임 치 현 교수
Chiehyeon Lim

Service Intelligence Lab
Department of Industrial Engineering
Graduate School of Artificial Intelligence
UNIST (Ulsan National Institute of Science and Technology)

Office: Bldg. 112 Rm. 301-11
Lab: Bldg. 112 Rm. 302-1
Tel: +82-52-217-3112
E-mail: chlim@unist.ac.kr
http://service.unist.ac.kr
Google Scholar Profile

Academic Positions/Services

- 2017~Present: Associate Professor, Assistant Professor, UNIST
- 2021~2024: Editorial Board Member, *Journal of Service Management*
- 2015~2017: Assistant Project Scientist & Lecturer, School of Engineering, University of California, Merced (Advisor: Prof. Paul Maglio)
- 2014~2015: Post-doctoral Researcher, Information Research Laboratories & Department of Industrial and Management Engineering, POSTECH (Advisor: Prof. Kwang-Jae Kim)

Education

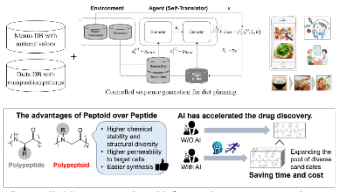
- 2014: Ph.D. in Industrial and Management Engineering, POSTECH (Advisor: Prof. Kwang-Jae Kim)
- 2009: B.S. in Industrial and Management Engineering, POSTECH

Awards/Honors

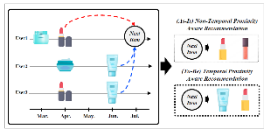
- 2023: 2022 UNIST Outstanding Faculty Award (Industry-University Collaboration)
- 2021: Elsevier Most Cited Award, *Cities*
- 2021: 2020 UNIST Outstanding Faculty Award (Research)
- 2019: Best Paper in 2018, *Journal of Service Theory and Practice*
- 2019: 2018 UNIST Outstanding Faculty Award (Education)
- 2018: Award from the Minister of Science and ICT, Best Work of the KIST CRPC Fellowship
- 2016: Best Paper, SERVSIG
- 2009: Best Paper, APIEMS

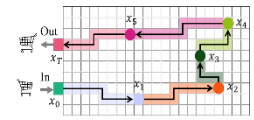
Service Intelligence Lab

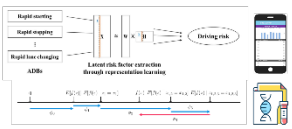
We focus on data science research for real-world service impacts.



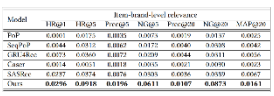
Controllable generative AI for task support services
- High-quality safe diet generation for children
- Antimicrobial peptoid sequence generation





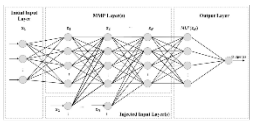


Risk scoring for intervention services
- Driving risk scoring with DTG data
- Disease risk scoring with methylation data

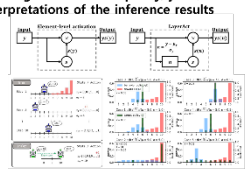


Model	HRq@1	HRq@5	PrecQ@5	NCGQ@5	PrecQ@20	NCGQ@20	VARQ@20
PoP	0.0001	0.0723	0.0035	0.0073	0.0079	0.0137	0.0021
SeqPoP	0.0044	0.0313	0.0062	0.0172	0.0040	0.0108	0.0042
GRU4Rec	0.0075	0.0360	0.0072	0.0209	0.0044	0.0141	0.0036
Caser	0.0054	0.0053	0.0018	0.0035	0.0021	0.0050	0.0024
SASRec	0.0237	0.0374	0.0074	0.0303	0.0036	0.0159	0.0067
Ours	**0.0256**	**0.0918**	**0.0196**	**0.0611**	**0.0107**	**0.0474**	**0.0161**

Recommender systems in specific service contexts
- Temporal proximity-aware recommendation
- Spatiotemporal recommendation in offline stores
- Offline-to-online cross-channel recommendation



Solving challenges in specific industrial problems
- Learning under lack of quality, yield, anomaly labels
- Interpretations of the inference results



Generally applicable learning methods
- Normalization and activation techniques
- Reward dropout for reinforced language models
- Personalized generation framework
- Masked timeseries model
- Representation alignment method

Graduates have published in NeurIPS, ACM SIGKDD, IISE Transactions, IEEE T-ITS, EAACI, AAAAI, TFSC, etc.

Some of recent papers as the corresponding author

- Cho, H., & Lim, C. (2024). Multistage Net: Learning continuous multistage manufacturing processes of liquid products without intermediate output and lead time labels. *IEEE Transactions on Industrial Informatics*, 1-11.
- Lee, C., & Lim, C. (2024). A bi-objective perspective on controllable language models: Reward Dropout improves off-policy control performance. arXiv preprint:2310.04483. Currently under blind review in a top conference.
- Seo, H., & Lim, C. (2024). ST-MTM: Masked time series modeling with seasonal-trend decomposition for time series forecasting. Currently under blind review in a top conference.
- Yoon, K., & Lim, C. (2024). Layer-level activation mechanism. arXiv preprint:2306.04940. Currently under blind review in a top conference.
- Cho, H., Kim, K., Yoon, K., Chun, J., Kim, J., Lee, K., ... & Lim, C. (2023). MMP Net: A feedforward neural network model with sequential inputs for representing continuous multistage manufacturing processes without intermediate outputs. *IISE Transactions*, 1-12.
- Kim, Y., Lim, C., Lee, J., Kim, S., Kim, S., & Seo, D. H. (2023). Chemistry-informed machine learning: Using chemical property features to improve gas classification performance. *Chemometrics and Intelligent Laboratory Systems*, 237, 104808.
- Seo, H., Shin, J., Kim, K. H., Lim, C., & Bae, J. (2022). Driving risk assessment using non-negative matrix factorization with driving behavior records. *IEEE Transactions on Intelligent Transportation Systems*, 23(11), 20398-20412.
- Shin, J., Lee, C., Lim, C., Shin, Y., & Lim, J. (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.
- Lee, C., Kim, S., Jeong, S., Lim, C., Kim, J., Kim, Y., & Jung, M. (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.
- Lee, C., Kim, S., Lim, C., Kim, J., Kim, Y., & Jung, M. (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.
- Lee, C., & Lim, C. (2021). From technological development to social advance: A review of Industry 4.0 through machine learning. *Technological Forecasting and Social Change*, 167, 120653.
- Lim, C., Kim, M. J., Kim, K. H., Kim, K. J., & Maglio, P. (2019). Customer process management: A framework for using customer-related data to create customer value. *Journal of Service Management*, 30(1), 105-131.
- Lim, C., & Maglio, P. P. (2018). Data-driven understanding of smart service systems through text mining. *Service Science*, 10(2), 154-180.
- Lim, C., Kim, K. H., Kim, M. J., Heo, J. Y., Kim, K. J., & Maglio, P. P. (2018). From data to value: A nine-factor framework for data-based value creation in information-intensive services. *International Journal of Information Management*, 39, 121-135.