

# SEONGKU KANG

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## RESEARCH INTERESTS

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Broad topics in data mining and artificial intelligence. Specifically, **accurate, efficient, and unbiased information retrieval** focusing on two key applications: 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

## 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-short | 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 (*to appear*)

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)

## PROFESSIONAL SERVICES

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### Program Committee

- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD): 2023, 2024
- ACM International World-Wide Web Conference (WWW): 2024
- AAAI Conference on Artificial Intelligence (AAAI): 2024
- SIAM Conference on Data Mining (SDM): 2024

### Journal Reviewer

- Knowledge-Based Systems: 2023
- Neural Computing and Applications: 2022

## 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)

## 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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