Shiwon Kim, **Junsuk Choe**, Jongho Nang. "Training-Free Uncertainty-guided Logit Adjustment for Few-Shot Class-Incremental Learning," in the Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Findings (CVPR Findings), 2026.

3. **Minyoung Lee**, **Yeji Park**, **Dongjun Hwang**, **Yejin Kim**, Seong Joon Oh, **Junsuk Choe**. "Enhancing Multi-Image Understanding through Delimiter Token Scaling," in the Proceedings of the International Conference on Learning Representations (ICLR), 2026.

4. Inha Kang, Youngsun Lim, Seonho Lee, Jiho Choi, **Junsuk Choe**, Hyunjung Shim. "What "Not" to Detect: Negation-Aware VLMs via Structured Reasoning and Token Merging," in the Proceedings of the International Conference on Learning Representations (ICLR), 2026.

5. **Dongjun Hwang**, **Yejin Kim**, **Minyoung Lee**, Seong Joon Oh, **Junsuk Choe**. "OVS Meets Continual Learning: Towards Sustainable Open-Vocabulary Segmentation," in the Proceedings of the Conference on Neural Information Processing Systems (NeurIPS), 2025.

6. **Yejin Kim***, Eunwon Kim*, Buru Chang†, **Junsuk Choe†**. "Improving Fisher Information Estimation and Efficiency for LoRA-based LLM Unlearning," in the Proceedings of the Conference on Language Modeling (COLM), 2025.

7. **Hyo Seo Kim**, Dongyoon Han†, **Junsuk Choe†**. "NegMerge: Sign-Consensual Weight Merging for Machine Unlearning," in the Proceedings of the International Conference on Machine Learning (ICML), 2025.

8. **Yeji Park***, Deokyeong Lee*, **Junsuk Choe†**, Buru Chang†. "ConVis: Contrastive Decoding with Hallucination Visualization for Mitigating Hallucinations in Multimodal Large Language Models," in the Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), 2025.

9. Dongseob Kim*, Seungho Lee*, **Junsuk Choe**, Hyunjung Shim. "Weakly Supervised Semantic Segmentation for Driving Scenes," in the Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), 2024.

10. Cheolhyun Mun*, Sanghuk Lee*, Youngjung Uh, **Junsuk Choe**, Hyeran Byun. "Small Objects Matters in Weakly-supervised Semantic Segmentation," in the Proceedings of the IEEE Winter Conference on Applications of Computer Vision (WACV), 2024.

11. Dongyoon Han*, **Junsuk Choe***, Seonghyeok Chun, John Chung, Minsuk Chang, Sangdoo Yun, Jean Song, Seong Joon Oh. "Neglected Free Lunch–Learning Image Classifiers Using Annotation Byproducts," in the Proceedings of the International Conference on Computer Vision (ICCV), 2023.

12. Jungbeom Lee, Seong Joon Oh, Sangdoo Yun, **Junsuk Choe**, Eunji Kim, Sungroh Yoon. "Weakly Supervised Semantic Segmentation using Out-of-Distribution Data," in the Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022.

13. Jae Myung Kim*, **Junsuk Choe***, Zeynep Akata, Seong Joon Oh. "Keep CALM and Improve Visual Feature Attribution," in the Proceedings of the International Conference on Computer Vision (ICCV), 2021.

14. Byeongho Heo, Sangdoo Yun, Dongyoon Han, Sanghyuk Chun, **Junsuk Choe**, Seong Joon Oh. "Rethinking Spatial Dimensions of Vision Transformers," in the Proceedings of the International Conference on Computer Vision (ICCV), 2021.

15. Minsong Ki, Youngjung Uh, **Junsuk Choe**, Hyeran Byun. "Contrastive Attention Maps for Self-supervised Co-localization," in the Proceedings of the International Conference on Computer Vision (ICCV), 2021.

16. Jeesoo Kim, **Junsuk Choe**, Sangdoo Yun, Nojun Kwak. "Normalization Matters in Weakly Supervised Object Localization," in the Proceedings of the International Conference on Computer Vision (ICCV), 2021.

17. Sangdoo Yun, Seong Joon Oh, Byeongho Heo, Dongyoon Han, **Junsuk Choe**, Sanghyuk Chun. "Re-labeling ImageNet: from Single to Multi-Labels, from Global to Localized Labels," in the Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021.

18. **Junsuk Choe***, Seong Joon Oh*, Seungho Lee, Sanghyuk Chun, Zeynep Akata, Hyunjung Shim. "Evaluating Weakly Supervised Object Localization Methods Right," in the Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020.

19. Sangdoo Yun, Dongyoon Han, Seong Joon Oh, Sanghyuk Chun, **Junsuk Choe**, Youngjoon Yoo. "CutMix: Regularization Strategy to Train Strong Classifiers with Localizable Features," in the Proceedings of the International Conference on Computer Vision (ICCV), 2019. **(Oral presentation)**

20. **Junsuk Choe**, Hyunjung Shim. "Attention-based Dropout Layer for Weakly Supervised Object Localization," in the Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019. **(Oral presentation)**

Journal Articles

Bold text: Lab members, *: Co-first authors, †: Co-corresponding authors.

1. **Dongjun Hwang**, Seong Joon Oh, **Junsuk Choe**. "Small Object Matters in Weakly Supervised Object Localization," *Neurocomputing*, Oct. 2025.
2. **Doyeol Baek**, **Junsuk Choe**. "VHOIP: Video-based Human-Object Interaction Recognition with CLIP Prior Knowledge," *Pattern Recognition Letters*, Apr. 2025.
3. **Minyoung Lee**, Kyungwoo Song, **Junsuk Choe**. "Fog-Free Training for Foggy Scene Understanding," *Pattern Recognition Letters*, vol. 189, pp. 129–135, Mar. 2025.
4. **Dongjun Hwang**, **Hyoseo Kim**, **Doyeol Baek**, Hyunbin Kim, Inhye Kye, **Junsuk Choe**. "Curriculum Learning with Class-label Composition for Weakly Supervised Semantic Segmentation," *Pattern Recognition Letters*, vol. 188, pp. 171–177, Feb. 2025.
5. **Junyong Kang**, Byeongho Heo, **Junsuk Choe**. "Improving ViT Interpretability with Patch-level Mask Prediction," *Pattern Recognition Letters*, vol. 187, pp. 73–79, Jan. 2025.
6. Sanghuk Lee*, Cheolhyun Mun*, Youngjung Uh, **Junsuk Choe**, Hyeran Byun. "Discovering an Inference Recipe for Weakly-Supervised Object Localization," *Pattern Recognition*, vol. 156, pp. 110838, Dec. 2024.
7. **Hyoseo Kim**, **Junsuk Choe**. "Weakly-supervised Incremental Learning for Semantic Segmentation with Class Hierarchy," *Pattern Recognition Letters*, vol. 182, pp. 31–38, June 2024.
8. **Dongjun Hwang**, Jung-Woo Ha, Hyunjung Shim, **Junsuk Choe**. "Entropy Regularization for Weakly Supervised Object Localization," *Pattern Recognition Letters*, vol. 169, pp. 1–7, May 2023.
9. **Junsuk Choe***, Seong Joon Oh*, Sanghyuk Chun, Seungho Lee, Zeynep Akata, Hyunjung Shim. "Evaluation for Weakly Supervised Object Localization: Protocol, Metrics, and Datasets," *IEEE Transactions on Pattern Analysis and Machine Intelligence* (*TPAMI*), vol. 45, no. 2, pp. 1732–1748, Feb. 2023.
10. **Junsuk Choe***, Seungho Lee*, Hyunjung Shim. "Attention-based Dropout Layer for Weakly Supervised Single Object Localization and Semantic Segmentation," *IEEE Transactions on Pattern Analysis and Machine Intelligence* (*TPAMI*), vol. 43, no. 12, pp. 4256–4271, Dec. 2021.
11. **Junsuk Choe**, Dongyoon Han, Sangdoo Yun, Jung-Woo Ha, Seong Joon Oh, Hyunjung Shim. "Region-based Dropout with Attention Prior for Weakly Supervised Object Localization," *Pattern Recognition*, vol. 116, pp. 107949, Aug. 2021.
12. **Junsuk Choe**, Hyunjung Shim. "Robust Approach to Inverse Lighting using RGB-D Images," *Information Sciences*, vol. 438, pp. 73–94, Apr. 2018.

Workshop Papers

Bold text: Lab members, *: Co-first authors, †: Co-corresponding authors.

1. Hyejin Lee, **Junsuk Choe**. "EvoVLM: Multimodal Evolutionary Feedback for Visual Symbolic Regression," ICML 2026 Workshop on AI for Science.
2. **Elena Kuular**, **Junsuk Choe**. "Behavioral Proxy Conditioning for Financial Stress Scenario Generation with a Pretrained Diffusion Model," ICML 2026 Workshop on Foundation Models for Structured Data.
3. **Dongjun Hwang**, **Yejin Kim**, **Beomyun Kwon**, **Junsuk Choe**. "Alignment-aware Data Selection for Unlearning in Contrastive Vision–Language Models," ICML 2026 Workshop on the Impact of Memorization on Trustworthy Foundation Models.
4. Inha Kang, Seonho Lee, Jiho Choi, **Junsuk Choe**, Hyunjung Shim. "Grounding the 'Not': Symbolic Representation of Negation for Logical Reasoning in VLMs," ICLR 2026 Workshop on Logical Reasoning of Large Language Models.
5. Jeongsoo Kim, Jongho Nang, **Junsuk Choe**. "LMLT: Low-to-high Multi-Level Vision Transformer for Lightweight Image Super-Resolution," ICCV 2025 Workshop on Advances in Image Manipulation.
6. Sanghyuk Chun, Seong Joon Oh, Sangdoo Yun, Dongyoon Han, **Junsuk Choe**, Youngjoon Yoo. "An Empirical Evaluation on Robustness and Uncertainty of Regularization Methods," ICML 2019 Workshop on Uncertainty & Robustness in Deep Learning.

7. **Junsuk Choe***, Song Park*, Kyungmin Kim*, Joo Hyun Park*, Dongseob Kim*, Hyunjung Shim. "Face Generation for Low-Shot Learning Using Generative Adversarial Networks," ICCV 2017 Workshop on MS-Celeb-1M Challenge. (**Oral presentation**)

Lab Members

1. **Dongjun Hwang** (PhD: 24.03-Present, MS: 22.03-24.02, Intern: 21.09-22.02)
   BS in Computer Science and Engineering, Sogang University
   Research focus: Vision–Language–Action Models for Continual and Open-World Learning
2. **Minyoung Lee** (PhD: 25.03-Present, MS: 23.03-25.02, Intern: 22.03-23.02)
   BS in Computer Science and Engineering, Sogang University
   Research focus: Temporal Reasoning in Multimodal Foundation Models
3. **Yeji Park** (Integrated MS-PhD: 23.03-Present, Intern: 22.10-23.02)
   BE in Economics, BS in Mathematics, Sogang University
   Research focus: Multimodal Understanding and Reasoning in Large Language Models
4. **Beomyun Kwon** (MS: 25.03-Present, Intern: 24.12-25.02)
   BS in Chemistry, BS in CSE, Sogang University
   Research focus: Knowledge Editing for Safety and Control in Diffusion Models
5. **Elena Kuular** (MS: 25.10-Present, Intern: 25.04-25.09)
   BS in Economics, Moscow State University
   Research focus: Generative Diffusion Models for Financial and Behavioral Data
6. **Jimin Hong** (MS: 26.03-Present, Intern: 25.03-26.02)
   BS in Computer Science and Engineering, Sogang University
   Research focus: Key–Value Cache Compression for Efficient MLLM Inference
7. **Jihong Park** (Intern: 26.01-Present)
   BS in Mechanical Engineering, Sogang University (Expected: 27.02)
   Research focus: AI Agents for Travel Planning
8. **Seungjun Ha** (Intern: 26.02-Present)
   BS in Computer Science and Engineering, Sogang University (Expected: 26.08)
   Research focus: Hybrid-supervised 3D Semantic Segmentation

Alumni

1. **Yejin Kim** (MS: 24.03-26.02, Intern: 23.02-24.02)
   Next position: Research Intern, KAIST AI
2. **Hyo Seo Kim** (MS: 22.09-25.08)
   Next position: PhD Student, Illinois Institute of Technology
3. **Doyeol Baek** (MS: 22.09-24.08, Intern: 22.01-22.08)
   Next position: Software Engineer, Samsung Electronics
4. **Junyong Kang** (Intern: 21.12-23.03)
   Next position: MS/PhD Student, KAIST AI

References

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