Dohyeok Lee Contact: dohyeoklee.kr@gmail.com

Homepage: Portfolio, Google Scholar, LinkedIn, Github update: 2024.12.23

Education

Seoul National University(SNU), Seoul, Korea
Ph.D. Candidate in Electrical and Computer Engineering, Advisor: Jungwoo Lee
Research topic: robot learning, reinforcement/imitation learning

Seoul National University(SNU), Seoul, Korea
M.S. in Electrical and Computer Engineering, 2024, Advisor: Jungwoo Lee

Korea Advanced Institute of Science and Technology(KAIST), Daejeon, Korea
B.S. in Electrical Engineering, 2020

Publication & Conference

[IC2] SPQR: Controlling Q-ensemble Independence with Spiked Random Model for Reinforcement Learning, **NeurIPS 2023** (Paper Link)
Author: **Dohyeok Lee**, Seungyub Han, Taehyun Cho, Jungwoo Lee

[D1] ARTificial Expressions: Human-Robot Interactive Drawing, **CVPR 2023 Demo (Best Demo Awarded)** (Web Link)
Author: Yejin Kim, **Dohyeok Lee**

[IC1] Control of Furuta Pendulum with Reinforcement Learning, ICCAS 2019 (Video)
Author: **Dohyeok Lee**, Usama Mohammad, Dong Eui Chang

[R] Reviewer: CoRL 2024 W, ITW 2024

*IC: International Conference, *D: Demo, *R: Reviewer

Open Source Implementation

Nonlinear controller (★ 17) (Github Link)
- Implement nonlinear control (robust, adaptive, sliding mode) algorithms on two-arm manipulator simulator

IMPALA (Github Link)
- Implement IMPALA(Scalable Distributed Deep-RL with Importance Weighted Actor-Learner Architectures) in distributed machine system with ray, redis, UDP

EKF (★ 9) (Github Link)
- Implement EKF(Extended Kalman Filter) for sensor fusion of GPS and IMU data with Kitti dataset

RRT (Github Link)
- Implement RRT(Rapid Random Tree) algorithms

Selected Experience

[W] Robotics Engineer [7m] 10/2020 to 04/2021
D.Hive (start-up)
- Developing autonomous delivery robot
  -Developing: driving controller module, sensor noise filtering system
  -Managing: development of mobile robot hardware platform, sensor system, sensor fusion system, planning module, segmentation module

[W] Robotics Engineer Intern [3m] 06/2019 to 08/2019
Crazing Lab (start-up)
- Developing autonomous filming robot
  -Mobile robot platform: hardware(frame,battery system), BLDC motor control system, UART communication system
  -ROS system for motor control, IMU, LiDAR, and depth camera data processing

[R] Project Intern [3m] 06/2018 to 08/2018
Robotics and Computer Vision Lab, KAIST
- Developing 3D pose estimation algorithm for hubo picking challenge

*W: Work, *R: Research

Experience

[DC3] Seperated Batch Ensemble DQN (Github)
KICS Winter Conference 2023
- Author: **Dohyeok Lee**, Jungwoo Lee

[DC2] Isometric regularization for high-level actions on dynamic-aware embeddings (Github)
KICS Winter Conference 2023
- Author: Taehyun Cho, **Dohyeok Lee**, Jungwoo Lee

[DC1] 2D Simulator Implementation for Surveillance/Reconnaissance Reinforcement Learning Algorithms
KIMST Conference 2020
- Author: Changsik Lee, **Dohyeok Lee**, Dong Eui Chang

[R] Research Student [7m] 03/2020 to 09/2020
Control Laboratory, KAIST
- Researching reinforcement learning algorithms for surveillance system

[W] Collaborating Engineer (part-time) [5m] 07/2021 to 11/2021
Zer01ne, Hyundai Motor Company
- Developing AR system integrating robot Spot with Unity, ROS (Web Link)

[R] Undergraduate Research Program [7m] 12/2018 to 06/2019
Control Laboratory, KAIST
- Researching reinforcement learning for control algorithms with Furuta pendulum

[R] Research Intern [3m] 12/2017 to 02/2018
Statistical Inference and Information Theory Laboratory, KAIST
- Researching deep imitation learning for sports dataset

[P] Humanoid (Web Link: TBD) 09/2024 to 12/2024
- course project

[P] Vender (Web Link) 07/2020 to 01/2021
Temporary Artist, Art Center Nabi
- Creating A.I media artwork with A.I based emotion recognition and autonomous vending machine system

[P] Autonomous Mobile Robot (Web Link) 06/2018 to 05/2019
Microrobot Research, KAIST
- Making autonomous mobile robot with YOLO, Tmap API, GPS and compass sensor, etc.

[P] Hand-shape Manipulator with Teleoperation (Web Link) 06/2017 to 10/2017
Microrobot Research, KAIST
- Making hand-shape manipulator and glove-shape interface for teleoperation

[P] Maker-based Mobile Robot (Web Link) 06/2016 to 10/2016
Microrobot Research, KAIST
- Making assistant mobile robot for maker-based localization and mapping

*DC: Domestic Conference, *W: Work, *R: Research, *P: Project