Dr. Jaehong Yoon

CONTACT INFORMATION	NANYANG TECHNOLOGICAL UNIVERSITY (NTU), SINGAPORE E-MAIL: jaehong.yoon@ntu.edu.sg LINKS: HOMEPAGE, GOOGLE SCHOLAR, TWITTER

RESEARCH INTERESTS

My long-term research vision centers on developing continually adaptable and trustworthy multimodal AI systems. To this end, I aim to: (1) enable seamless and scalable continual integration of diverse tasks, datasets, and modalities to support long-term generalization, (2) facilitate efficient and robust adaptation to novel data distributions and dynamically changing environments even after model deployment, and (3) ensure high reliability, safety, and faithfulness in multimodal learning, both in reasoning and generation under real-world conditions.

PROFESSIONAL EXPERIENCE

Assistant Professor,   Nanyang Technological University, Singapore **08/2025 - Current**
    The College of Computing and Data Science (CCDS)

Postdoctoral Research Associate,   UNC Chapel-Hill, NC   08/2023 - 08/2025
    Mentor: Prof. Mohit Bansal

Postdoctoral Research Associate,   KAIST, South Korea   03/2023 - 08/2023
    Mentor: Prof. Sung Ju Hwang

Visiting Student,   Weizmann Institute of Science, Israel   10/2022 - 11/2022
    Host: Prof. Yonina Eldar

Research Intern,   Microsoft Research, China   11/2021 - 04/2022
    Visual Computing Group
    Mentor: Dr. Yue Cao

Research Scientist,   MLAI Lab., KAIST, South Korea   02/2018 - 08/2018

EDUCATION

KAIST, Daejeon, South Korea

Ph.D., School of Computing,   Aug 2018 - Feb 2023
- Thesis: *"On-device, Online Continual Learning for the Real World"*
- The Best Ph.D. Dissertation Award from KAIST College of Engineering
- The Best Ph.D. Dissertation Award from KAIST School of Computing
- Machine Learning and Artificial Intelligence (MLAI) Lab
- Adviser: Prof. Sung Ju Hwang
- Area of Study: Machine Learning

UNIST, Ulsan, South Korea

M.S., Computer Science,   Aug 2016 - Feb 2018
- Thesis: *"Combined Group and Exclusive Sparsity for Deep Neural Networks"*
- Adviser: Prof. Sung Ju Hwang
- Area of Study: Machine Learning

B.S., Computer Science Engineering,   Mar 2012 - Aug 2016
- Biological Science Minor

JOURNAL PUBLICATIONS

[J2] ***Reliable and Responsible Foundation Models***
    Xinyu Yang, Junlin Han, Rishi Bommasani, Jinqi Luo, ..., **Jaehong Yoon**, et al.
    Transactions on Machine Learning Research (**TMLR 2025**)

[J1] ***Continual Learning: Forget-free Winning Subnetworks for Video Representations***
    Haeyong Kang, **Jaehong Yoon**, Sung Ju Hwang, and Chang D. Yoo
    IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI 2024**), **IF: 20.8**

CONFERENCE
PUBLICATIONS

*: equal contribution, †: equal advising

[C39] **WorldMM: Dynamic Multimodal Memory Agent for Long Video Reasoning**
Woongyeong Yeo, Kangsan Kim, Jaehong Yoon†, Sung Ju Hwang†
The IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) 2026, Denver, CO

[C38] **Avatar Forcing: Real-Time Interactive Head Avatar Generation for Natural Conversation**
Taekyung Ki, Sangwon Jang, Jaehyeong Jo, Jaehong Yoon, and Sung Ju Hwang
The IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) 2026, Denver, CO

[C37] **Frame Guidance: Training-Free Guidance for Frame-Level Control in Video Diffusion Models**
Sangwon Jang, Taekyung Ki, Jaehyeong Jo, Jaehong Yoon, Soo Ye Kim, Zhe Lin, and Sung Ju Hwang
International Conference on Learning Representations (ICLR) 2026, Rio de Janeiro, Brazil

[C36] **TrustGen: A Platform of Dynamic Benchmarking on the Trustworthiness of Generative Foundation Models**
Yue Huang, Chujie Gao, Siyuan Wu, Haoran Wang, ..., Jaehong Yoon et al.
International Conference on Learning Representations (ICLR) 2026, Rio de Janeiro, Brazil

[C35] **DART: Leveraging Multi-Agent Disagreement for Tool Recruitment in Multimodal Reasoning**
Fengli Wu, Vaidehi Patil, Jaehong Yoon, Yue Zhang, and Mohit Bansal
Conference of the European Chapter of the Association for Computational Linguistics (EACL) 2026, Rabat, Morocco

[C34] **DreamRunner: Fine-Grained Storytelling Video Generation with Retrieval-Augmented Motion Adaptation**
Zun Wang, Jialu Li, Han Lin, Jaehong Yoon, and Mohit Bansal
The AAAI Conference on Artificial Intelligence (AAAI) 2026, Singapore

[C33] **Video-RTS: Rethinking Reinforcement Learning and Test-Time Scaling for Efficient and Enhanced Video Reasoning**
Ziyang Wang*, Jaehong Yoon*, Shoubin Yu, Md Mohaiminul Islam, Gedas Bertasius, and Mohit Bansal
Conference on Empirical Methods in Natural Language Processing (EMNLP) 2025, Suzhou, China

[C32] **RACCooN: A Versatile Instructional Video Editing Framework with Auto-Generated Narratives**
Jaehong Yoon*, Shoubin Yu*, and Mohit Bansal
NeurIPS 2024 Workshop on Video-Language Models
Conference on Empirical Methods in Natural Language Processing (EMNLP) 2025, Suzhou, China

[C31] **Glider: Global and Local Instruction-Driven Expert Router**
Pingzhi Li*, Prateek Yadav*, Jaehong Yoon, Jie Peng, Yi-Lin Sung, Mohit Bansal, and Tianlong Chen
Conference on Empirical Methods in Natural Language Processing (EMNLP) 2025, Suzhou, China

[C30] **Video-Skill-CoT: Skill-based Chain-of-Thoughts for Domain-Adaptive Video Reasoning**
Daeun Lee*, Jaehong Yoon*, Jaemin Cho, and Mohit Bansal
Conference on Empirical Methods in Natural Language Processing (EMNLP Findings) 2025, Short Paper, Suzhou, China

[C29] **MEXA: Towards General Multimodal Reasoning with Dynamic Multi-Expert Aggregation**
Shoubin Yu*, Yue Zhang*, Ziyang Wang, Jaehong Yoon, and Mohit Bansal
Conference on Empirical Methods in Natural Language Processing (EMNLP Findings) 2025, Suzhou, China

[C28] **VideoTree: Adaptive Tree-based Video Representation for LLM Reasoning on Long Videos**
Ziyang Wang*, Shoubin Yu*, Elias Stengel-Eskin*, Jaehong Yoon, Feng Cheng, Gedas Bertasius, Mohit Bansal
The IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) 2025, Nashville, TN

[C27] **SAFREE: Training-Free and Adaptive Guard for Safe Text-to-Image And Video Generation**
Jaehong Yoon*, Shoubin Yu*, Vaidehi Patil, Huaxiu Yao, and Mohit Bansal
International Conference on Learning Representations (ICLR) 2025, Singapore

[C26] **Adapt-∞: Scalable Lifelong Multimodal Instruction Tuning via Dynamic Data Selection**
Adyasha Maharana*, Jaehong Yoon*, Tianlong Chen, and Mohit Bansal
International Conference on Learning Representations (ICLR) 2025, Singapore

[C25] **CREMA: Generalizable and Efficient Video-Language Reasoning via Multimodal Modular Fusion**
Shoubin Yu*, Jaehong Yoon*, and Mohit Bansal
International Conference on Learning Representations (ICLR) 2025, Singapore

[C24] **SELMA: Learning and Merging Skill-Specific Text-to-Image Experts with Auto-Generated Data**
Jialu Li, Jaemin Cho, Yi-lin Sung, Jaehong Yoon, and Mohit Bansal
Neural Information Processing Systems (NeurIPS) 2024, Vancouver, Canada

[C23] **EnvGen: Generating and Adapting Environments via LLMs for Training Embodied Agents**
Abhay Zala*, Jaemin Cho*, Han Lin, Jaehong Yoon, and Mohit Bansal
Conference on Language Modeling (COLM) 2024, Philadelphia, PA

[C22] **Mementos: A Comprehensive Benchmark for Multimodal Large Language Model Reasoning over Image Sequences**
Xiyao Wang, Yuhang Zhou, Xiaoyu Liu, Hongjin Lu, Yuancheng Xu, Feihong He, Jaehong Yoon, Taixi Lu, Gedas Bertasius, Mohit Bansal, Huaxiu Yao, and Furong Huang
Annual Meeting of the Association for Computational Linguistics (ACL) 2024, Bangkok, Thailand

[C21] **STELLA: Continual Audio-Video Pre-training with Spatio-Temporal Localized Alignment**
Jaewoo Lee*, Jaehong Yoon*, Wonjae Kim, Yunji Kim, and Sung Ju Hwang
CVPR 2024 Workshop on Continual Learning (CLVision)
International Conference on Machine Learning (ICML) 2024, Vienna, Austria

[C20] **EVEREST: Efficient Masked Video Autoencoder by Removing Redundant Spatiotemporal Tokens**
Sunil Hwang*, Jaehong Yoon*, Youngwan Lee*, and Sung Ju Hwang
CVPR 2024 Workshop on Transformers for Vision (T4V), Spotlight Presentation
International Conference on Machine Learning (ICML) 2024, Vienna, Austria

[C19] **BECoTTA: Input-dependent Online Blending of Experts for Continual Test-time Adaptation**
Daeun Lee*, Jaehong Yoon*, and Sung Ju Hwang
CVPR 2024 Workshop on Test-Time Adaptation
International Conference on Machine Learning (ICML) 2024, Vienna, Austria

[C18] **Carpe Diem: On the Evaluation of World Knowledge in Lifelong Language Models**
Yujin Lee, Jaehong Yoon, Seonghyeon Ye, Sangmin Bae, Namgyu Ho, Sung Ju Hwang, and Se Young Yun
NeurIPS 2023 Workshop on Synthetic Data Generation with Generative AI, Oral
The North American Chapter of the Association for Computational Linguistics (NAACL) 2024, Mexico City, Mexico

[C17] **Multimodal Representation Learning by Alternating Unimodal Adaptation**
XiaoHui Zhang, Jaehong Yoon, Mohit Bansal, and Huaxiu Yao
The IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) 2024, Seattle, Washington

[C16] **ECoFLaP: Efficient Coarse-to-Fine Layer-Wise Pruning for Vision-Language Models**
Yi-lin Sung, Jaehong Yoon, and Mohit Bansal
International Conference on Learning Representations (ICLR) 2024, Vienna, Austria

[C15] **Analyzing and Mitigating Object Hallucination in Large Vision-Language Models**
Yiyang Zhou*, Chenhang Cui*, Jaehong Yoon, Linjun Zhang, Chelsea Finn, Mohit Bansal, and Huaxiu Yao
NeurIPS 2023 Workshop on Instruction Tuning and Instruction Following
International Conference on Learning Representations (ICLR) 2024, Vienna, Austria

[C14] **Progressive Fourier Neural Representation for Sequential Video Compilation**
Haeyong Kang, Jaehong Yoon, Dahyun Kim, Sung Ju Hwang, and Chang D. Yoo
International Conference on Learning Representations (ICLR) 2024, Vienna, Austria

[C13] **Text-Guided Token Selection for Text-to-Image Synthesis with Token-based Diffusion Models**
Jaewoong Lee*, Sangwon Jang*, Jaehyeong Jo, Jaehong Yoon, Yunji Kim, Jin-Hwa Kim, Jung-Woo Ha, Sung Ju Hwang
International Conference on Computer Vision (ICCV) 2023, Paris, France

[C12] **Continual Learners are Incremental Model Generalizers**
Jaehong Yoon, Sung Ju Hwang, Yue Cao
International Conference on Machine Learning (ICML) 2023, Hawaii, USA

[C11] **Personalized Subgraph Federated Learning**
Jinheon Baek*, Wonyong Jeong*, Jiongdao Jin, Jaehong Yoon, and Sung Ju Hwang
International Conference on Machine Learning (ICML) 2023, Hawaii, USA

[C10] **On the Soft-Subnetwork for Few-shot Class Incremental Learning**
Haeyong Kang, Jaehong Yoon, Sultan Madjid, Sung Ju Hwang, Chang D. Yoo
International Conference on Learning Representations (ICLR) 2023, Kigali, Rwanda

[C9] **Bitwidth Heterogeneous Federated Learning with Progressive Weight Dequantization**
Jaehong Yoon*, Geon Park*, Wonyong Jeong, and Sung Ju Hwang
International Conference on Machine Learning (ICML) 2022, Baltimore, MD

[C8] **Forget-free Continual Learning with Winning Subnetworks**
Haeyong Kang*, Rusty Mina*, Sultan Madjid, Jaehong Yoon, Mark Hasegawa-Johnson, Sung Ju Hwang, and Chang D. Yoo
International Conference on Machine Learning (ICML) 2022, Baltimore, MD

[C7] **Rethinking the Representational Continuity: Towards Unsupervised Continual Learning**
Divyam Madaan, Jaehong Yoon, Yuanchun Li, Yunxin Liu, and Sung Ju Hwang
International Conference on Learning Representations (ICLR) 2022, Virtual
Oral Presentation (Acceptance Rate = 54/3391 = 1.6%)

[C6] **Online Coreset Selection for Rehearsal-based Continual Learning**
Jaehong Yoon, Divyam Madaan, Eunho Yang, and Sung Ju Hwang
International Conference on Learning Representations **(ICLR) 2022**, Virtual

[C5] **Federated Continual Learning with Weighted Inter-client Transfer**
Jaehong Yoon*, Wonyong Jeong*, Giwoong Lee, Eunho Yang, and Sung Ju Hwang
ICML 2020 Workshop on Lifelong Machine Learning Workshop
International Conference on Machine Learning **(ICML) 2021**, Virtual

[C4] **Federated Semi-supervised Learning with Inter-Client Consistency &**
Disjoint Learning
Wonyong Jeong, **Jaehong Yoon**, Eunho Yang, and Sung Ju Hwang
ICML 2020 Workshop on Federated Learning for User Privacy and Data Confidentiality Workshop, **Long Presentation**, **Best Student Paper Award**
International Conference on Learning Representations **(ICLR) 2021**, Virtual

[C3] **Scalable and Order-robust Continual Learning with Additive Parameter**
Decomposition
Jaehong Yoon, Saehoon Kim, Eunho Yang, and Sung Ju Hwang
International Conference on Learning Representations **(ICLR) 2020**, Addis ababa, Ethiopia, Virtual

[C2] **Lifelong Learning with Dynamically Expandable Networks**
Jaehong Yoon, Eunho Yang, Jeongtae Lee, and Sung Ju Hwang
International Conference on Learning Representations **(ICLR) 2018**, Vancouver, Canada

[C1] **Combined Group and Exclusive Sparsity for Deep Neural Networks**
Jaehong Yoon and Sung Ju Hwang
International Conference on Machine Learning **(ICML) 2017**, Sydney, Australia

RECENT
PREPRINTS

[P8] **AnchorWeave: World-Consistent Video Generation with Retrieved Local Spatial**
Memories
Zun Wang, Han Lin, **Jaehong Yoon**, Jaemin Cho, Yue Zhang, and Mohit Bansal
arXiv:2602.14941, 2026.

[P7] **When and How Much to Imagine: Adaptive Test-Time Scaling with World Models**
for Visual Spatial Reasoning
Shoubin Yu, Yue Zhang, Zun Wang, **Jaehong Yoon**, Huaxiu Yao, Mingyu Ding, and Mohit Bansal
arXiv:2602.08236, 2026.

[P6] **Self-Refining Video Sampling**
Sangwon Jang, Taekyung Ki, Jaehyeong Jo, Saining Xie, **Jaehong Yoon†**, and Sung Ju Hwang†
arXiv:2601.18577, 2026.

[P5] **Hierarchy-Aware Multimodal Unlearning for Medical AI**
Fengli Wu, Vaidehi Patil, **Jaehong Yoon**, Yue Zhang, Mohit Bansal
arXiv:2512.09867, 2025.

[P4] **Planning with Sketch-Guided Verification for Physics-Aware Video Generation**
Yidong Huang, Zun Wang, Han Lin, Dong-Ki Kim, Shayegan Omidshafiei, **Jaehong Yoon**, Yue Zhang, Mohit Bansal
arXiv:2511.17450, 2025.

[P3] **Refusal Falls off a Cliff: How Safety Alignment Fails in Reasoning?**
Qingyu Yin, Chak Tou Leong, Linyi Yang, Wenxuan Huang, Wenjie Li, Xiting Wang, **Jaehong Yoon**, YunXing, XingYu, Jinjin Gu
arXiv:2510.06036, 2025.

[P2] ***Movie Facts and Fibs (MF2): A Benchmark for Long Movie Understanding***
Emmanouil Zaranis, António Farinhas, Saul Santos, ..., Jaehong Yoon, et al.
arXiv:2506.06275, 2025.

[P1] ***EPiC: Efficient Video Camera Control Learning with Precise Anchor-Video Guidance***
Zun Wang, Jaemin Cho, Jialu Li, Han Lin, Jaehong Yoon, Yue Zhang, and Mohit Bansal
arXiv:2505.21876, 2025.

PATENTS
(US ONLY)

Method and Device with Federated Learning of Neural Network Weights
Jaehong Yoon, Geon Park, Wonyong Jeong, Jonghoon Yoon, and Sung Ju Hwang
US 20240256895 A1, Aug 2024

Method and Apparatus with Neural Network and Training
Jaehong Yoon, Saehoon Kim, Eunho Yang, and Sung Ju Hwang
US 20210256374 A1, Aug 2021

Electronic Apparatus and Method for Re-learning Trained Model
Jaehong Yoon, Eunho Yang, Jeongtae Lee, and Sung Ju Hwang
US 20180357539 A1, Dec 2018

ADVISING
ACTIVITIES

Postdocs
Yujin Choi (Ph.D., Seoul National University, 2026) Spring 2026 (Visiting)

Ph.D.Students
Jiachen Guo (M.S., Queen Mary University of London, 2024) 2026 - Current

M.S. Students
Yunhao Liu (B.S., Tsinghua University, 2025) 2026 - Current

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Yidong Huang (Ph.D. Student, UNC-Chapel Hill) 2025 - Current
Zun Wang (Ph.D. Student, UNC-Chapel Hill) 2024 - Current
Ziyang Wang (Ph.D. Student, UNC-Chapel Hill) 2024 - Current
Shoubin Yu (Ph.D. Student, UNC-Chapel Hill) 2023 - Current
Yi-lin Sung (Ph.D., UNC-Chapel Hill → Research Scientist, Meta) 2023 - 2025
Daeun Lee (Korea Univ. → Ph.D. Student, UNC-Chapel Hill) 2023 - 2025
Adyasha Maharana (Ph.D., UNC-Chapel Hill → Research Scientist, Databricks) 2024 - 2024
Abhay Zala (UNC-Chapel Hill) 2023 - 2024
Jaewoo Lee (M.S., KAIST → Ph.D. Student, UNC-Chapel Hill) 2022 - 2024
Sunil Hwang (M.S., KAIST → Lecturer, Korea Military Academy) 2021 - 2023
Geon Park (M.S., KAIST → Ph.D. Student, KAIST) 2021 - 2022
Divyam Madaan (M.S., KAIST → Ph.D. Student, NYU) 2021 - 2022

PROFESSIONAL
SERVICES

Other Services
2026 DEI Chair, *Conference on Lifelong Learning Agents* (CoLLAs)

Area Chair
2026 *The Annual Meeting of the Association for Computational Linguistics* (ACL)
2026 *Conference of the European Chapter of the Association for Computational Linguistics* (EACL)
2025 *Neural Information Processing System* (NeurIPS)
2025 *Conference on Lifelong Learning Agents* (CoLLAs) (Senior Reviewer)
2025 *The Annual Conference of the North American Chapter of the Association for Computational Linguistics* (NAACL)
2024 *Conference on Empirical Methods in Natural Language Processing* (EMNLP)
2024 NeurIPS 2024 *Workshop on Scalable Continual Learning for Lifelong Foundation Models*

Reviewer

Neural Information Processing System (NeurIPS), International Conference on Machine Learning (ICML), International Conference on Learning Representations (ICLR), Conference on Lifelong Learning Agents (CoLLAs), International Joint Conferences on Artificial Intelligence (IJCAI), Association for the Advancement of Artificial Intelligence (AAAI), Conference on Empirical Methods in Natural Language Processing (EMNLP), The IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), etc.

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), IEEE Transactions on Neural Networks and Learning Systems (TNNLS), Journal of Artificial Intelligence Research (JAIR), IEEE/ACM Transactions on Networking (ToN), Neural Networks (NN).

AWARDS & HONORS

NSCC Young Investigator Seed Project (YISP), 2026

AAAI New Faculty Highlights, 2026

Early-Career Spotlight Program, CoLLAs, 2025

Google PaliGemma Academic Program Award, 2024

The Best Ph.D. Dissertation Award from KAIST College of Engineering, 2023

The Best Ph.D. Dissertation Award from KAIST School of Computing, 2023

NeurIPS Top Reviewers Award, 2019

NAVER Ph.D. Fellowship Award, 2017

INVITED TALKS

Towards Continually-Evolving AI: Selective and Expandable Multimodal Memory
Jan. 2026. New Faculty Highlights, AAAI 2026

Continually-Adaptable Multimodal Agent for the Real World
Oct. 2025. Department of AI Seminar, Sungkyunkwan University, South Korea
Sep. 2025. GSAI Seminar, UNIST, South Korea

Toward Continually Growing Embodied AIs
Aug. 2025 Early Career Talk, CoLLAs 2025

Trustworthy and Continually Adaptable Multimodal AI Systems
Dec. 2024. EE, KAIST, South Korea (Virtual)

On the Communicability of Heterogeneous and Continual Learning Agents
Aug. 2024. DCDL Tutorial @ MICCAI 2024, USA (Virtual)
Apr. 2023. CMU & MBZUAI, Prof. Eric Xing's Group, USA (Virtual)

Lifelong-Adaptive and Self-Evolving AI Systems for Real-world Dynamics and Modalites
Jul. 2024. CSE/GSAI, Postech, South Korea
Jul. 2024. Electronics and Telecommunications Research Institute (ETRI), South Korea
Jul. 2024. AI Graduate School, KAIST, South Korea

Large-scale Multimodal Learning: Continuity, Efficiency, and Unification
Jun. 2024. AI Graduate School, UNIST, South Korea (Virtual)

Lightweight Video & Multimodal Learning
Nov. 2023. LG AI Research, South Korea (Virtual)

Towards Continuously Evolving AI
Jun. 2023. Edinburgh University, United Kingdom

Online Coreset Selection for Rehearsal-based Conitnual Learning
2022. UT Austin, Prof. Kristin Grauman's Group, USA (Virtual)

Representational Continuity for Unsupervised Continual Learning
2022. Korea Computer Congress (KCC), South Korea

REFERENCES

Prof. Mohit Bansal, Professor, University of North Carolina (UNC) Chapel Hill, US
Email: mbansal@cs.unc.edu

Prof. Sung Ju Hwang, Associate Professor, KAIST, South Korea
Email: sjhwang82@kaist.ac.kr

Prof. Bing Liu, Professor, University of Illinois at Chicago (UIC), US
Email: liub@uic.edu

Prof. Eunho Yang, Associate Professor, KAIST, South Korea
Email: eunhoy@kaist.ac.kr

Dr. Yue Cao, Technical Staff, Beijing Academy of Artificial Intelligence (BAAI), China
Email: caoyue10@gmail.com