

SEONGKU KANG

Postdoctoral Researcher, Computer Science, University of Illinois at Urbana-Champaign (UIUC)

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RESEARCH INTERESTS

A wide range of topics in data mining, applied machine learning, and artificial intelligence; specifically, **accurate, efficient, and unbiased information filtering/retrieval systems**.

EDUCATION

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

Filtering/Retrieval Accuracy

- [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

Filtering/Retrieval 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

Filtering/Retrieval Debiasing

- [AAAI'22] Wonbin Kweon, [SeongKu Kang](#), Hwanjo Yu, Obtaining Calibrated Probabilities with Personalized Ranking Models

EXPERIENCE

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

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

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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| • Invited Seminar, Social Computing Group, Microsoft Research Asia (MSRA) | Jun 2023 |
| • Technology Showcase, Korea AI summit | Dec 2022 |

FULL PUBLICATIONS

Conferences

1. 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
2. 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
3. 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
4. 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
5. Obtaining Calibrated Probabilities with Personalized Ranking Models
Wonbin Kweon, SeongKu Kang, Hwanjo Yu
AAAI'22 | AAAI Conference on Artificial Intelligence

6. Topology Distillation for Recommender System
SeongKu Kang, Junyoung Hwang, Wonbin Kweon, Hwanjo Yu
 KDD'21 | ACM SIGKDD Conference on Knowledge Discovery and Data Mining
7. 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
8. 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
9. 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
10. Bidirectional Distillation for Top-K Recommender System
 Wonbin Kweon, SeongKu Kang, Hwanjo Yu
 WWW'21 | ACM International World-Wide Web Conference
11. 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
12. 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
13. Multi-Modal Component Embedding for Fake News Detection
SeongKu Kang, Junyoung Hwang, Hwanjo Yu
 IMCOM'20 | IEEE International Conf. Ubiquitous Information Management and Communication
14. 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
15. 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. Mitigating Viewpoint Sensitivity of Self-Supervised One-Class Classifiers
 Hyunjun Ju, Dongha Lee, SeongKu Kang, Hwanjo Yu
 Knowledge-Based Systems (SCI) (2022.09)
2. Personalized Knowledge Distillation for Recommender System
SeongKu Kang, Dongha Lee, Wonbin Kweon, Hwanjo Yu
 Knowledge-Based Systems (SCI) (2022.03)
3. Item-side Ranking Regularized Distillation for Recommender System
SeongKu Kang, Junyoung Hwang, Wonbin Kweon, Hwanjo Yu
 Information Sciences (SCI) (2021.11)

REFERENCES

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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