

# SEONGKU KANG

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## RESEARCH INTERESTS

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A wide range of topics in data mining, applied machine learning, and artificial intelligence. Specifically, **accurate, efficient, and unbiased information retrieval (search and recommendation)**.

## EDUCATION

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**Ph.D., Computer Science and Engineering, POSTECH** Mar 2018 - Aug 2023

- Dissertation: Knowledge Distillation Approaches for Accurate and Efficient Recommender System

**B.S., Computer Science and Engineering, NTU** Jul 2016 - May 2017

- Exchange Student

**B.S., Computer Science and Engineering, Hanyang University** Mar 2012 - Feb 2018

- Cumulative GPA: 4.43/4.50 (ranked 1st in CSE Dept.).

## SELECTED PUBLICATIONS

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### Search/Recommendation Accuracy

- [WWW'24] [SeongKu Kang](#), Shivam Agarwal, Bowen Jin, Dongha Lee, Hwanjo Yu, Jiawei Han, Improving Retrieval in Theme-specific Applications using a Corpus Topical Taxonomy (*to appear*)
- [WWW'22] [SeongKu Kang](#), Dongha Lee, Wonbin Kweon, Junyoung Hwang, Hwanjo Yu, Consensus Learning from Heterogeneous Objectives for One-Class Collaborative Filtering
- [CIKM'19] [SeongKu Kang](#), Junyoung Hwang, Dongha Lee, Hwanjo Yu, Semi-Supervised Learning for Cross-Domain Recommendation to Cold-start Users

### Search/Recommendation Efficiency

- [WWW'23] [SeongKu Kang](#), Wonbin Kweon, Dongha Lee, Jianxun Lian, Xing Xie, Hwanjo Yu, Distillation from Heterogeneous Models for Top-K Recommendation
- [KDD'21] [SeongKu Kang](#), Junyoung Hwang, Wonbin Kweon, Hwanjo Yu, Topology Distillation for Recommender System
- [CIKM'20] [SeongKu Kang](#), Junyoung Hwang, Wonbin Kweon, Hwanjo Yu, DE-RRD: A Knowledge Distillation Framework for Recommender System

### Search/Recommendation Debiasing

- [CIKM'23] Youngjune Lee, K Park, Yeongjong Jeong, [SeongKu Kang](#) (corresponding author) MvFS: Multi-view Feature Selection for Recommender System
- [AAAI'22] Wonbin Kweon, [SeongKu Kang](#), Hwanjo Yu, Obtaining Calibrated Probabilities with Personalized Ranking Models

## EXPERIENCE

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**Data Mining Group, UIUC** Jun 2023 - Present

- Postdoctoral Researcher (advisor: [Prof. Jiawei Han](#))

**Microsoft Research, Beijing, China** May 2022 - April 2023

- Research intern in Social Computing group (mentors: [Dr. Xing Xie](#), [Dr. Jianxun Lian](#))
- Award of excellence (Stars of Tomorrow, top 10%)

## AWARDS & FELLOWSHIPS

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### Awards

- Stars of Tomorrow Award for Outstanding Intern, Microsoft Research Asia, 2023
- POSTECH Research Award (4th place), National Research Foundation, Korea, 2022
- Music Playlist Recommendation Competition (3rd place), Kakao, 2020
- SIGIR Student Travel Award, ACM SIGIR, 2019-2020
- Dean's List, Hanyang University, 2018
- Best Paper Award (3rd place), Korean Database Conference (KDBC), 2017

### Fellowships

- POSTECHIAN Fellowship, POSTECH, 2023
- NAVER Ph.D Fellowship, NAVER, 2021
- NAVER Academic Scholarship, NAVER, 2017
- National Science and Technology Scholarship, Ministry of Education, Korea, 2012-2017
- Hanyang Brain Scholarship, Hanyang University, 2012

## PATENTS

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### Issued

- Method and Apparatus for Improving the Accuracy of Speech Recognition Technology Based on Text Data Analysis for Deaf Students (Registration Number: 10-1988165-0000 | 2019.06.04 | South Korea)

### Pending

- Distillation from Heterogeneous Models for Top-K Recommendation (2023)
- Molecular Clustering Device And Method Based on Deep Learning Technology Using Molecular Topology Information (2023)
- Item Recommendation Method Based on One-Class Collaborative Filtering with Heterogeneous Objectives and Service Apparatus (2022)
- Method and Device for Creating Topic Taxonomy Using Text (2022)

## TALKS

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| • CS/AI Seminar, Ulsan National Institute of Science and Technology (UNIST)     | Nov 2023 |
| • Invited Seminar, Electronic & Information Research Information Center (EIRIC) | Sep 2023 |
| • Invited Seminar, Social Computing Group, Microsoft Research Asia (MSRA)       | Jun 2023 |
| • Technology Showcase, Korea AI summit  | Dec 2022 |

## FULL PUBLICATIONS

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### Conferences

1. Improving Retrieval in Theme-specific Applications using a Corpus Topical Taxonomy (*to appear*)  
SeongKu Kang, Shivam Agarwal, Bowen Jin, Dongha Lee, Hwanjo Yu, Jiawei Han  
WWW'24 | ACM The Web Conference
2. Top-Personalized-K Recommendation (*to appear*)  
Wonbin Kweon, SeongKu Kang, Sanghwan Jang, Hwanjo Yu  
WWW'24 | ACM The Web Conference
3. Multi-Domain Recommendation to Attract Users via Domain Preference Modeling (*to appear*)  
Hyunjun Ju, SeongKu Kang, Dongha Lee, Junyoung Hwang, Sanghwan Jang, Hwanjo Yu  
AAAI'24 | AAAI Conference on Artificial Intelligence

4. MvFS: Multi-view Feature Selection for Recommender System  
Youngjune Lee, Keunchan Park, Yeongjong Jeong, SeongKu Kang (corresponding author)  
CIKM'23-short | ACM International Conference on Information and Knowledge Management
5. Distillation from Heterogeneous Models for Top-K Recommendation  
SeongKu Kang, Wonbin Kweon, Dongha Lee, Jianxun Lian, Xing Xie, Hwanjo Yu  
WWW'23 | ACM The Web Conference
6. Learning Topology-Specific Experts for Molecular Property Prediction  
Suyeon Kim, Dongha Lee, SeongKu Kang, Seonghyeon Lee, Hwanjo Yu  
AAAI'23 | AAAI Conference on Artificial Intelligence
7. Consensus Learning from Heterogeneous Objectives for One-Class Collaborative Filtering  
SeongKu Kang, Dongha Lee, Wonbin Kweon, Junyoung Hwang, Hwanjo Yu  
WWW'22 | ACM The Web Conference
8. TaxoCom: Topic Taxonomy Completion with Hierarchical Discovery of Novel Topic Clusters  
Dongha Lee, Jiaming Shen, SeongKu Kang, Susik Yoon, Jiawei Han, Hwanjo Yu  
WWW'22 | ACM The Web Conference
9. Obtaining Calibrated Probabilities with Personalized Ranking Models  
Wonbin Kweon, SeongKu Kang, Hwanjo Yu  
AAAI'22 | AAAI Conference on Artificial Intelligence
10. Topology Distillation for Recommender System  
SeongKu Kang, Junyoung Hwang, Wonbin Kweon, Hwanjo Yu  
KDD'21 | ACM SIGKDD Conference on Knowledge Discovery and Data Mining
11. Bootstrapping User and Item Representations for One-Class Collaborative Filtering  
Dongha Lee, SeongKu Kang, Hyunjun Ju, Chanyoung Park, Hwanjo Yu  
SIGIR'21 | ACM SIGIR Conference on Research and Development in Information Retrieval
12. Unsupervised Proxy Selection for Session-based Recommender Systems  
Junsu Cho, SeongKu Kang, Dongmin Hyun, Hwanjo Yu  
SIGIR'21 | ACM SIGIR Conference on Research and Development in Information Retrieval
13. Learning Heterogeneous Temporal Patterns of User Preference for Timely Recommendation  
Junsu Cho, Dongmin Hyun, SeongKu Kang, Hwanjo Yu  
WWW'21 | ACM International World-Wide Web Conference
14. Bidirectional Distillation for Top-K Recommender System  
Wonbin Kweon, SeongKu Kang, Hwanjo Yu  
WWW'21 | ACM International World-Wide Web Conference
15. DE-RRD: A Knowledge Distillation Framework for Recommender System  
SeongKu Kang, Junyoung Hwang, Wonbin Kweon, Hwanjo Yu  
CIKM'20 | ACM International Conference on Information and Knowledge Management
16. Deep Rating Elicitation for New Users in Collaborative Filtering  
Wonbin Kweon, SeongKu Kang, Junyoung Hwang, Hwanjo Yu  
WWW'20 | ACM International World-Wide Web Conference
17. Multi-Modal Component Embedding for Fake News Detection  
SeongKu Kang, Junyoung Hwang, Hwanjo Yu  
IMCOM'20 | IEEE International Conf. Ubiquitous Information Management and Communication

18. Semi-Supervised Learning for Cross-Domain Recommendation to Cold-start Users  
SeongKu Kang, Junyoung Hwang, Dongha Lee, Hwanjo Yu  
CIKM'19 | ACM International Conference on Information and Knowledge Management
19. Densifying a Trust Network for Effective Collaborative Filtering  
SeongKu Kang, Jemin Wang, Yeon-Chang Lee, Sang-Wook Kim  
KDBC'17 | Korean DataBase Conference

## Journals

1. Unbiased, Effective, and Efficient Distillation from Heterogeneous Models for Recommender Systems  
SeongKu Kang, Wonbin Kweon, Dongha Lee, Jianxun Lian, Xing Xie, Hwanjo Yu  
ACM Transactions on Recommender Systems (2024.02)
2. Mitigating Viewpoint Sensitivity of Self-Supervised One-Class Classifiers  
Hyunjun Ju, Dongha Lee, SeongKu Kang, Hwanjo Yu  
Information Sciences (SCI) (2022.09)
3. Personalized Knowledge Distillation for Recommender System  
SeongKu Kang, Dongha Lee, Wonbin Kweon, Hwanjo Yu  
Knowledge-Based Systems (SCI) (2022.03)
4. Item-side Ranking Regularized Distillation for Recommender System  
SeongKu Kang, Junyoung Hwang, Wonbin Kweon, Hwanjo Yu  
Information Sciences (SCI) (2021.11)

## REFERENCES

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[Prof. Jiawei Han](#) (PostDoc advisor), UIUC  
[Prof. Hwanjo Yu](#) (PhD advisor), POSTECH  
[Dr. Xing Xie](#) (Internship mentor), MSRA  
[Dr. Jianxun Lian](#) (Internship mentor), MSRA

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