Changyeon Kim

MS+PhD Student at ALIN Lab in KAIST AI

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Research Interest

My research goal is to make RL algorithms that can be well adapted to the real world. To this end, I am focusing on designing RL algorithms to tackle practical and challenging scenarios, e.g., unseen novel environments and environments without well-shaped rewards. I am also broadly interested in areas related to RL, including RL leveraging pre-trained representation learning, language-conditioned RL, and offline RL.

Education

Korea Advanced Institute of Science and Technology — *Daejeon, S.Korea*

PhD in Artificial Intelligence — *Mar. 2022 - Present*

Advisor: Jinwoo Shin

Korea Advanced Institute of Science and Technology — *Daejeon, S.Korea*

B.Sc. in Computer Science and Mathematics (minor) — *Mar. 2016 - Feb. 2021*

Publications

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

[W2] Guide Your Agent with Adaptive Multimodal Rewards — *Hawaii, USA*

Changyeon Kim, Younggyo Seo, Hao Liu, Lisa Lee, Jinwoo Shin, Honglak Lee, Kimin Lee — *July, 2023.*

- International Conference on Machine Learning Workshop on New Frontiers in Learning, Control, and Dynamical Systems (ICMLW), 2023.

[C2] Preference Transformer: Modeling Human Preferences using Transformers for RL — *Kigali, Rwanda*

Changyeon Kim*, Jongjin Park*, Jinwoo Shin, Honglak Lee, Pieter Abbeel, Kimin Lee — *May, 2023.*

- International Conference on Learning Representations (ICLR), 2023.

[W1] Dynamics-Augmented Decision Transformer for Offline Dynamics Generalization — *New Orleans, LA, USA*

Changyeon Kim*, Junsu Kim*, Younggyo Seo, Kimin Lee, Honglak Lee, Jinwoo Shin — *Nov, 2022.*

- Neural Information Processing Systems Workshop on Offline Reinforcement Learning (NeurIPSW), 2022.

[C1] Collecting the Public Perception of AI and Robot Rights — *Online*

Gabriel Lima, **Changyeon Kim**, Seungho Ryu, Chihyoung Jeon, Meeyoung Cha — *Oct, 2020.*

- Conference on Computer-Supported Cooperative Work and Social Computing (CSCW), 2020.

[P1] MOI-Mixer: Improving MLP-Mixer with Multi Order Interactions in Sequential Recommendation

Hojoon Lee, Dongyoon Hwang, Sunghwan Hong, **Changyeon Kim**, Seungryong Kim, Jaegul Choo

- ArXiv Preprint.

Work Experience

External Collaborator — *Remote*

Lisa Lee (Google Research) — *Apr. 2023 - present*

- Developed an imitation learning algorithm [W2] using multimodal representations for improving generalization ability in unseen variations.

External Collaborator — *Remote*

Kimin Lee (Google Research), Honglak Lee (University of Michigan) — *Mar. 2022 - present*

- Developed an imitation learning algorithm [W2] using multimodal representations for improving generalization ability in unseen variations.
- Developed a reinforcement learning algorithm [W1] for improving generalization ability in varying dynamics.
- Developed a preference-based reinforcement learning algorithm [C2] for modeling non-Markovian human preferences.

Machine Learning Engineer

Seongnam, S.Korea

Kakao, Recommendation Team

Dec. 2020 - Feb. 2022

- Developed ML platform for recommendation system.
- Developed Python backend for a web application providing data analysis and visualization of Kakao data.
- Implemented data pipeline from user feedback to refined user-item interaction matrix data.
- Deployed DropoutNet for providing qualitative recommendations to cold-start users.

Research Intern

Seongnam, S.Korea

Kakao, Recommendation Team

Jun. 2020 - Aug. 2020

- Developed an advanced similar recommendation model for Piccoma (cartoon platform of Kakao Japan).
- Conducted research on relationships between offline/online evaluation on the recommendation system.

Research Intern

Daejeon, S.Korea

Data Science Group, Institute of Basic Science

Jul. 2019 - Nov. 2020

- Conducted research on how much human rights can be granted to robots using AMT (Amazon Mechanical Turk) [C1].
- Implemented BiLSTM model for extracting game higlight by game log.
- Conducted research identifying the ”Pilgrimage” articles and analyzing its pattern in Naver News corpora.

Research Interen

Seoul, S.Korea

Netmarble

Jun. 2018 - Aug. 2018

- Implemented algorithm for detecting ”fraud” account in online-game
- Analyzed repetitive group reaction from time-series data of game activities.

Honors & Awards

2023	**Travel Award**, International Conference on Learning Representations (ICLR)	*Kigali, Rwanda*
2019	**Dean’s List (Fall Semester)**, Department of Engineering, KAIST	*Daejeon, S.Korea*
2019	**Line Scholarship (Fall Semester)**, School of Computing, KAIST	*Daejeon, S.Korea*
2017 - 19	**National Science and Engineering Scholarship**, Korea Ministry of Science and ICT	*Daejeon, S.Korea*
2017	**Kwanjeong Scholarship (Spring Semester)**, KAIST	*Daejeon, S.Korea*

Academic Services

Workshop Reviewer ICML Workshop on New Frontiers in Learning, Control, and Dynamical Systems (Frontiers4LCD) 2023

Skills

ML/DL	Pytorch, Pytorch-lightning, JAX/Flax
Programming	Python, C++
Big Data	Kafka, SQL, MongoDB, Hadoop, Trino(Presto)
DevOps	Git, Docker, Kubernetes
Languages	Korean (Native), English (Fluent), Japanese (Advanced)