Seungjae (Jay) Lee Robot Learning, Reinforcement Learning

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Google Scholar: hpR9h74AAAAJ

Education & Affiliations

- **University of Maryland, College Park** MD, USA
  Ph.D. Student, Department of Computer Science Aug. 2024 - Present
  Advisor: Prof. Furong Huang and Prof. Jia-Bin Huang

- **New York University** NY, USA
  Researcher, CILVR Lab at NYU (remote) Jul. 2023 - Mar. 2024
  Advisor: Prof. Lerrel Pinto (in-person) Apr. 2024 - Jun. 2024

- **Seoul National University** Seoul, Korea
  M.S., Department of Aerospace Engineering Mar. 2021 - Feb. 2024
  Advisor: Prof. H. Jin Kim

- **Seoul National University** Seoul, Korea
  B.S., Department of Mechanical and Aerospace Engineering Mar. 2015 - Feb. 2021
  GPA: 3.99 (Major: 4.09)/4.30 (11th out of 144 graduating students) military service (2 years)

Publications (* Equal Contribution) [Publications URL: sjlee.cc]

- Imagine, Verify, Execute: Memory-guided Agentic Exploration with Vision-Language Models
  Seungjae Lee*, *Daniel Ekpo, Haowen Liu, Furong Huang,*
  Abhinav Shrivastava, Jia-Bin Huang **CoRL'25**

- Robot Utility Models: General Policies for Zero-Shot Deployment in New Environments
  Haritheja Etukuru, Norihito Naka, Zijin Hu, ***Seungjae Lee****, Julian Mehu, Aaron Edsinger,*
  Chris Paxton, Soumith Chintala, Lerrel Pinto, Nur Muhammad Mahi Shafiullah **ICRA'25**
  International Conference on Robotics and Automation, 2025

- Behavior Generation with Latent Actions
  Seungjae Lee*, Yibin Wang, Haritheja Etukuru, H. Jin Kim,* [Spotlight]
  Nur Muhammad Mahi Shafiullah, Lerrel Pinto **ICML'24**
  International Conference on Machine Learning, 2024

- CQM: Curriculum Reinforcement Learning with a Quantized World Model
  Seungjae Lee*, Daesol Cho, Jonghae Park, H. Jin Kim* **NeurIPS'23**
  Conference on Neural Information Processing Systems, 2023

- Diversify Conquer: Outcome-directed Curriculum RL via Out-of-Distribution Disagreement
  Daesol Cho, ***Seungjae Lee****, H. Jin Kim* **NeurIPS'23**
  Conference on Neural Information Processing Systems, 2023

- SNeRL: Semantic-aware Neural Radiance Fields for Reinforcement Learning
  Dongseok Shim*, ***Seungjae Lee****, *H. Jin Kim* **ICML'23**
  International Conference on Machine Learning, 2023

- Outcome-directed Reinforcement Learning by Uncertainty & Temporal Distance-Aware Curriculum
  Goal Generation [Spotlight]
  Daesol Cho*, ***Seungjae Lee****, *H. Jin Kim* **ICLR'23**
  International Conference on Learning Representations, 2023

- Deep End-to-End Imitation Learning for Missile Guidance with Infrared Images
  Seungjae Lee*, Jongho Shin, Hyeong-Geun Kim, Daesol Cho, H. Jin Kim* **IJCAS'23**
  International Journal of Control, Automation and Systems, 2023

- DHRL: A Graph-Based Approach for Long-Horizon and Sparse Hierarchical Reinforcement Learning [Oral]
  Seungjae Lee*, Jigang Kim, Inkyu Jang, H. Jin Kim* **NeurIPS'22**
  Conference on Neural Information Processing Systems, 2022

- Robust and Recursively Feasible Real-Time Trajectory Planning in Unknown Environments
  *Inkyu Jang, Dongjae Lee, **Seungjae Lee**, H. Jin Kim* **IROS'21**
  IEEE/RSJ International Conference on Intelligent Robots and Systems, 2021

Work Experience

- **Internship, Toyota Research Institute**
  Large Behavior Model (LBM) team, Cambridge, MA May. 2025 - Aug. 2025

- **Internship, Samsung Electronics**
  Deep Learning Algorithm Team, Device Solutions (DS), Gyung-gi, Korea Jul. 2020 - Aug. 2020

Projects

- **LeRobot Project by Hugging Face**
  Implement VQ-BeT policy part of the LeRobot project May. 2024 - Jul. 2024

- **Vector-Quantized Behavior Transformer for Multi-Modal Demonstrations**
  Co-work with Generalizable Robotics and AI Lab (Prof. Lerrel Pinto) at New York University Jul. 2023 - Jun. 2024

- **Training Excavator Virtual Driver based on Inverse RL**
  Co-work with with HD Hyundai Heavy Industries Co., Ltd. Apr. 2023 - Apr. 2024

- **End-to-End Machine Learning Based Guidance Research**
  Co-work with the Agency for Defense Development (National Research Institute of Korea) May. 2021 - Apr. 2023

Teaching

- **AI Technical Coach, Teen Startup Team**
  AI Music & Gallary Team, Applied Computing Foundation Jun. 2023 - Jan 2024

- **Teaching Assistant, 2023 Hyundai Motor Company AI Boosting Camp**
  Innovation Center for Engineering Education, Seoul National University Aug. 2023

- **Teaching Assistant, Principles of Flight Vehicle Control (M2795.002600)**
  Department of Aerospace Engineering, Seoul National University Spring 2021

- **Mentor & Camp Leader, Dream Consultant (NPO)**
  Non-Protif Organization (NPO) for Social Contribution in Seoul Jul. 2016 - Sep. 2020

- **Tutor, Basic Physics 1 (034.005), Basic Physics 2 (034.006)**
  Faculty of Liberal Education, Seoul National University Fall 2016, Spring 2019, Fall 2019

Scholarships

- (Scholarship) Dashin Songchon Scholarship Foundation (USD100,000/year) Aug. 2024 - Present

- (Scholarship) Hyundai Motor Chung Mong-Koo Foundation (Tuition+KRW3,600K/year) Sep. 2021 - Jun. 2023

- (Scholarship) OK Bae&Jung Scholarship Foundation (KRW6,000K/year) Mar. 2020 - Feb. 2021

Awards / Achievements / Invited talks

- (Invited Talk) LG tech talk, LG AI Research Aug. 2023

- (Awards) Global Excellence Scholarship 2023, Hyundai Motor Chung Mong-Koo Foundation Jun. 2023

- (Awards) Top Prize at SNU AI Institute Spring Retreat Best Poster Competition May. 2023

- (Awards) Global Excellence Scholarship 2022, Hyundai Motor Chung Mong-Koo Foundation Dec. 2022

- (Awards) NeurIPS Scholar Award Dec. 2022

- (Awards) Brain Korea 21 (BK21) Aerospace Excellence Research Award <div align="right">Feb. 2022</div>

- (Awards) Graduated Summa Cum Laude, Seoul National University <div align="right">Feb. 2021</div>

Academic Services

- Program Committee, RSS'24 SemRob Workshop

- Conference reviewer for ICML'22'24'25

- Conference reviewer for IROS'23

- Conference reviewer for NeurIPS'23'25

- Conference reviewer for ICLR'24'25

- Conference reviewer for ICRA'24'25

- Conference reviewer for AAAI'25

- Conference reviewer for CoRL'25