JAEWOO LEE

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RESEARCH INTERESTS

- **Multimodal:** Vision-Language, Audio-Visual, Interleaved modalities

- **Agentic reasoning:** Tool-integrated agents, Information-seeking

- **Efficiency:** Data selection, Token reduction, Model Compression

EDUCATION

University of North Carolina at Chapel Hill   NC, United States
Ph.D. in Computer Science (Advisor: Mohit Bansal)   *Aug. 2025 – Current*

Korea Advanced Institute of Science and Technology (KAIST)   Seoul, South Korea
M.S. in Artificial Intelligence (Advisor: Sung Ju Hwang)   *Mar. 2023 – Aug. 2024*

Korea Advanced Institute of Science and Technology (KAIST)   Daejeon, South Korea
B.S. in Electrical Engineering (Summa Cum Laude)   *Mar. 2020 – Feb. 2023*

PUBLICATIONS

* denotes the equal contribution and ^denotes the equal advising

[P1] PRInTS: Reward Modeling for Long-Horizon Information Seeking
Jaewoo Lee, Archiki Prasad, Justin Chih-Yao Chen, Zaid Khan, Elias Stengel-Eskin, Mohit Bansal
Preprint

[C5] TAMP: Token-Adaptive Layerwise Pruning in Multimodal Large Language Models
Jaewoo Lee, Keyang Xuan, Chanakya Ekbote, Sandeep Polisetty, Yi R. Fung, Paul Pu Liang
Annual Meeting of the Association for Computational Linguistics (**ACL Findings, 2025**)

[C4] Unified Multi-Modal Interleaved Document Representation for Information Retrieval
Jaewoo Lee*, Joonho Ko*, Jinheon Baek*, Soyeong Jeong, Sung Ju Hwang
VecDB Workshop @ International Conference on Machine Learning (**ICMLW, 2025**)

[C3] Concept-skill Transferability-based Data Selection for Large Vision-Language Models
Jaewoo Lee, Boyang Li^, Sung Ju Hwang^
Conference on Empirical Methods in Natural Language Processing (**EMNLP, 2024**)

[C2] STELLA: Continual Audio-Video Pre-training with Spatio-Temporal Localized Alignment
Jaewoo Lee*, Jaehong Yoon*, Wonjae Kim, Yunji Kim, Sung Ju Hwang
International Conference on Machine Learning (**ICML, 2024**)

[C1] Sound-based drone fault classification using multitask learning
Wonjun Yi, Jung-Woo Choi, Jaewoo Lee
International Congress on Sound and Vibration (**ICSV, 2023**)

RESEARCH EXPERIENCES

MURGe Lab-UNC Chapel Hill   NC, United States
Ph.D. Student Researcher (Advisor: Mohit Bansal)   *Aug. 2025 - Current*

- **[P1]** Developed a generative process reward model that provides step-level guidance for long-horizon information-seeking.

MIT Media Lab   MA, United States
Research Intern (Advisor: Paul Pu Liang)   *Nov. 2024 - Feb. 2025*

- **[C5]** Proposed a MLLM pruning pipeline that leverages multimodal token attributes for weight & layer importance.

DeepAuto.ai   Seoul, South Korea
AI Researcher   Aug. 2024 - Mar. 2025

- Worked on LangGraph-based retrieval augmented generation framework with unified query refinement.

Nanyang Technological University (NTU)   Singapore
Research collaborator (Advisor: Boyang Li)   Jan. 2024 - Jun. 2024

- **[C3]** Proposed a visual instruction tuning data selection method using concept-skill clustering.

MLAI Lab-KAIST   Seoul, South Korea
M.S. Student Researcher (Advisor: Sung Ju Hwang)   Mar. 2023 - Aug. 2024

- **[C4]** Suggested a retrieval framework that unifies interleaved multimodal contents within a document.
- **[C2]** Developed an audio-visual patch selection method that addresses dynamic multimodal semantics in continual pre-training.

Smart Sound Systems Lab-KAIST   Daejeon, South Korea
Undergraduate Research Intern (Advisor: Jung-Woo Choi)   Sep. 2021 - Jun. 2022

- **[C1]** Introduced a multitask learning approach and audio datasets (link) for UAV anomaly detection.

Urban Robotics Lab-KAIST   Daejeon, South Korea
Undergraduate Research Intern (Advisor: Hyun Myung)   Jun. 2021 - Aug. 2021

- Worked on Simultaneous localization and mapping (SLAM) for autonomous navigation of self-driving cars.

ACADEMIC SERVICES

- **Reviewer**: NeurIPS Workshop on Continual Foundation Model 2024, ACL Rolling Review - 2024 October

AWARDS & HONORS

- **Summa Cum Laude Award**   KAIST
  Graduated with highest honors and a 4.11/4.3 GPA.   Feb. 2023

- **National Scholarship for Science & Engineering**   Korea Student Aid Foundation
  Awarded for outstanding academics and potential impact in science and technology.   Sep. 2022 - Feb. 2023

- **Encouragement Award for the Undergraduate Research Program**   KAIST
  Earned a top ranking in the Undergraduate Research Program, competing against 65 teams.   Aug. 2022

- **College of Engineering Dean's List**   KAIST
  Achieved within the top 3% of academic performance in the Electrical Engineering Department.   Aug. 2022

- **School of Freshman Dean's List**   KAIST
  Achieved within the top 2% in academic excellence among Freshman.   Aug. 2020

SKILLS

Programming Ability - Python, C, MATLAB, R, Pytorch, Tensorflow, Git, Linux, LaTeX, Markdown
Language Ability - Native in Korean, Fluent in English (IBT TOEFL: 110)

REFERENCES

Mohit Bansal *Professor at UNC Chapel Hill* ✉ mbansal@cs.unc.edu
Sung Ju Hwang *Professor at KAIST* ✉ sungju.hwang@kaist.ac.kr
Boyang Li *Professor at NTU* ✉ boyang.li@ntu.edu.sg
Jung-Woo Choi *Professor at KAIST* ✉ jwoo@kaist.ac.kr