JONGWOOK JEON

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Education

Yonsei University   Mar 2020 – Present
School of Electrical and Electronic Engineering
GPA: 3.57/4.3
Leave of absence for military service: May 2022 - Nov 2023

Research Interests

My research focuses on Scalable and Generalizable Robot Learning. Specifically, I aim to leverage Offline Reinforcement Learning to extract meaningful temporal abstractions (skills) from static datasets. My ultimate goal is to enable robots to utilize these learned primitives to adapt robustly to novel environments.

- **Unsupervised Reinforcement Learning:** How can an agent autonomously discover a diverse repertoire of skills without extrinsic rewards, and how can these primitives facilitate rapid adaptation to complex downstream tasks?
- **Offline Reinforcement Learning:** How can we extract the optimal policy solely from static datasets without any further interaction with the environment, while effectively handling the distributional shift?
- **Generalizable Robot Learning:** How can robots leverage skills learned from prior data to robustly generalize to unseen environments, bridging the gap between training scenarios and novel real-world situations?

Experience

Yonsei DILLAB , Reserach Intern (Adivsor: prof. Jongmin Lee)   Apr 2025 – Present
- Attended weekly lab seminars and discussed each member's research topics
- Co-authored (second author) a study on solving skill discovery with DICE
- Led (first author) a study on primal Wasserstein skill discovery using DICE

Yonsei CVLAB , Reserach Intern (Adivsor: prof. Bumsub Ham)   Jan 2025 – Apr 2025
- Presented and discussed weekly on essential papers in AI and computer vision

Yonsei Data Science Lab , Vice President (Adivsor: prof. Taeyoung Park)   Jul 2024 – Jun 2025
- Studied fundamental machine learning theory (CV, NLP, Diffusion etc)
- Read and discussed research papers in my areas of interest
- Conducted modeling projects (Optimizing Learning Rate Scheduler via RL, Speech splitting to Native Accent) in my areas of interest, including industry-sponsored projects (Pet's body length Measurement via 3d vision)

Research

Skill discovery via Primal Wasserstein, led, Research in progress   Nov 2025 – Present
- Contributed to ideation and mathematical derivations
- In prior Wasserstein-distance–based skill discovery, the objective is typically implemented in the dual form, where the Lipschitz constraint can undesirably restrict the metric. We aim to address this by formulating the objective in the primal Wasserstein form. In addition, existing approaches often maximize the Wasserstein distance using samples from the replay buffer, which effectively increases the distance between replay-buffer distributions rather than the policy's true state(-action) distribution. To reduce this bias, we incorporate DICE-based approach.

MIMDICE, 2nd author, Research in progress   Aug 2025 – Present
- Contributed to baseline experiment and surveyed the preliminaries.
- Existing skill discovery methods typically maximize mutual information (MI) using samples from the replay buffer. As a result, they end up maximizing the MI of the replay-buffer distribution rather than the target policy's distribution, which introduces bias. We aim to address this issue using a DICE-based approach to

better align the objective with the policy distribution.

Projects

Optimizing Optimizer and Learning rate scheduler, team leader   Mar 2025 – May 2025
- Contributed to Ideation and optimizing via DQN approach.
- Commonly used optimizers like Adam and momentum—and even learning rate schedulers—are typically hand-designed and kept fixed, rather than adapting to the specific task. I viewed the per-step parameter updates as a sequential decision-making problem, and aimed to automate and learn these update rules using reinforcement learning.

Finance Chatbot, team leader   Sep 2024 – Dec 2024
- Contributed to task-specific development using the OpenAI API, focusing on backend engineering (DB, data crawling, and RAG)
- Built a GenAI-powered finance Q&A chatbot to help address financial illiteracy among college students. Since standard GenAI APIs lack real-time updates, I implemented a RAG pipeline that refreshes a news database hourly and uses prompt design to explain articles and financial terms in clear, beginner-friendly language.

Awards

Yonsei 2nd Gen AI(Silver Prize)   Sep 2024 - Dec 2024
Awarded Silzer Prize in the Gen AI contest making Finance Chatbot web service.
- Positioned as backend engineer and adjusting Open AI API.

Relevant Courseworks

AI and Machine Learning: Introduction to Artificial, Intelligence, Reinforcement Learning, Generative Model, Robot Learning, Intellgent Control

Mathemateics: Probability and Statistics, Number Theory, Engineering Mathmatics, Linear Algebra, Optimization, Analysis1

Systems and Computing: Digital Signal Proccessing, Data structure, Computer Architecture, Operating Systems

Skills

Programming Languages: Python/Pytorch, C/C++, Linux Environment, MATLAB

Languages: Korean(Native), English(Proficient)

Activities: Yonsei Futsal and Soccer club(YFS), Yonsei Drone club