

Changhun Lee

PH.D. · DEPARTMENT OF INDUSTRIAL ENGINEERING, UNIST

Ulsan National Institute of Science and Technology, 44919, Ulsan, Republic of Korea

✉ clubing@gmail.com | 🌐 <https://github.com/CHLEE-Leo> | 🔗 <https://www.linkedin.com/in/changhun-lee-6255226a/>

Education

Ulsan National Institute of Science and Technology (UNIST)

Ulsan, Republic of Korea

MSc.-Ph.D. INDUSTRIAL ENGINEERING

2016.03 - 2023.02

• Advisor: Dr. Chiehyeon Lim

Ajou University

Suwon, Republic of Korea

BSc. ECONOMICS

2011.03 - 2015.02

Professional Experience

2023.03-

Present

Postdoctoral Researcher, Graduate School of Artificial Intelligence, UNIST

2023.03

Participating Researcher, Research Project Meeting, Kakao Enterprise Corp.

2019-2022

Principal Investigator, Granted Research Program, Daewoong Pharmaceuticals Foundation

2021.11-

2021.12

Research Advisor, Project-based Learning Program, LG Electronics

2018-2019

Co-founder, Data Team, Smart Ship Venture Tech

2017.07-

2017.12

Data Scientist Intern, Business Planning Department, Hyundai Mipo Dockyard

2016-2017

Graduate Teaching Assistant, Department of Industrial Engineering, UNIST

Awards, Fellowships, & Grants

2023

UNIST Best Research Award, Ulsan National Institute of Science and Technology

2022

Prominent Presentation Award, The Korean Nutrition Society

Best Oral Presentation Award, Korean Academy of Pediatric Allergy and Respiratory Disease

2020

Best Poster Presentation Award, The Korean Nutrition Society

Minister of Science and ICT Award, Korea Institute of Science and Technology

2018

Daewoong Research Scholarship Grant, Daewoong Pharmaceuticals Foundations

2013

Student Best Paper Award, Korean Association for Policy Sciences

Publications

CONFERENCE & JOURNAL

Changhun, Lee., Chiehyeon Lim. (2023). "Theoretical Principles of Controllable Generation: Reinforcing the Levenshtein Agent Mitigates the Discrepancy Problem," *To be submitted to AAAI'24 (conference)*

Changhun, Lee., Chiehyeon Lim. (2023). "Analyzing the Controllability of Language Models and Improving the Control Performance with Reward Dropout," *Under Review in EMNLP'23 (conference)*

Changhun, Lee., Soohyeok Kim., Sehwa Jeong., Jayun Kim., Yeji Kim., Chiehyeon Lim., Minyoung Jung. (2023). "Artificial intelligence generates allergy-free high-nutrition diets: A first study on the real-world solution development and its evaluation," *To be submitted to Allergy (journal)*.

- Changhun, Lee.**, Soohyeok Kim., Jayun Kim., Chiehyeon Lim., Minyoung Jung. (2022). "Challenges of diet planning for children using artificial intelligence," *Nutrition Research and Practice*, 16(6), 801-812. (journal)
- Jongkyung Shin.*, **Changhun, Lee.***, Chiehyeon Lim., Yunmo Shin., Junseok Lim. (2022). "Recommendation in Offline Stores: A Gamification Approach for Learning the Spatiotemporal Representation of Indoor Shopping," *In Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining* (pp. 3878-3888). (conference)
- Changhun, Lee.**, Soohyeok Kim., Sehwa Jeong., Chiehyeon Lim., Jayun Kim., Yeji Kim., Minyoung Jung. (2021). "MIND dataset for diet planning and dietary healthcare with machine learning: Dataset creation using combinatorial optimization and controllable generation with domain experts," *In Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track (Round 2)*. (conference)
- Changhun, Lee.**, Soohyeok Kim., Chiehyeon Lim., Jayun Kim., Yeji Kim., Minyoung Jung.. (2021). "Diet Planning with Machine Learning: Teacher-forced REINFORCE for Composition Compliance with Nutrition Enhancement," *In Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery & Data Mining* (pp. 3150-3160). (conference)
- Changhun, Lee.**, Chiehyeon Lim. (2021). "From technological development to social advance: A review of Industry 4.0 through machine learning," *Technological Forecasting and Social Change*, 167, 120653. (journal)
- Min Jung., Chiehyeon Lim., **Changhun, Lee.**, Soohyeok Kim., Jayun Kim. (2020). "Human dietitians vs. Artificial intelligence: Which diet design do you prefer for your children?," *Journal of Allergy and Clinical Immunology*, 147(2), AB117. (journal)

Presentations

* presenting author; + mentored undergraduate

CONTRIBUTED PRESENTATIONS

- Sehwa Jeong.+, Soohyeok Kim, **Changhun, Lee.**, Jayun Kim., Yeji Kim., Chiehyeon Lim., Minyoung Jung.* 2022. Toward the Diet Planning with Artificial Intelligence for Children with Food Allergies. Flash Talk Session: EAACI Hybrid Congress 2022, Prague, Czech Republic
- Changhun, Lee.***, Soohyeok Kim., Sehwa Jeong.+, Chiehyeon Lim., Jayun Kim., Yeji Kim., Minyoung Jung. 2021. MIND dataset for diet planning and dietary healthcare with machine learning: Dataset creation using combinatorial optimization and controllable generation with domain experts. Best Paper Sessions: Korean Artificial Intelligence Association 2021, Virtual
- Changhun, Lee.**, Soohyeok Kim., Jayun Kim., Chiehyeon Lim., Minyoung Jung.* 2021. Human- or Artificial Intelligence-designed Diets: Which Do You Prefer for Your Children? Poster Presentation: AAAAI 2021, Virtual

Research Experience

UNIST - Dept of Industrial Engineering & Grad of Artificial Intelligence

Ulsan, South Korea

FUNDING AGENCY: MINISTRY OF EDUCATION

2021 - present

- Project: Develop and validate a learning framework for interaction and co-evolution between humans and AI

UNIST - Dept of Industrial Engineering

Ulsan, South Korea

FUNDING AGENCY: MINISTRY OF SMES AND STARTUPS

2021 - 2023

- Project: Developing intelligent bio-omics analysis technology

UNIST - Dept of Industrial Engineering

Ulsan, South Korea

FUNDING AGENCY: MINISTRY OF EDUCATION

2020 - 2022

- Project: Develop a methodology for identifying latent factors explaining variability in social science big data

UNIST - Dept of Industrial Engineering

Ulsan, South Korea

FUNDING AGENCY: MINISTRY OF SCIENCE AND ICT

2020-2021

- Project: Development of a non-face-to-face precision dietary AI service system tailored to the gut flora of pediatric atopic diseases

UNIST - Dept of Industrial Engineering

Ulsan, South Korea

FUNDING AGENCY: DAEWOONG PHARMACEUTICS FOUNDATION

2019 - 2022

- Project: Development of a data reorganization and recommendation system to reduce the cost of the drug discovery

UNIST - Dept of Industrial Engineering*Ulsan, South Korea*

FUNDING AGENCY: MINISTRY OF EDUCATION

2018 - 2021

- Project: Structural Analysis of the Process of Technological Innovation in the Fourth Industrial Revolution

UNIST - Dept of Industrial Engineering*Ulsan, South Korea*

FUNDING AGENCY: MINISTRY OF SCIENCE AND ICT

2018-2019

- Project: Research on servitization in Industry 4.0 through regional industrial-academic cooperation

UNIST - Dept of Industrial Engineering*Ulsan, South Korea*

FUNDING AGENCY: ULSAN NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY

2017-2020

- Project: Understand the key research and application industries of the Fourth Industrial Revolution