Suyoung Lee

Contact Information

Samsung Seoul R&D Campus
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Research Interests

AI Agents
LLM agents, reasoning, planning, function calling and GUI navigation.
Deep Reinforcement Learning – practical application
Meta-RL, generalization, sample efficiency, exploration, and offline RL.

Career

Samsung Electronics - Staff Engineer *Mar. 2024 – present*

Semantic T/F, AI Model Team, Samsung Research, Seoul. *Mar. 2024 – present*

- Finetuning on-device LLM.
- AI Agent Framework.

Education

Ph.D., Electrical Engineering. *Aug. 2022 – Feb. 2024*
Korea Advanced Institute of Science and Technology (KAIST).
Advisor: Prof. Youngchul Sung.

Ph.D. Candidate, Electrical Engineering. *Feb. 2019 – Aug. 2022*
Korea Advanced Institute of Science and Technology (KAIST).
Advisor: Prof. Sae-Young Chung.

M.S., Electrical Engineering. *Feb. 2017 – Feb. 2019*
Korea Advanced Institute of Science and Technology (KAIST).
Advisor: Prof. Sae-Young Chung.

B.S., Electrical Engineering *Feb. 2012 – Feb. 2017*
Korea Advanced Institute of Science and Technology (KAIST).

Hansung Science High School, Seoul, Republic of Korea. *Mar. 2010 – Feb. 2012*

Honors

Outstanding Ph.D. Dissertation Award. *2024*
Thesis: *Meta-Reinforcement Learning with Imaginary Tasks*, KAIST EE.
Qualcomm-KAIST Innovation Awards. *2018*
Paper competition awards for graduate students, Qualcomm.
Un Chong-Kwan Scholarship Award. *2017*
For achievement of excellence in 2017 entrance examination, KAIST EE.

Publications

[C] Conference [W] Workshop [P] Preprint [J] Journal

[C1] **Suyoung Lee**, Sungik Choi, and Sae-Young Chung. "*Sample-Efficient Deep Reinforcement Learning via Episodic Backward Update*." Neural Information Processing Systems (NeurIPS) 2019.

[C2] **Suyoung Lee** and Sae-Young Chung. "*Improving Generalization in Meta-RL with Imaginary Tasks from Latent Dynamics Mixture*." Neural Information Processing Systems (NeurIPS) 2021.

[C3] **Suyoung Lee**, Myungsik Cho, and Youngchul Sung. "*Parameterizing Non-Parametric Meta-Reinforcement Learning Tasks via Subtask Decomposition*." Neural Information Processing Systems (NeurIPS) 2023.

[C4] Jeonghye Kim, **Suyoung Lee**, Woojun Kim, and Youngchul Sung "*Decision ConvFormer: Local Filtering in Metaformer is Sufficient for Decision Making.*" International Conference on Learning Representations (ICLR) 2024 as **spotlight presentation (366/7262= 5.0%)**.

[C5] Myungsik Cho, Jongeui Park, **Suyoung Lee**, and Youngchul Sung. "*Hard Task First: Multi-Task Reinforcement Learning through Task Scheduling.*" International Conference on Machine Learning (ICML) 2024.

[C6] Jeonghye Kim, **Suyoung Lee**, Woojun Kim, and Youngchul Sung "*Adaptive Q-Aid for Conditional Supervised Learning in Offline Reinforcement Learning.*" Neural Information Processing Systems (NeurIPS) 2024.

[W1] **Suyoung Lee** and Sae-Young Chung. "*Adaptive Intrinsic Motivation with Decision Awareness.*" Decision Awareness in Reinforcement Learning Workshop at International Conference on Machine Learning (ICML) 2022.

[W2] Jeonghye Kim, **Suyoung Lee**, Woojun Kim, and Youngchul Sung. "*Decision ConvFormer: Local Filtering in MetaFormer is Sufficient for Decision Making.*" Foundation Models for Decision Making Workshop at Neural Information Processing Systems (NeurIPS) 2023.

[J1] Gyeongmin Kim, Jeonghye Kim, **Suyoung Lee**, Jaewoo Baek, Howon Moon, Sangheon Shin, and Youngchul Sung. "*Robust Reinforcement Learning Under Dimension-Wise State Information Drop.*" IEEE Access, 2024.

Languages

Korean (native)
English (fluent) – TOEIC 950 (23.06.28), OPIc IH (24.06.08)
Russian (basic)
(International linguistic experience at Tashkent International School, 2007–2009.)

Programming Languages

MATLAB and Python (PyTorch/TensorFlow).
GitHub: https://github.com/suyoung-lee

Academic Services

Invited talk

- KAIST EE Graduate School REEsearch Party: academic seminar by doctoral graduates who won outstanding thesis awards, April 2024.

Conference reviewer

- International Conference on Machine Learning (ICML): 2021–2025
- Neural Information Processing Systems (NeurIPS): 2021–2024
- Internation Conference on Learning Representations (ICLR): 2024

Program committee

- Foundation Models for Decision Making Workshop (FMDM) at Neural Information Processing Systems (NeurIPS) 2023.

Teaching Experience

Teaching assistant (KAIST) *Spring 2018 to Fall 2020*

- EE326 Introduction to Information Theory and Coding.
- EE210 Probability and Introductory Random Processes.
- EE105 Electrical Engineering: Changing the World.

- EE405 Electronics Design Lab. Network of Smart Things.
- EE807 Special Topics in EE. Deep Reinforcement Learning and AlphaGo.
  - Course rewarded for the **outstanding TA award** at KAIST EE.
- EE405 Electronics Design Lab. Network of Smart Systems.