SEONGKU KANG

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

Room 4213, Siebel Center, 201 N Goodwin Ave, Urbana, IL 61801

Email: seongku@illinois.edu, Phone: +82 10-8559-7284, Google Scholar, Web Page

RESEARCH INTERESTS

- Data mining and machine learning for real-world applications
- Information retrieval and recommender 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

[**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'23**] SeongKu Kang, Wonbin Kweon, Dongha Lee, Jianxun Lian, Xing Xie, Hwanjo Yu
Distillation from Heterogeneous Models for Top-K Recommendation

[**CIKM'23**] Youngjune Lee, K Park, Yeongjong Jeong, SeongKu Kang (corresponding author)
MvFS: Multi-view Feature Selection for Recommender System

[**WWW'22**] SeongKu Kang, Dongha Lee, Wonbin Kweon, Junyoung Hwang, Hwanjo Yu
Consensus Learning from Heterogeneous Objectives for One-Class Collaborative Filtering

[**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

[**CIKM'19**] SeongKu Kang, Junyoung Hwang, Dongha Lee, Hwanjo Yu
Semi-Supervised Learning for Cross-Domain Recommendation to Cold-start Users

EXPERIENCE

Data Mining Group, UIUC   Jun 2023 - Present
- Postdoctoral Researcher (advisor: Prof. Jiawei Han)

Microsoft Research, Beijing, China   Oct 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

TALKS

- 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

Conferences

1. Multi-Domain Sequential Recommendation via Domain Space Learning (*to appear*)
   Junyoung Hwang, Hyunjun Ju, SeongKu Kang, Sanghwan Jang, Hwanjo Yu
   SIGIR'24 | ACM SIGIR Conference on Research and Development in Information Retrieval

2. Learning Discriminative Dynamics with Label Corruption for Noisy Label Detection (*to appear*)
   Suyeon Kim, Dongha Lee, SeongKu Kang, Sukang Chae, Sanghwan Jang, Hwanjo Yu
   CVPR'24 | IEEE / CVF Computer Vision and Pattern Recognition

3. 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

4. Top-Personalized-K Recommendation (*to appear*)
   Wonbin Kweon, SeongKu Kang, Sanghwan Jang, Hwanjo Yu
   WWW'24 | ACM The Web Conference

5. Multi-Domain Recommendation to Attract Users via Domain Preference Modeling
   Hyunjun Ju, SeongKu Kang, Dongha Lee, Junyoung Hwang, Sanghwan Jang, Hwanjo Yu
   AAAI'24 | AAAI Conference on Artificial Intelligence

6. 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

7. 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

8. 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

9. 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

10. 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

11. Obtaining Calibrated Probabilities with Personalized Ranking Models
    Wonbin Kweon, SeongKu Kang, Hwanjo Yu
    AAAI'22 | AAAI Conference on Artificial Intelligence

12. Topology Distillation for Recommender System
    SeongKu Kang, Junyoung Hwang, Wonbin Kweon, Hwanjo Yu
    KDD'21 | ACM SIGKDD Conference on Knowledge Discovery and Data Mining

13. 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

14. 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

15. 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

16. Bidirectional Distillation for Top-K Recommender System
    Wonbin Kweon, SeongKu Kang, Hwanjo Yu
    WWW'21 | ACM International World-Wide Web Conference

17. 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

18. 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

19. Multi-Modal Component Embedding for Fake News Detection
    SeongKu Kang, Junyoung Hwang, Hwanjo Yu
    IMCOM'20 | IEEE International Conf. Ubiquitous Information Management and Communication

20. 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

21. 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

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, 2024
- Neural Computing and Applications: 2022

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)

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