

Kyungmin Lee

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Education

M.S./Ph.D. in Artificial Intelligence Korea Advanced Institute of Science and Technology (KAIST)	Sep. 2022.09 - Feb. 2026 (expected) Advisor: Jinwoo Shin
B.S. in Mathematics and Electrical Engineering (double major) Korea Advanced Institute of Science and Technology (KAIST)	Feb. 2015 - Feb. 2019

Work Experience

Google DeepMind Student Researcher	July 2024 - Dec. 2024 Host: Yinxiao Li
Google Research External Collaboration	Feb. 2023 - Apr. 2024 Host: Kihyuk Sohn
Agency for Defense Development Researcher (Alternative Military Services)	June 2019 - May 2022

Publications

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

- [P1] Decoupled MeanFlow: Turning Flow models to Flow Maps for Accelerated Sampling
Kyungmin Lee, Sihyun Yu, Jinwoo Shin
Preprint
- [P2] Dual-Stream Diffusion for World-Model Augmented Vision-Language-Action Model
John Won, **Kyungmin Lee**, Huiwon Jang, Dongyoung Kim, Jinwoo Shin
Preprint
- [P3] 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
Preprint
- [P4] Contrastive Representation Regularization for Vision-Language-Action Models
Taeyoung Kim, Jimin Lee, Myungkyu Koo, Dongyoung Kim, **Kyungmin Lee**, Changyeon Kim, Younggyo Seo, Jinwoo Shin
Preprint
- [P5] 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
Preprint
- [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

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

Reviewer: NeurIPS, ICLR, ICML, CVPR, ICCV, ECCV, WACV, AAAI, TMLR, TPAMI