

# Kyungmin Lee

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## Education

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<b>Ph.D. in Artificial Intelligence</b> Korea Advanced Institute of Science and Technology (KAIST)	Sep. 2022 - Aug. 2026 Advisor: Jinwoo Shin
<b>B.S. in Mathematics and Electrical Engineering (Double major)</b> Korea Advanced Institute of Science and Technology (KAIST)	Feb. 2015 - Feb. 2019

## Work Experience

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<b>NVIDIA GEAR</b> Research Intern	Dec. 2025 - Jun. 2026 Host: Yuke Zhu and Jim Fan
<b>Google DeepMind</b> Student Researcher	Jul. 2024 - Dec. 2024 Host: Yinxiao Li
<b>Google Research</b> External Collaboration	Feb. 2023 - Apr. 2024 Host: Kihyuk Sohn

## Publications

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(P: Preprint, C: Conference, W: Workshop, \*: Equal contribution)

- [P2] Trust Region Q Adjoint Matching  
Yonghoon Dong, **Kyungmin Lee**, Changyeon Kim, Jaehyuk Kim, Jinwoo Shin  
Preprint
- [P1] World Action Models are Zero-shot Policies  
Seonghyeon Ye, Yunhao Ge, Kaiyuan Zheng, Shenyuan Gao, Sihyun Yu, George Kurian, Suneel Indupuru, You Liang Tan, Chuning Zhu, Jiannan Xiang, Ayaan Malik, **Kyungmin Lee**, William Liang, Nadun Ranawaka, Jiasheng Gu, Yinzhen Xu, Guanzhi Wang, Fengyuan Hu, Avnish Narayan, Johan Bjorck, Jing Wang, Gwanghyun Kim, Dantong Niu, Ruijie Zheng, Yuqi Xie, Jimmy Wu, Qi Wang, Ryan Julian, Danfei Xu, Yilun Du, Yevgen Chebotar, Scott Reed, Jan Kautz, Yuke Zhu, Linxi “Jim” Fan, Joel Jang  
Preprint
- [C21] Dual-Stream Diffusion for World-Model Augmented Vision-Language-Action Model  
John Won, **Kyungmin Lee**, Huiwon Jang, Dongyoung Kim, Jinwoo Shin  
International Conference on Machine Learning (ICML), 2026
- [C20] Contrastive Representation Regularization for Vision-Language-Action Models  
Taeyoung Kim, Jimin Lee, Myungkyu Koo, Dongyoung Kim, **Kyungmin Lee**, Changyeon Kim, Younggyo Seo, Jinwoo Shin  
International Conference on Machine Learning (ICML), 2026
- [C19] Decoupled MeanFlow: Turning Flow models to Flow Maps for Accelerated Sampling  
**Kyungmin Lee**, Sihyun Yu, Jinwoo Shin  
International Conference on Learning Representations (ICLR), 2026
- [C18] HAMLET: Switch Your Vision-Language-Action Model into a History-Aware Policy  
Myungkyu Koo, Daewon Choi, Taeyoung Kim, **Kyungmin Lee**, Changyeon Kim, Younggyo Seo, Jinwoo Shin  
International Conference on Learning Representations (ICLR), 2026

- [C17] Enhancing Motion Dynamics of Image-to-Video Models via Adaptive Low-Pass Guidance  
Junesuk Choi, **Kyungmin Lee**, Sihyun Yu, Yisol Choi, Jinwoo Shin, Kimin Lee  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2026 (*Highlight*)
- [C16] StarFT: Robust Fine-tuning of Zero-shot Models via Spuriousity Alignment  
Younghyun Kim\*, Jongheon Jeong\*, Sangkyung Kwak, **Kyungmin Lee**, Juho Lee, Jinwoo Shin  
International Joint Conference on Artificial Intelligence (**IJCAI**), 2025
- [C15] Calibrated Multi-Preference Optimization for Aligning Diffusion Models  
**Kyungmin Lee**, Xiahong Li, Qifei Wang, Junfeng He, Junjie Ke, Ming-Hsuan Yang, Irfan Essa, Jinwoo Shin, Feng Yang\*, Yinxiao Li\*  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2025
- [C14] DiffusionGuard: A Robust Defense Against Malicious Diffusion-based Image Editing  
Junesuk Choi, **Kyungmin Lee**, Jongheon Jeong, Saining Xie, Jinwoo Shin, Kimin Lee  
International Conference on Learning Representations (**ICLR**), 2025
- [C13] Direct Consistency Optimization for Robust Text-to-Image Personalization  
**Kyungmin Lee**, Sangkyung Kwak, Kihyuk Sohn, Jinwoo Shin  
Conference on Neural Information Processing Systems (**NeurIPS**), 2024
- [C12] Improving Diffusion Models for Authentic Virtual Try-on in the Wild  
Yisol Choi, Sangkyung Kwak, **Kyungmin Lee**, Hyungwon Choi, Jinwoo Shin  
European Conference on Computer Vision (**ECCV**), 2024
- [C11] Discovering and Mitigating Visual Biases through Keyword Explanation  
Younghyun Kim\*, Sangwoo Mo\*, Minkyu Kim, **Kyungmin Lee**, Jaeho Lee, Jinwoo Shin  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024 (*Highlight*)
- [C10] DreamFlow: High-quality Text-to-3D generation by Approximating Probability Flow  
**Kyungmin Lee**, Kihyuk Sohn, Jinwoo Shin  
International Conference on Learning Representations (**ICLR**), 2024. (*Spotlight*)
- [W2] Fine-tuning Protein Language Models by ranking protein fitness  
Minji Lee, **Kyungmin Lee**, Jinwoo Shin  
NeurIPS Workshop on Generative AI and Biology (GenBio), 2023
- [C9] Collaborative Score Distillation for Consistent Visual Editing  
Subin Kim\*, **Kyungmin Lee**\*, Junesuk Choi, Jongheon Jeong, Kihyuk Sohn, Jinwoo Shin  
Conference on Neural Information Processing Systems (**NeurIPS**), 2023
- [C8] S-CLIP: Semi-supervised Vision-Language Pre-training using Few Specialist Captions  
Sangwoo Mo, Minkyu Kim, **Kyungmin Lee**, Jinwoo Shin  
Conference on Neural Information Processing Systems (**NeurIPS**), 2023
- [C7] Slimmed Asymmetrical Contrastive Learning and Cross Distillation for Lightweight Model Training  
Jian Meng, Li Yang, **Kyungmin Lee**, Jinwoo Shin, Deliang Fan, Jae-sun Seo  
Conference on Neural Information Processing Systems (**NeurIPS**), 2023
- [C6] STUNT: Few-shot Tabular Learning with Self-generated Tasks from Unlabeled Tables  
Jaehyun Nam, Jihoon Tack, **Kyungmin Lee**, Hankook Lee, Jinwoo Shin  
International Conference on Learning Representations (**ICLR**), 2023 (*Spotlight*)
- [C5] RényiCL: Contrastive Representation Learning with skew Rényi Divergence  
**Kyungmin Lee**, Jinwoo Shin  
Conference on Neural Information Processing Systems (**NeurIPS**), 2022

- [C4] GCISG: Guided Causal Invariant Learning for Syn-to-Real Generalization  
 Gilhyun Nam, Gyeongjai Choi, **Kyungmin Lee**  
 European Conference on Computer Vision (**ECCV**), 2022
- [C3] Pseudo-spherical Knowledge Distillation  
**Kyungmin Lee**, Hyeongkeun Lee  
 International Joint Conference on Artificial Intelligence (**IJCAI-ECAI**), 2022
- [C2] Representation Distillation by Prototypical Contrastive Predictive Coding  
**Kyungmin Lee**  
 International Conference on Learning Representations (**ICLR**), 2022
- [W1] Provable Defense by Denoised Smoothing with Learned Score function  
**Kyungmin Lee**  
 ICLR Workshop on Safety and Security of Machine Learning Systems, 2021
- [C1] Synthesizing Differentially Private datasets using Random Mixing  
 Kangwook Lee, Hoon Kim, **Kyungmin Lee**, Changho Suh, Kannan Ramchandran  
 IEEE International Symposium on Information Theory (**ISIT**), 2019

## Grants and Honors

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- Outstanding Paper Award*, ICLR 2026 The 2nd Workshop on World Models: Understanding, Modeling, and Scaling 2026  
 For [P1] World Action Models are Zero-shot Policies
- Bronze Prize*, Samsung Humantech Paper Awards 2023  
 For [C6] STUNT: Few-shot Tabular Learning with Self-generated Tasks from Unlabeled Tables
- Travel Award*, ICLR Workshop on Safety and Security of Machine Learning systems 2021  
 For [W1] Provable Defense by Denoised Smoothing with Learned Score function
- Recipient*, National Science and Engineering Undergraduate Scholarship 2017-2018  
*Korea Ministry of Science and ICT*

## Academic Services

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**Conference reviewer:** NeurIPS, ICLR, ICML, CVPR, ICCV, ECCV, WACV, BMVC, AAAI  
**Journal reviewer:** TMLR, TPAMI