JAEKYEOM KIM

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RESEARCH INTERESTS

Building capable AI agents for decision-making in challenging, real-world tasks, with language and multimodal models and reinforcement learning.

WORK EXPERIENCE

LG Management Development Institute Co., Ltd *Aug. 2023 - Present*
Postdoctoral Researcher

· Working on language and multimodal agents for decision making in challenging, real-world tasks
· Manager: Prof. Honglak Lee

ESTsoft, Seoul (Alternative Military Service) *Apr. 2013 - May 2016*
Senior Software Engineer

· Developed the dual-engine web browser based on Chromium, a large-scale open source project that powers Google Chrome and more

Google, Seoul *Jun. 2012 - Sep. 2012*
Software Engineering Intern

· Worked on processing raw text data to generate formalized entries and reconciling them with existing entries, as part of the Knowledge Graph project

EDUCATION

Seoul National University *Mar. 2018 - Aug. 2023*
Integrated MS/PhD in Computer Science and Engineering
Vision & Learning Lab (Advisors: Prof. Gunhee Kim and Prof. Hyun Oh Song)
Dissertation: Generalizable Agents with Improved Abstractions and Transfer
Committee: Profs. Sungjoo Yoo, Gunhee Kim, Hyun Oh Song, Joonseok Lee, and Kimin Lee

Korea Advanced Institute of Science and Technology *Feb. 2010 - Jun. 2017*
Bachelor of Science in Computer Science GPA (Overall): 4.06/4.30
Graduated *summa cum laude* GPA (Major): 4.21/4.30

PUBLICATIONS

(*equal contribution)

1. Process Reward Models That Think

   Muhammad Khalifa, Rishabh Agarwal, Lajanugen Logeswaran, **Jaekyeom Kim**, Hao Peng, Moontae Lee, Honglak Lee, Lu Wang

   Preprint

2. MLRC-Bench: Can Language Agents Solve Machine Learning Research Challenges?

   Yunxiang Zhang, Muhammad Khalifa, Shitanshu Bhushan, Grant D Murphy, Lajanugen Logeswaran, **Jaekyeom Kim**, Moontae Lee, Honglak Lee, Lu Wang

   Preprint

3. Do Not Trust Licenses You See: Dataset Compliance Requires Massive-Scale AI-Powered Lifecycle Tracing
   Jaekyeom Kim*, Sungryull Sohn*, Gerrard Jeongwon Jo, Jihoon Choi, Kyunghoon Bae, Hwayoung Lee, Yongmin Park, Honglak Lee
   Preprint

4. Interactive and Expressive Code-Augmented Planning with Large Language Models
   Anthony Z. Liu, Xinhe Wang, Jacob Sansom, Yao Fu, Jongwook Choi, Sungryull Sohn, **Jaekyeom Kim**, Honglak Lee
   Preprint, Accepted for publication at **ACL 2025**

5. AutoGuide: Automated Generation and Selection of Context-Aware Guidelines for Large Language Model Agents
   Yao Fu*, Dong-Ki Kim*, **Jaekyeom Kim**, Sungryull Sohn, Lajanugen Logeswaran, Kyunghoon Bae, Honglak Lee
   NeurIPS 2024 (Proceeding)

6. Auto-Intent: Automated Intent Discovery and Self-Exploration for Large Language Model Web Agents
   Jaekyeom Kim, Dong-Ki Kim, Lajanugen Logeswaran, Sungryull Sohn, Honglak Lee
   EMNLP 2024 Findings (Proceeding)

7. Small Language Models Need Strong Verifiers to Self-Correct Reasoning
   Yunxiang Zhang, Muhammad Khalifa, Lajanugen Logeswaran, **Jaekyeom Kim**, Moontae Lee, Honglak Lee, Lu Wang
   ACL 2024 Findings (Proceeding)

8. Constrained GPI for Zero-Shot Transfer in Reinforcement Learning
   Jaekyeom Kim, Seohong Park, Gunhee Kim
   NeurIPS 2022 (Proceeding)

9. Lipschitz-constrained Unsupervised Skill Discovery
   Seohong Park, Jongwook Choi*, **Jaekyeom Kim***, Honglak Lee, Gunhee Kim
   ICLR 2022 (Proceeding)

10. Time Discretization-Invariant Safe Action Repetition for Policy Gradient Methods
    Seohong Park, **Jaekyeom Kim**, Gunhee Kim
    NeurIPS 2021 (Proceeding)

11. Unsupervised Skill Discovery with Bottleneck Option Learning
    Jaekyeom Kim*, Seohong Park*, Gunhee Kim
    ICML 2021 (Proceeding)

12. Drop-Bottleneck: Learning Discrete Compressed Representation for Noise-Robust Exploration
    Jaekyeom Kim, Minjung Kim, Dongyeon Woo, Gunhee Kim
    ICLR 2021 (Proceeding)

13. Model-Agnostic Boundary-Adversarial Sampling for Test-Time Generalization in Few-Shot Learning
    Jaekyeom Kim, Hyoungseok Kim, Gunhee Kim
    ECCV 2020 (Oral: 104/5025 ≈ 2%) (Proceeding)

14. EMI: Exploration with Mutual Information

Hyoungseok Kim*, **Jaekyeom Kim***, Yeonwoo Jeong, Sergey Levine, Hyun Oh Song

ICML 2019 (Long talk: 158/3424 ≈ 4.6%) (Proceeding)

HONORS & AWARDS

PhD Dissertation Award *Aug. 2023*
Dept. of Computer Science and Engineering, Seoul National University

Star Student Researcher Award *Feb. 2023*
Brain Korea (BK21) FOUR Intelligence Computing, Seoul National University

Youlchon AI Star Fellowship *Jul. 2022*
Youlchon Foundation

Naver PhD Fellowship *Dec. 2021*
Naver

Google PhD Fellowship *Sep. 2021*
Google

· Area: Machine Learning

Samsung Humantech Paper Award *Feb. 2021*
Samsung Electronics

· Silver Prize in Signal Processing, award for research work

Qualcomm Innovation Fellowship Korea *Dec. 2020*
Qualcomm AI Research

· Award for research work

On-Dream Outstanding Scholar Award *Dec. 2020*
Hyundai Motor Chung Mong-Koo Foundation

On-Dream Future Talent Graduate Scholarship *Jul. 2020 - Jul. 2021*
Hyundai Motor Chung Mong-Koo Foundation

· Full-tuition and additional scholarships for graduate study

Kwanjeong Domestic Scholarship *Apr. 2018 - Mar. 2020*
Kwanjeong Educational Foundation

· Full-tuition and additional scholarships for 2 years

Summa Cum Laude Honor *Feb. 2018*
Korea Advanced Institute of Science and Technology

National Presidential Science Scholarship *Feb. 2010 - Jun. 2017*
Korea Student Aid Foundation

· Full-tuition and additional scholarships for undergraduate study

KAIST Convergence AMP Scholarship *Oct. 2016*
Korea Advanced Institute of Science and Technology

· Merit-based scholarship awarded to 5 recipients

ACADEMIC SERVICE AND ACTIVITIES

Conference Reviewer

· ICML (2021, 2022, 2023, 2024, 2025)
· NeurIPS (2021, 2022, 2023, 2024)
· ICLR (2022, 2023, 2024, 2025)
· ACL Rolling Review (2024, 2025)
· Workshops: Behavioral ML (NeurIPS 2024), Re-Align (ICLR 2025)

Teaching Assistant

· Probabilistic Graphical Models (M1522.001300), Spring, 2022
· Statistical Foundations for A.I. and Machine Learning (M2480.000500), Fall, 2021
· Theory and Lab of IoT, AI, and Big Data (M2177.004900), Spring, 2021
· Probabilistic Graphical Models (M1522.001300), Spring, 2020
· Introduction to Deep Learning (M2177.004300), Spring, 2019
· Engineering Mathematics 2 (033.015), Fall, 2018
· Introduction to Deep Learning (M2177.004300), Spring, 2018