Haeone Lee

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Personal

- Born: 05 Dec. 2005 (Age: 18)

Research interest

Keywords: Reinforcement learning, Exploration, Adaptation, Long-horizon, Abstraction, Prior knowledge, Robotics

My goal is to create a real-world embodied agent with great physical capability, that pursues to be 'helpful' for humans. I believe in the power of Reinforcement Learning, in the sense that (1) it gives optimal performance (2) it interacts with and adapts to the changing world (3) it is the closest to how animals 'emerge' the intelligence as part of goal pursuit. Aside from the real world, I am also interested in the applications of RL in the text, video, and image 'world'. To realize this goal, I look forward to utilizing large offline priors, building abstract decision-making processes, and empowering RL algorithms to have enough memorizing capability, deal with long-horizon, and work autonomously(e.g., without manual resets). For details, **this** briefly surveys my thoughts.

Education

Bachelor's Degree in Computer Science.
B.S. Degree Examination for Self-Education *Aug 2020 – Nov 2021*

GPA: 4.3/4.3
Grade distributed: 0.01∼3.00%
Calculated Score: 100/100

Relevant courseworks: Algorithm, Data structure, Computer network, Operating system, Database, System programming, Computer systems, Logic circuits, Artificial intelligence.

High school degree
General Educational Development Test; GPA: 97.14/100 *May 2020*

Skills

Programming languages: Python, C/C++

Technologies: PyTorch, Linux, Latex, Algorithms

Knowledge: Reinforcement learning, Computer vision, Natural language processing, Statistics, Machine learning, Deep learning

Language: Korean(native), English(highly proficient)
I have fluent working level proficiency in English without any difficulties

Experience

KAIST AI Seoul, Korea
Research intern(advisor: Joseph J. Lim) *May 2023 – Oct 2023, Full-time*

- Devised a novel memory learning algorithm to equip AI agent with an adaptation capability to new environments and achieved successful results in the maze environment.
- Simulated an adaptation capability of the algorithm on Franka Emika robot in a table-top manipulation using Robomimic, LIBERO framework
- Discussed and assisted the research projects on improving the dexterous manipulation capability of robots

Writings

- "Creating Artificial Intelligence from the World" (2024). Slides.
- "RL basic: an article that introduces the fundamental of reinforcement learning" (2022). Book(Korean).
- "Autonomous driving in Unity environment using reinforcement learning" (2020). Project report(Korean).

- "Application and analysis of deep reinforcement learning algorithms in multiple environments" (2020). Project report(Korean).

Publications

[1] Lee, Haeone. "ComGAN: Toward GANs Exploiting Multiple Samples." arXiv preprint arXiv:2304.12098 (2023).

Certificates

iBT TOEFL (Score: 92) *Aug 2022*

Reading: 29, Listening: 22, Speaking: 19, Writing: 22