Haeone Lee

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Personal

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

Research interest

Keywords: Reinforcement learning, Prior knowledge, Exploration, Adaptation, Hierarchical RL, Long-horizon control, Robotics

My goal is to develop an intelligent agent that can self-improve to be useful for humans, consisting of any form e.g., physical embodiment(robots), or software(android agent). I believe in the power of Reinforcement Learning, in that sense (1) it can autonomously come up with the solution given the goal (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. To make RL successful, I deem there are plenty of challenges to solve such as enabling efficient exploration, long-horizon control, and safe and autonomous learning without manual interventions. To this end, I am interested in utilizing prior knowledge(e.g., common sense, offline data), and equipping the algorithms with long-term memorizing, hierarchical decision-making, and good abstraction capabilities. 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

Knowledge: Reinforcement learning, Robot learning, Computer vision, 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