

# Hyunsik Jeon

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Room 4202 ◇ CSE Department

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## RESEARCH INTERESTS

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My research aims to empower the personalization using machine learning for enhanced user experience on web services. My current research focuses on fair conversational recommender systems.

I am broadly interested in data mining and applied machine learning:

### Recommender Systems

*Domains:* bundle (PLOS ONE'23), news (PAKDD'20, KAIS'21), and action (CIKM'22)

*Metrics:* diversity (PAKDD'23, PAKDD'23) and explainability (Arxiv'17)

*Settings:* cold-start (Arxiv'23) and using additional information (BigData'19)

### Graph Learning

Semi-supervised learning (IJCAI'19) and node-feature estimation (KDD'22)

### Transfer Learning

Multi-source domain adaptation (PLOS ONE'21, PLOS ONE'21)

## POSITION

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**University of California San Diego**, CA, USA

*Sep. 2023 - Present*

Postdoctoral Researcher, Computer Science & Engineering

Advisor: [Prof. Julian McAuley](#)

## EDUCATION

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**Seoul National University**, Seoul, South Korea

*Aug. 2023*

Ph.D., Computer Science & Engineering

Thesis: "Modeling Bundle Recommendation with Personalized Pattern Analysis"

**Distinguished Ph.D. Dissertation Award**

Advisor: [Prof. U Kang](#)

**Seoul National University**, Seoul, South Korea

*Feb. 2019*

M.Sc., Computer Science & Engineering

Thesis: "Context Adaptation for Accurate Recommendation with Collective Matrix Factorization"

Advisor: [Prof. U Kang](#)

**Hanyang University**, Seoul, South Korea

*Feb. 2017*

B.Sc., Computer Science & Engineering

## RESEARCH EXPERIENCE

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**Hyperconnect**, Seoul, South Korea

*Jul. 2020 - Aug. 2020*

Research Intern, Machine Learning Group

## AWARDS AND HONORS

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**Distinguished Ph.D. Dissertation Award**

*Aug. 2023*

Dept. of CSE at Seoul National University

**Sejong Science Fellowship Grants (Overseas Training Track)**

*May. 2023*

Funding for 2 years of Postdoctoral Research, National Research Foundation of Korea

Topic: "Accurate, Robust, and Interactive Recommender Systems for Enhancing User Experience"

**SIGIR Student Travel Grants**

*Aug. 2022*

ACM International Conference on Information and Knowledge Management (CIKM), 2022, Atlanta, USA

## MIND News Recommendation Competition Award

Sep. 2020

Microsoft Research

Second Prize Award (215 teams participated)

## Best Student Paper Award

May. 2020

Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2020, Singapore

## HumanTech Paper Award

Feb. 2020

Samsung Electronics

Honorable Mention - 4th in CSE

## BigData Student Travel Grants

Dec. 2019

IEEE International Conference on Big Data (BigData), 2019, Los Angeles, USA

## PUBLICATIONS

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### Preprints

- A1. Accurate Cold-start Bundle Recommendation via Popularity-based Coalescence and Curriculum Heating  
Hyunsik Jeon, Jong-eun Lee, Jeongin Yun, and U Kang  
[arXiv:2310.03813](#), 2023

### Refereed conferences

- C7. Aggregately Diversified Bundle Recommendation via Popularity Debiasing and Configuration-aware Reranking  
Hyunsik Jeon, Jongjin Kim, Jaeri Lee, Jong-eun Lee, and U Kang  
Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2023, Osaka, Japan  
*Oral Presentation* - Acceptance Rate:  $143/822 = 17.4\%$
- C6. Diversely Regularized Matrix Factorization for Accurate and Aggregately Diversified Recommendation  
Jongjin Kim, Hyunsik Jeon, Jaeri Lee, and U Kang  
Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2023, Osaka, Japan  
*Oral Presentation* - Acceptance Rate:  $143/822 = 17.4\%$
- C5. Accurate Action Recommendation for Smart Home via Two-Level Encoders and Commonsense Knowledge  
Hyunsik Jeon, Jongjin Kim, Hoyoung Yoon, Jaeri Lee, and U Kang  
ACM International Conference on Information and Knowledge Management (CIKM), 2022, Atlanta, USA  
*Oral Presentation* - Acceptance Rate:  $274/1175 = 23.2\%$
- C4. Accurate Node Feature Estimation with Structured Variational Graph Autoencoder  
Jaemin Yoo, Hyunsik Jeon, Jinhong Jung, and U Kang  
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2022, Washington DC, USA  
*Oral Presentation* - Acceptance Rate:  $254/1695 = 15.0\%$
- C3. Accurate News Recommendation Coalescing Personal and Global Temporal Preferences  
Bonhun Koo, Hyunsik Jeon, and U Kang  
Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2020, Singapore  
*Oral Presentation* - Acceptance Rate:  $135/628 = 21.5\%$   
**Best Student Paper Award**
- C2. Data Context Adaptation for Accurate Recommendation with Additional Information  
Hyunsik Jeon, Bonhun Koo, and U Kang  
IEEE International Conference on Big Data (BigData), 2019, Los Angeles, USA  
*Oral Presentation* - Acceptance Rate:  $106/550 = 19.3\%$   
**Samsung HumanTech Paper Award**
- C1. Belief Propagation Network for Hard Inductive Semi-supervised Learning  
Jaemin Yoo, Hyunsik Jeon, and U Kang  
International Joint Conference on Artificial Intelligence (IJCAI), 2019, Macao, China  
*Oral Presentation* - Acceptance Rate:  $850/4752 = 17.9\%$

### Refereed journals

- J4. Accurate Bundle Matching and Generation via Multitask Learning with Partially Shared Parameters  
Hyunsik Jeon, Jun-Gi Jang, Taehun Kim, and U Kang  
**PLOS ONE**, 2023
- J3. PGT: News Recommendation Coalescing Personal and Global Temporal Preferences  
Bonhun Koo, Hyunsik Jeon, and U Kang  
Knowledge and Information Systems (**KAIS**), 2021
- J2. Multi-EPL: Accurate Multi-Source Domain Adaptation  
Seongmin Lee, Hyunsik Jeon, and U Kang  
**PLOS ONE**, 2021
- J1. Unsupervised Multi-Source Domain Adaptation with No Observable Source Data  
Hyunsik Jeon, Seongmin Lee, and U Kang  
**PLOS ONE**, 2021

#### Others

- O1. UniWalk: Explainable and Accurate Recommendation for Rating and Network Data  
Haekyu Park, Hyunsik Jeon, Junghwan Kim, Beunguk Ahn, and U Kang  
arXiv:1710.07134, 2017

### PATENTS

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#### Korea

- P6. Apparatus and Method for Recommending Bundled Items  
U Kang, Hyunsik Jeon, Jongjin Kim, Jaeri Lee, and Jong-eun Lee (filed on Nov. 2022)
- P5. Method and Apparatus for Recommending Items Based on Diversely Regularized Matrix Factorization  
U Kang, Jongjin Kim, Hyunsik Jeon, and Jaeri Lee (filed on Nov. 2022)
- P4. Electronic Device and Computer Readable Storage Medium for Control Recommendation  
U Kang, Hyunsik Jeon, Jongjin Kim, Hoyoung Yoon, Jaeri Lee, Hyunju Seo, Sanghee Kim, and Inchul Hwang (filed on Aug. 2022)
- P3. Apparatus and Method for Predicting Feature of Node  
U Kang, Jaemin Yoo, Hyunsik Jeon, Jinhong Jung (filed on Dec. 2021)
- P2. Apparatus and Method for Unsupervised Domain Adaptation  
U Kang, Hyunsik Jeon, and Seongmin Lee (filed on Oct. 2021)
- P1. Explainable and Accurate Recommender Method and System Using Social Network Information and Rating Information  
U Kang, Haekyu Park, Hyunsik Jeon, and Junghwan Kim (filed on Nov. 2017)

### PROFESSIONAL SERVICES

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#### Program Committee

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|---|--------------------|
| IEEE International Conference on Big Data and Smart Computing (BigComp) | <i>2021 - 2023</i> |
| SIAM International Conference on Data Mining (SDM)                      | <i>2024</i>        |

#### Reviewer

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|---|--------------------------|
| IEEE International Conference on Big Data and Smart Computing (BigComp) | <i>2020</i>              |
| ACM International Conference on Information Management (CIKM)           | <i>2018 - 2019</i>       |
| IEEE International Conference on Data Mining (ICDM)                     | <i>2019</i>              |
| International Conference on Learning Representations (ICLR)             | <i>2021</i>              |
| ACM SIGKDD Conference of Knowledge Discovery and Data Mining (KDD)      | <i>2019 - 2023</i>       |
| Neural Information Processing Systems (NeurIPS)                         | <i>2021 - 2022</i>       |
| The Web Conference (formerly WWW)                                       | <i>2019 - 2021, 2024</i> |
| ACM International Conference on Web Search and Data Mining (WSDM)       | <i>2019</i>              |
| Frontiers in Big Data   | <i>2023</i>              |

### INVITED TALKS

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**Invited Conference Speaker**

Korea Software Congress (KSC) 2022, KIISE

Dec. 21, 2022

Korea Software Congress (KSC) 2019, KIISE

Dec. 19, 2019

**TEACHING EXPERIENCE**

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**Seoul National University**

T.A., Undergraduate Research Opportunities Program (UROP) @ SNU

2017, 2020, 2022

T.A., M2177.004900: Theory and Lab of IoT, AI, and Big Data @ SNU

Spring 2019

T.A., 4190.773: Optimization for Machine Learning (Topics in Artificial Intelligence) @ SNU

Spring 2018

T.A., M1522.000900: Data Structure @ SNU

Fall 2017

**Other Organizations**

T.A., Advanced DS @ LG

2023

T.A., AI Master @ Hyundai Motors

2022

T.A., AI Lectures @ KDB

2022 - 2023

T.A., SK-Univ @ SK

2020

T.A., DS Advanced Projects @ LG

2020

T.A., DxP (1st) @ Hana Financial Group

2019

T.A., AI Action Learning @ Samsung Electronics

2019

T.A., NPEX (1st - 2nd) @ Samsung Electronics

2019 - 2020

T.A., DS<sup>2</sup> (3rd - 9th) @ Samsung Electronics

2019 - 2022

**PROJECTS**

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Elancer, Job Matching

2023

Samsung C-Lab, Plan Recommender Systems

2023

JungHun Foundation, Recommender Systems Under Constraints

2022

Samsung, Effective Expression and Compression of Knowledge-Base for IoT Devices

2022

Posco-ICT, Recommender Systems for Learning Platform

2022

JungHun Foundation, Recommender Systems Under Constraints

2021

Samsung, Data Driven Analysis and Reasoning for Device Control

2021

LINA, Prediction and Control of Insurance Cancellation

2020

Wemakeprice, Recommender Systems Based on Deep Learning

2019

LG, Failure Detection for Compressor in Refrigerator

2018

LG, Optimization of Sputtering for Uniform Film Formation

2018

SKT, Feature Selection for RNN-based Recommender Systems

2018

SKT, Recommender Systems for Oksusu Videos

2017

**GRADUATE COURSEWORK**

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4190.676: Artificial Neural Networks @ SNU

Fall 2019

M2177.003000: Advanced Data Mining @ SNU

Fall 2019

M1522.001600: Reinforcement Learning (Topics in Big Data Analytics) @ SNU

Spring 2019

4190.681A: Genetic Algorithm @ SNU

Spring 2019

4190.771: ML Algorithms in Bioinformatics (Topics in Algorithms) @ SNU

Spring 2018

430.711A: Introduction to Computer Vision @ SNU

Spring 2018

M1522.000500: Information Visualization and Visual Analytics @ SNU

Fall 2017

M1522.001600: Advanced Deep Learning (Topics in Big Data Analytics) @ SNU

Fall 2017

4190.564: Advanced Database @ SNU

Spring 2017

M1522.001600: Deep Learning (Topics in Big Data Analytics) @ SNU

Spring 2017