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)

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. Increase 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. **On Personal Popularity Aware Recommendation.** On submission.
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. 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.
5. **Wentao Ning**, Xiao Yan, and Bo Tang. **Towards Efficient MaxBRNN Computation for Streaming Updates.** In ICDE 2021.
6. **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 PVLDB 2020.

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

- **On Personal Popularity Aware Recommendation** (Dec. 2022 - Jun. 2023)
  - Analyze the limitations of existing popularity-aware methods that consider item popularity from a global perspective and propose personal popularity to tackle these limitations.
  - Propose the GPP framework based on casual graphs to jointly utilize personal and global popularity for recommendation, which is general and can adapt to different recommendation models and use cases.
- **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, which is the first framework that can be plugged into any meta-path-based recommendation models.
  - Develop a new meta-path-based recommendation method RMS-HRec and design training strategies to fully explore the potential of meta-paths for recommendation tasks.
- **Towards Eicient MaxBRNN Computation for Streaming Updates** (Mar. 2020 - Oct. 2020)
  - Propose a novel problem called streaming MaxBRNN in 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.
  - Devise 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 planner, data analysts).

Scholarships & Awards

- CIKM NSF Travel Award 2022
- Postgraduate Scholarship 2020–2024
- Outstanding Graduate in Department of Computer Science and Engineering & Shuli College 2020
- Outstanding Student Scholarship 2017–2019
- Outstanding Freshmen Scholarship 2016

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, C++, SQL
- **Tools:** Pytorch, Numpy, Jupyter

Languages

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