Wentao Ning

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Research Interests: Recommender System, Data Mining

EDUCATION

The University of Hong Kong (HKU) — Hong Kong SAR
Ph.D. in Computer Science. — 2020 – 2024 (Expected)

- Publications: **5 first-authored** papers published in top conferences (WWW, CIKM, VLDB, ICDE).

Southern University of Science and Technology (SUSTech) — Shenzhen, China
B.Eng. in Computer Science and Technology. GPA: 3.73/4.00 — 2016 – 2020

INTERNSHIPS

TikTok, ByteDance — Shanghai, China
Recommendation Algorithm Intern — Nov. 2022 – Mar., 2023

- Explore different recommendation strategies to increase publish rate of TikTok creators.
  * Publishing preferences: Train a model using daily user-publish-video data. Promote author publishing by recommending them more they-can-create videos. Increased publish/user by 0.5%.
  * Traffic Incentives: Using uplift models to find users that are insensitive to unpopular (low video views) videos. Recommend these videos to them to promote author publishing and prevent user losing.
  * Comment Incentives: Investigate the correlation between #comment authors received and #publication of them. Increase the recommendation of low-comment videos to encourage author publishing.

TCL Corporate Research (HK) — Hong Kong SAR
Research Intern — Jun. – Aug., 2021

- Propose an automatic effective meta-path searching framework for existing meta-path-based recommenders.
- Propose a GNN-based method for recommendation by using meta-paths.

Huawei Technologies — Dongguan, China
Site Reliability Engineer Intern — Jul. – Aug., 2019

- Mainly engage in monitoring system development. Implement an anomaly alert and email notification system.
- Complete 3 demo (database migration tool, monitoring interface customization, key data query and alarm service).

PUBLICATIONS

1. **Wentao Ning**, Reynold Cheng, Xiao Yan, Ben Kao, Nan Huo, Nur Al Hasan Haldar, Bo Tang. *Debiasing Recommendation with Personal Popularity.* In **WWW** 2024 (Selected for **Oral** Presentation, 189 / 2008 = 9.4%).

2. **Wentao Ning**, Xiao Yan, Weiwen Liu, Reynold Cheng, Rui Zhang, Bo Tang. *Multi-domain Recommendation with Embedding Disentangling and Domain Alignment.* In **CIKM** 2023.

3. **Wentao Ning**, Reynold Cheng, Jiajun Shen, Nur Al Hasan Haldar, Ben Kao, Xiao Yan, Nan Huo, Tian Li, Wai Kit Lam, Bo Tang. *Automatic Meta-Path Discovery for Effective Graph-Based Recommendation.* In **CIKM** 2022.

4. **Wentao Ning**, Xiao Yan, and Bo Tang. *Towards Efficient MaxBRNN Computation for Streaming Updates.* In **ICDE** 2021.

5. **Wentao Ning**, Qiandong Tang, Yi Zhao, Chuan Yang, Xiaofeng Wang, Teng Wang, Haotian Liu, Chaozu Zhang, Zhiyuan Zhou, Qiaomu Shen, and Bo Tang. *CheetahVIS: a visual analytical system for large urban bus data.* In **VLDB** 2020.

6. **Wentao Ning**, Reynold Cheng, Xiao Yan, Nur Al Hasan Haldar, Ben Kao, Nan Huo, Bo Tang. *Towards Efficient and Effective Recommendation Unlearning.* **Under Review on RecSys 2024**.

7. Carrie Wang, **Wentao Ning**, Xiaoman Wu, Reynold Cheng. *HINCare: An Intelligent Helper Recommender System for Elderly Care.* In **WWW** 2024.

8. Nan Huo, Reynold Cheng, Ben Kao, **Wentao Ning**, Nur Al Hasan Haldar, Xiaodong Li, Jinyang Li, Tian Li, Mohammad Matin Najafi, Ge Qu. *ZeroEA: A Zero-Training Entity Alignment Framework via Pre-Trained Language Model.* In **VLDB** 2024.

9. Reynold Cheng, Chenhao Ma, Xiaodong Li, Yixiang Fang, Ye Liu, Victor Y.L. Wong, Esther Lee, Tai Hing Lam, Sai Yin Ho, Man Ping Wang, Weijie Gong, **Wentao Ning**, Ben Kao. *The Social Technology and Research (STAR) Lab in the University of Hong Kong.* ACM **SIGMOD Record** 2022.

Research Projects *(I am the first author of all below projects)*

- **Towards Efficient and Effective Recommendation Unlearning** (Nov. 2023 - Apr. 2024)

  - Propose a novel framework for recommendation unlearning, which is model-agnostic and consists of two key designs, i.e., whitening module and phantom users.
  - This framework achieves fast unlearning by training only on the forgotten data and avoiding accessing the entire training dataset. It also achieves good recommendation accuracy by saving collaborative information anonymously.

- **Debiasing Recommendation with Personal Popularity** (Dec. 2022 - Oct. 2023)

  - Analyze the limitations of existing methods that aim to reduce popularity bias in recommendation. Propose a new user-aware version of popularity (i.e., personal popularity) to tackle these limitations.
  - Utilize counterfactual inference techniques to estimate and control the causal effects of personal and global popularity in recommendation to mitigate popularity bias, which is general and can be applied to different recommendation models.

- **Multi-domain Recommendation with Embedding Disentangling and Domain Alignment** (Feb. 2022 - Oct. 2022)

  - Propose an embedding disentangling architecture for multi-domain recommendation, which explicitly disentangles inter-domain and intra-domain knowledge at the embedding level.
  - Propose a random walk-based domain alignment strategy to identify similar users/items from different domains, which helps to share knowledge and avoid over-fitting.

- **Automatic Meta-Path Discovery for Effective Graph-Based Recommendation** (Feb. 2021 - Oct. 2021)

  - Propose a general reinforcement learning-based meta-path selection framework RMS, the first framework to be plugged into any meta-path-based recommendation model.
  - Develop a new meta-path-based recommendation method RMS-HRec and design training strategies to explore the potential of meta-paths for recommendation tasks fully.

- **Towards Eicient MaxBRNN Computation for Streaming Updates** (Mar. 2020 - Oct. 2020)

  - Propose a novel problem called streaming MaxBRNN in the spatial database area, which finds the optimal region to deploy a new service point when both the service points and client points are under continuous updates.
  - Propose an efficient slot partitioning-based algorithm (SlotP), which divides the space into equal-sized slots and processes each slot independently. SlotP is 2-3 orders of magnitude faster than SoTA baselines.

- **CheetahVIS: A Visual Analytical System for Large Urban Bus Data** (Oct. 2019 - Feb. 2020)

  - Built a visual analytical system CheetahVIS for efficient massive urban bus data analysis, which builds upon Spark and provides a visual analytical platform for the stakeholders (e.g., city planners, data analysts).

Scholarships & Awards

- CIKM NSF Travel Award   2022
- Postgraduate Scholarship   2020–2024
- Summa Cum Laude Graduate of Department of Computer Science and Engineering   2020
- Outstanding Student Scholarship   2017–2019

Teaching

- **Teaching Assistant** at The University of Hong Kong   Spring 2021
  The Age of Big Data (CCST9047)
- **Teaching Assistant** at Southern University of Science and Technology   Spring 2020, Fall 2019, Fall 2018
  Operating System (CS302); Object-Oriented Analysis and Design (CS309); Data Structure and Algorithm Analysis (B) (CS203B)

Skills

- **Programming:** Python, Java, SQL
- **Tools:** PyTorch, Numpy, Jupyter

Languages

- **Mandarin:** Native, **Cantonese:** Proficient
- **English:** Fluent