


DONGMIN HYUN

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RESEARCH INTEREST

Personalization & Recommender system & Information retrieval
Natural language generation & Text classification
Ranking model & Representation learning

WORK EXPERIENCE

Yahoo Research

Research Scientist

Sep 2023 - Current

Mountain View, CA, USA

Project: Personalized Term Recommendation, Related Text Retrieval, and Text Clustering with LLMs

- Displayed **personalized keywords** based on users' search history
- Retrieved **related texts with LLMs** to increase dwell time and reduce editor workload
- **Clustered text streams with generative LLMs** for continuous clustering and description generation

POSTECH

Postdoctoral Researcher (advisor: Prof. Hwanjo Yu)

Mar 2022 - Aug 2023

Pohang, S.Korea

Project: User Preference Prediction based on Temporal Consumption Patterns (CIKM)

- Modeled **interest sustainability in the future** with new training loss and augmentation schemes
- **Supervised graduate students**, publishing conference papers in the recommendation field.

Microsoft Research

Research Intern (advisor: Dr. Xing Xie)

Dec 2020 - Jun 2021

Beijing, China (Remote)

Project: Unsupervised Length Controllable Summarization with Reinforcement Learning (EMNLP)

- Designed **reward functions of a reinforcement learning** for unsupervised summarization
- Accelerated the reinforcement learning with **post-training tasks**
- **Comparable accuracy to ChatGPT-3.5** with a smaller model (60M) in a semi-supervised setting.

NAVER

Research Collaboration

Aug 2017 - Feb 2018

Seongnam, S.Korea

Project: Scalable Review-based Recommendation (SIGIR).

- Designed **a neural network based on review sentiments** for review-based recommendation.
- Run up to **14.9 times faster** and **consumed 50% of GPU memory** than baseline methods.

EDUCATION

Pohang University of Science and Technology (POSTECH)

2017 - 2022 (Advisor: Hwanjo Yu)

Ph.D. in Computer Science and Engineering

Pohang University of Science and Technology (POSTECH)

2015 - 2017 (Advisor: Hwanjo Yu)

M.S. in Computer Science and Engineering

Kookmin University

2011 - 2015 (Summa Cum Laude, 1st of 112)

B.S. in Computer Engineering

PUBLICATIONS

Density of States Prediction of Crystalline Materials via Prompt-guided Multi-... 2023

Namkyeong Lee, Heewoong Noh, Sungwon Kim, Dongmin Hyun, Gyoung S. Na, Chanyoung Park
The Conference on Information and Knowledge Management (NeurIPS, 26.3% accepted)

- MUSE: Music Recommender System with Shuffle Play Recommendation Enhance...** 2023
Yunhak Oh, Sukwon Yun, Dongmin Hyun, Sein Kim and Chanyoung Park
The Conference on Information and Knowledge Management (CIKM, 24.0% accepted)
- Deep single-cell RNA-seq data clustering with graph prototypical contrastive ...** 2023
Junseok Lee, Sungwon Kim, Dongmin Hyun, Namkyeong Lee, Yejin Kim, and Chanyoung Park
Bioinformatics (SCI) (IF. 6.913) and ICML workshop on Computational Biology
- Conditional Graph Information Bottleneck for Molecular Relational Learning** 2023
Namkyeong Lee, Dongmin Hyun, Gyoung S. Na, Sungwon Kim, Junseok Lee, and Chanyoung Park
The International Conference on Machine Learning (ICML, 27.9% accepted)
- Mutual Enhancement of Long-Tailed User and Item for Sequential Recommendation** 2023
Kibum Kim, Dongmin Hyun, Sukwon Yun, and Chanyoung Park
Special Interest Group on Information Retrieval (SIGIR, 20.1% accepted)
- Predicting Density of States via Multi-modal Transformer** 2023
Namkyeong Lee, Heewoong Noh, Sungwon Kim, Dongmin Hyun, Gyoung S. Na, and Chanyoung Park
International Conference on Learning Representations (ICLR) ML4Materials Workshop
- Dynamic Multi-Behavior Sequence Modeling for Next Item Recommendation** 2023
Junsu Cho, Dongmin Hyun, Dongwon Lim, Hyeonjae Chen, Hyoung-iel Park and Hwanjo Yu
AAAI Conference on Artificial Intelligence (AAAI)
- Heterogeneous Graph Learning for Multi-modal Medical Data Analysis** 2023
Sein Kim, Namkyeong Lee, Junseok Lee, Dongmin Hyun and Chanyoung Park
AAAI Conference on Artificial Intelligence (AAAI, oral presentation)
- Generating Multiple-Length Summaries via Reinforcement Learning for Unsupervised Sentence Summarization** 2022
Dongmin Hyun, Xiting Wang, Chanyoung Park, Xing Xie and Hwanjo Yu
The conference on Empirical Methods in Natural Language Processing (EMNLP Findings)
- Beyond Learning from Next Item: Sequential Recommendation via Personalized Interest Sustainability** 2022
Dongmin Hyun, Chanyoung Park, Junsu cho and Hwanjo Yu
The Conference on Information and Knowledge Management (CIKM, 23.3% accepted)
- Relational Self-Supervised Representation Learning on Graphs** 2022
Namkyeong Lee, Dongmin Hyun, Junseok Lee and Chanyoung Park
The Conference on Information and Knowledge Management (CIKM, 23.3% accepted)
- GraFN: Semi-Supervised Node Classification on Graph with Few Labels via Non-Parametric Distribution Assignment** 2022
Junseok Lee, Yunhak Oh, Yeonjun In, Namkyeong Lee, Dongmin Hyun, Chanyoung Park
Special Interest Group on Information Retrieval (SIGIR short, 24.7% accepted)
- Learning to Utilize Auxiliary Reviews for Recommendation** 2021
Dongmin Hyun, Chanyoung Park, Junsu Cho and Hwanjo Yu
Information Sciences (SCI) (IF. 5.910)

Out-of-Category Document Identification Using Target-Category Names as Weak Supervision	2021
Dongha Lee, <u>Dongmin Hyun</u> , Jiawei Han and Hwanjo Yu IEEE International Conference on Data Mining (ICDM short, 20% accepted)	
Learning Heterogeneous Temporal Patterns for Timely Recommendation	2021
Junsu Cho, <u>Dongmin Hyun</u> , Seongku Kang and Hwanjo Yu International Conference on World Wide Web (TheWebConf, 20.6% accepted)	
Unsupervised Proxy Selection for Session-based Recommender Systems	2021
Junsu Cho, Seongku Kang, <u>Dongmin Hyun</u> and Hwanjo Yu Special Interest Group on Information Retrieval (SIGIR, 21% accepted)	
Interest Sustainability-Aware Recommender System	2020
<u>Dongmin Hyun</u> , Junsu Cho, Chanyoung Park and Hwanjo Yu IEEE International Conference on Data Mining (ICDM, 9.8% accepted)	
Building Large-Scale Datasets for Aspect-Level Sentiment Analysis	2020
<u>Dongmin Hyun</u> , Junsu Cho and Hwanjo Yu International Conference on Computational Linguistics (COLING short, 26.2% accepted)	
Target-Aware Convolutional Neural Network for Target-Level Sentiment Analysis	2019
<u>Dongmin Hyun</u> , Chanyoung Park, Min-Chul Yang, Ilhyeon Song, Jung-Tae Lee and Hwanjo Yu Information Sciences (SCI) (IF. 5.910)	
Review Sentiment-Guided Scalable Deep Recommender System	2018
<u>Dongmin Hyun</u> , Chanyoung Park, Min-Chul Yang, Ilhyeon Song, Jung-Tae Lee and Hwanjo Yu ACM SIGIR conference on Research and Development in Information Retrieval (SIGIR short)	
Influence Maximization Based on Reachability Sketches in Dynamic Graphs	2017
Dongeun Kim, <u>Dongmin Hyun</u> , Jinoh Oh, Wook-Shin Han and Hwanjo Yu Information Sciences (SCI) (IF. 5.910)	

AWARD

Award at Global Top Talent Fostering Program	2021
Awarded to outstanding participants in S. Korea (<i>6th of 330 participants</i>)	
NAVER Ph.D. Fellowship	2020
Awarded to outstanding Ph.D. students majoring in computer science in S. Korea	
Prime Minister's Award at Engineering Education Festival	2014
Awarded to the best team in Capstone design project (<i>1st of 90 universities in S.Korea</i>)	

TEACHING EXPERIENCES

Teaching Assitant
CSED101 Programming & Problem solving, Spring 2016, POSTECH
CSED233 Data Structure, Spring 2019, POSTECH
CSED342 Big data, Fall 2018, POSTECH

INVITED TALKS

User Preference via Artificial Intelligence

Pohang University of Science and Technology (POSTECH), Korea, Feb 2023.

Modeling User Preference and Natural Language for Information Retrieval

Gwangju Institute of Science and Technology (GIST), Korea, Mar 2023.

Keyword-based Summarization and Data Collection from papers with Language Models

Korea Research Institute of Chemical Technology (KRICT), Korea, Mar 2023.

ACADEMIC SERVICE

Program Committee

The Association for Computational Linguistics (ACL, 2023-2024)

ACM Special Interest Group in Information Retrieval (SIGIR, 2023-2024)

The Conference on Information and Knowledge Management (CIKM, 2024)

Empirical Methods in Natural Language Processing (EMNLP, 2022-2023)

ACM SIGIR Conference on Information Retrieval in Asia Pacific (SIGIR-AP, 2023)

Association for the Advancement of Artificial Intelligence Conference (AAAI, 2022)

International Conference on Computer Science and Application Engineering (CSAI, 2023)

International Conference on Networks, Communication and Information Technology (NCIT, 2022)

Journal Reviewer

Neurocomputing

Scientific Reports

Journal of Big Data

Pattern Recognition

Information Sciences

Digital Signal Processing

Knowledge-Based Systems

Geo-spatial Information Science

Advanced Engineering Informatics

Engineering Applications of Artificial Intelligence (EAAI)

International Journal of Data Science and Analytics (JDSA)

ACM Transactions on Intelligent Systems and Technology (TIST)

PATENTS

Apparatus for Recommending Cosmetic Contents based on Artificial Intelligence Model and Operating Method Thereof

KR10-2022-0002152 (filed Jan. 6, 2022)

Session-based Recommender Systems and Unsupervised Proxy Estimation Method thereof

KR10-2021-0078305 (filed Jun. 16, 2021)

PROJECTS

[Microsoft] Length-Controllable News Headline Generation for Microsoft News	2021
[NRF] Integration and Inference Technology over Web-Scale Complex Data	2020
[Korea Metal (Hantal)] Image-based Car Body Recognition with Deep Learning	2019
[Naver] Review-based Recommendation for Online Shopping Mall	2018
[Hynudai] Research of Sentiment Analysis for Automotive Online Communities	2017

[KT] Network Failure Prediction using Deep Learning	2017
[Samsung] TurboGraph: A Fast Parallel Graph Engine Handling Billion-Scale Graphs	2016

REFERENCE

Hwanjo Yu <i>Professor</i>	hwanjoyu@postech.ac.kr <i>POSTECH</i>
Rao Shen <i>Director</i>	raoshen@yahooinc.com <i>Yahoo research</i>
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Xiting Wang <i>Assistant Professor</i>	xitwang@microsoft.com <i>Renmin University of China</i>
Jung-Tae Lee <i>Executive Officer</i>	jungtae.lee@navercorp.com <i>Naver Corporation</i>
Chanyoung Park <i>Assistant Professor</i>	cy.park@kaist.ac.kr <i>KAIST</i>

DECLARATION

I hereby declare that the above mentioned information is correct up to my knowledge and I bear the responsibility for the correctness of the above mentioned.

June, 2024