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

- 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

REFERENCES

Prof. Jiawei Han (PostDoc advisor), UIUC — hanj@illinois.edu
Prof. Hwanjo Yu (PhD advisor), POSTECH — hwanjoyupostech@gmail.com
Dr. Xing Xie (Internship mentor), MSRA — xingx@microsoft.com
Dr. Jianxun Lian (Internship mentor), MSRA — jianxun.lian@microsoft.com