Wentao Ning

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Education

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

- HKU-SUSTech Joint PhD Program. Supervisors: Reynold Cheng (HKU), Bo Tang (SUSTech)
- Research Interests: Recommender System, Graph Neural Networks, Data Mining

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

- Thesis: "Public Transportation Scheduling Evaluation: A Data-Driven Approach"

Internship

TCL Corporate Research(HK) Co., Ltd — Hong Kong, China
Research Intern — Jun. - Aug., 2021

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

Huawei Technologies Co., Ltd. — Dongguan, China
Site Reliability Engineer Intern — Jul. - Aug., 2019

- Mainly engaged in monitoring system development. Implemented a load anomaly alert and email notification system.
- Completed 17 instructing documents, 3 demo (database migration tool, monitoring interface customization, key data query and alarm service) and 5 improvement suggestions.

Research Projects

- **Improving Multi-domain Recommendation with Disentanglement and Domain Alignment**
  - **This work was submitted to TheWebConf (WWW) 2023.**
  - Propose a disentangled graph neural network framework *DisGCN*, which can explicitly disentangle domain-specific and domain-independent features of users and items.
  - Propose a random walk-based domain alignment method to handle the over-fitting problem caused by the lack of data and better utilize the information from other domains, which further improves the performance of our model.
- **Automatic Meta-Path Discovery for Effective Graph-Based Recommendation**
  - **This work was accepted by CIKM 2022.**
  - 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**
  - **This work was accepted by ICDE 2021.**
  - 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. Our experiments show that *SlotP* is 2-3 orders of magnitude faster than state-of-the-art baselines.

- **CheetahVIS: A Visual Analytical System for Large Urban Bus Data.**
  - **This work was accepted by VLDB 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 in bus company) to conduct effective and efficient analytical tasks.

Publications

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 31st ACM International Conference on Information and Knowledge Management (**CIKM**), 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."** 2021 IEEE 37th International Conference on Data Engineering (**ICDE**), 2021.

4. **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."** Proc. VLDB Endow (**PVLDB**), 2020.

Scholarships and Awards

- 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 Students 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
  Operating System (CS302)
- **Teaching Assistant** at Southern University of Science and technology Fall 2019
  Object Oriented Analysis and Design (CS309)
- **Teaching Assistant** at Southern University of Science and technology Fall 2018
  Data Structure and Algorithm Analysis (B) (CS203B)

Academic Service

- **Reviewer / External Reviewer**
  - **AAAI 2022**: AAAI Conference on Artificial Intelligence
  - **ICDE 2022**: IEEE International Conference on Data Engineering
  - **SIGKDD 2021, 2022**: Conference on Knowledge Discovery and Data Mining
  - **CIKM 2021, 2022**: ACM International Conference on Information and Knowledge Management
  - **TKDE 2020**: IEEE Transactions on Knowledge and Data Engineering

Skills

- **Programming:** Python, Java, C++, SQL
- **Tools:** Pytorch, Numpy, Jupyter

Languages

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