

# Wentao Ning

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Research Interests: Recommender System

## EDUCATION

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### The University of Hong Kong (HKU)

Ph.D. in Computer Science (HKU-SUSTech Joint PhD Program)

Hong Kong SAR

2020–2024 (Expected)

### 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

- Leverage different recommendation strategies to increase publish rate of TikTok creators.
  - \* Imitation Effect: Train a model using daily user-publish-video data to learn which kinds of videos that a user can create. 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 more unpopular videos to them to promote author publishing and prevent user losing.
  - \* Comment Incentives: Investigate the correlation between #comments authors received and #publications 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 17 instructing documents, 3 demo (database migration tool, monitoring interface customization, key data query and alarm service) and 5 improvement suggestions.

## RESEARCH PROJECTS (*I AM THE FIRST AUTHOR OF ALL BELOW PROJECTS*)

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- **Leverage Local and Global Popularity for recommendation** (Jun. 2022 - Feb. 2023; Submitted to SIGIR'23)
  - Analyze the limitations of existing popularity-aware methods that consider item popularity from a global perspective and propose local popularity to tackle these limitations.
  - Propose the LGP framework based on casual graphs to jointly utilize local and global popularity for recommendation, which is general and can adapt to different recommendation models and use cases.
- **Multi-domain Recommendation with Domain Disentangling and Alignment** (Feb. 2022 - Oct. 2022; Submitted to KDD'23)
  - Propose an embedding disentangling architecture for multi-domain recommendation, which explicitly disentangles inter-domain and intra-domain knowledge at the embedding level.
  - Formulate 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; Accepted by CIKM'22)

- 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; Accepted by ICDE'21)
    - 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; Accepted by VLDB'20)
    - 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).

## PUBLICATIONS

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1. **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 (CCF-B), 2022.
2. 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.
3. **Wentao Ning**, Xiao Yan, and Bo Tang. “Towards Efficient MaxBRNN Computation for Streaming Updates.” In ICDE (CCF-A), 2021.
4. **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 (CCF-A), 2020.

## SCHOLARSHIPS AND AWARDS

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|--------------------------------------------------------------------------|-----------|
| • Postgraduate Scholarship                                               | 2020–2024 |
| • Outstanding Graduate in Department of Computer Science and Engineering | 2020      |
| • Outstanding Graduate in Shuli College                                  | 2020      |
| • Outstanding UG Teaching Assistant                                      | 2019      |
| • 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, C++, SQL
- **Tools:** Pytorch, Numpy, Jupyter

## LANGUAGES

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