

# Wentao Ning

GitHub: [github.com/Stevenn9981](https://github.com/Stevenn9981)

Personal Website: [stevenn9981.github.io](https://stevenn9981.github.io)

Email Address: [nwt9981@connect.hku.hk](mailto:nwt9981@connect.hku.hk)

Telephone: (+852) 9671 8094 / (+86) 139 7980 5143

Research Interests: Recommender System, Data Mining

## EDUCATION

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**The University of Hong Kong (HKU)**

Ph.D. in Computer Science.

Hong Kong SAR

2020 – 2024 (Expected)

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

**Southern University of Science and Technology (SUSTech)**

B.Eng. in Computer Science and Technology. GPA: 3.73/4.00

Shenzhen, China

2016 – 2020

## INTERNSHIPS

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**TikTok, ByteDance**

Recommendation Algorithm Intern

Shanghai, China

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)**

Research Intern

Hong Kong SAR

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**

Site Reliability Engineer Intern

Dongguan, China

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

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1. **Wentao Ning**, Reynold Cheng, Xiao Yan, Ben Kao, Nan Huo, Nur Al Hasan Haldar, Bo Tang. **Debiasing Recommendation with Personal Popularity**. In WWW (TheWebConf) 2024.
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**, Qiangdong 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)*

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- **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, 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 Efficient 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

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| • 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 |
| • Outstanding Freshmen Scholarship   | 2016      |

## TEACHING

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

## SKILLS

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

## LANGUAGES

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