Changhun Lee

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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 Pharmaceutics 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 Pharmaceutics 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'23 (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 Agentcy: 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