DONGSU LEE

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EDUCATION

Carnegie Mellon University   Aug 2024 - Present
Visiting student, Software and Societal Systems
Collaborator: Prof. D. Zhao, *Safe AI Lab*
Pittsburgh, PA

Soongsil University   Mar. 2022 - Aug. 2025 (Expected)
M.S., Department of Intelligent Semi-conductor
Seoul, Korea

Soongsil University   Mar. 2016 - Feb. 2022
B.S., Bio-medical System; Big-data Computing
GPA: 4.22/4.5 (cumulative), 4.22/4.5 (major), **summa cum laude**
Seoul, Korea
Leave of absence for military service: Aug 2017 - May 2019 (2 years)

PUBLICATIONS (Google Scholar)

Conferences

1. **Dongsu Lee**, Minhae Kwon
   Episodic Future Thinking Mechanism for Multi-agent Reinforcement Learning
   Neural Information Processing Systems (NeurIPS), December 2024

2. **Dongsu Lee**, Chanin Eom, Minhae Kwon
   AD4RL: Autonomous Driving Benchmarks for Offline Reinforcement Learning with Value-based Dataset
   IEEE International Conference on Robotics and Automation (ICRA), May 2024 (**Oral**)

3. **Dongsu Lee**, Minhae Kwon
   Foresighted Decisions for Inter-vehicle Interactions: A Offline Reinforcement Learning Approach
   IEEE International Conference on Intelligent Transportation Systems (ITSC), September 2023 (**Oral**)

Journals

1. **Dongsu Lee**, Minhae Kwon
   Offline Reinforcement Learning on Foresighted Decision-making for Autonomous Driving System
   IEEE Internet of Things Journal, accepted

2. **Dongsu Lee**, Minhae Kwon
   Instant Inverse Modeling of Stochastic Driving Behavior with Deep Reinforcement Learning
   IEEE Transaction on Consumer Electronics, September 2024

3. Chanin Eom, **Dongsu Lee**, Minhae Kwon
   Selective Imitation for Efficient Online Reinforcement Learning with Pre-collected Data
   ICT Express, vol. 11, no. 2, 2025
   IEEE ICRA 2024 Physical Human-robot Interaction Workshop

4. Jeyeon Eo, **Dongsu Lee**, Minhae Kwon
   The Impact of Dataset on Offline Reinforcement Learning Performance in UAV-based Emergency Network Recovery Tasks
   IEEE Communication Letters, vol. 28, no. 5, May 2024
   ICML 2023 Data-centric Machine Learning Research Workshop

5. **Dongsu Lee**, Minhae Kwon
   Stability Analysis in Mixed-Autonomous Traffic with Deep Reinforcement Learning
   IEEE Transactions on Vehicular Technology, vol 72, no. 3, March 2023
   NeurIPS 2021 Deep Reinforcement Learning Workshop

6. **Dongsu Lee**, Minhae Kwon
   ADAS-RL: Safety Learning Approach for Stable Autonomous Driving
   ICT Express, vol.8, no.3, September 2022

Under Review

1. **Dongsu Lee**, Minhae Kwon
   Scenario-free Autonomous Driving with Multi-task Offline-to-online Reinforcement Learning
   IEEE Transactions on Intelligent Transportation Systems

PATENTS

Issued US Patents

1. **Dongsu Lee**, Minhae Kwon, "Method for Combating Stop-and-Go Wave Problem Using Deep Reinforcement Learning based Autonomous Vehicles, Recording medium and device for performing this the method," US Patent, Nov 27, 2021. (Application no. US 17/535567), issued on September 17, 2024. (Patent no. US 12,091,025)

Issued KR Patents

1. **Dongsu Lee**, Minhae Kwon, "Method of Lane Change for Autonomous Vehicles Based Deep Reinforcement Learning, Recording Medium and Device for Performing the Method," KR Patent, filed on Sep 06, 2021 (Application no. 10-2021-0118540), issued on January 25, 2024 (Patent no. 10-2631402).

US Patents Applications

1. **Dongsu Lee**, Minhae Kwon, "Offline Pre-training and Online Fine-tuning Method and Apparatus Based on Reinforcement Learning," US Patent, September 09, 2024. (Application no. US 18/828,913)

2. Chanin Eom, **Dongsu Lee**, Minhae Kwon, "Decision-making Method and Apparatus Based on Deep Reinforcement Learning through Prior Data and Selective Imitation Learning," US Patent, July 08, 2024. (Application no. US 18/766,147)

3. **Dongsu Lee**, Minhae Kwon, "N-Step Return-Based Implicit Regularization Offline Reinforcement Learning Method and Apparatus," US Patent, June 20, 2024. (Application no. US 18/748,768)

4. **Dongsu Lee**, Minhae Kwon, "Offline Reinforcement Learning Based Foresighted Decision-Making Method and Apparatus for Multi-Agent Interaction," US Patent, Jan 16, 2024. (Application no. US 18/414,026)

5. Chanin Eom, **Dongsu Lee**, Minhae Kwon, "Traffic Control Method and Apparatus with Autonomous Vehicle based on Adaptive Reward," US Patent, Jan 4, 2024. (Application no. US 18/404077)

6. **Dongsu Lee**, Minhae Kwon, "Method and Apparatus for Inferring Driving Characteristic of a Vehicle in Real-time," US Patent, April 26, 2023. (Application no. US 18/139602)

7. **Dongsu Lee**, Minhae Kwon, "Apparatus and Method for Determining Behavior of Agent Using Future Thinking Mechanism," US Patent, Oct 4, 2022. (Application no. US 17/959550)

8. **Dongsu Lee**, Minhae Kwon, "Apparatus and Method for Inferring Driving Characteristics of Vehicle," US Patent, Oct 4, 2022. (Application no. US 17/959515)

HONORS AND AWARDS

Scholarships

- **Hyundai Future Industrial Talent Scholarship (Tuition + KRW 3,600K/year)**   Aug 2023 - Present
  Hyundai Motor Chung Mong-Koo Foundation
  Full tuition, insurance, and living expenses support for graduate studies

- **Soongsil Graduate Admission Excellence Scholarship**   2022

- **Yesan Fellowship Local Talent Scholarship (KRW 2,000K)**   2021

- **Soongsil Academic Excellence Scholarship**   2016, 2019, 2020

Awards

- **Global Excellence Scholarship (Prize: KRW 3,000K)**   2024
  Hyundai Motor Chung Mong-Koo Foundation

- **Best Journal Paper Award**   2023, 2024
  Korean Institute of Communications and Information Science

- **ICT Challenge IITP President's Award (Prize: KRW 5,000K)** 2023
  Ministry of Science and ICT and Institute for Information & communication Technology Planning & evaluation

- **Haedong Best Paper Award** 2023, 2024
  Korean Institute of Communications and Information Science

- **Best Paper Award** 2022, 2024
  Korean Institute of Communications and Information Science

- **ICT Idea Competition Award** 2021
  Korean Institute of Communications and Information Science

Grants

- **NeurIPS Travel Grants, Vancouver, Canada** 2024
  Neural Information Processing Foundation
  Full conference registration and accommodation support

- **AI Intensive Program at Carnegie Mellon University, Pittsburgh, PA (USD 41K)** 2024-2025
  IITP & Sogang University

- **ICRA Travel Grants, Yokohama, Japan (USD 2.5K)** 2024
  IEEE Robotics and Automation Society

- **18th Qualcomm IT Tour, San Diego, CA** 2022
  Qualcomm Incorporation

- **Upper Bound: AI Conference, Edmonton, Canada (USD 2.2K)** 2022, 2024
  Alberta Machine Intelligence Institution (AMII)

- **Seed for the Future, Virtual** 2021
  Huawei

- **Conference Financial Assistance, Virtual** 2021
  Neural Information Processing Systems (NeurIPS)

EXPERIENCES

Professional Experiences

· **ICML Theory of Mind Workshop** (Program Committee) Jul 2023

· **EIRIC Rising Researcher Seminar** (Presenter) Electronic & Information Research Information Center Jun 2023

· **R&D Promising Technology Showcase** (Presenter) Korea evaluation institute of industrial technology May 2023

Teaching Assistance

· **Multi-media Converging Technology**, Soongsil University 2023 Spring

· **Programming and Practice**, Soongsil University 2021 Autumn

Reviews

· **Journal**: IEEE IoT J (2023), IEEE TVT (2023, 2023, 2023)

· **Conference**: ICRA (2025), ICML (2022)

· **Workshop**: ICML ToM (2023), NeurIPS ML4AD (2022)