

Haomin Wen

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Research Interests

Data Mining; Applied Machine Learning; Spatiotemporal Data Forecasting; Graph Neural Networks

Education

Now Oct 2022	National University of Singapore Joint Ph.D., School of Computing	Singapore
Now Sep 2019	Beijing Jiaotong University Ph.D. student in Computer Science (CS), Beijing Key Lab of Traffic Data Analysis and Mining	Beijing, China
June 2019 Sep 2015	Beijing Jiaotong University Bachelor of Computer Science (GPA: 91/100, Rank: 12/320)	Beijing, China

Publications

- [1] **Package Pick-up Route Prediction via Modeling Couriers' Spatial-Temporal Behaviors**
[Haomin Wen](#), Youfang Lin, Fan Wu, Huaiyu Wan, Shengnan Guo, Lixia Wu, Chao Song, Yinghui Xu
IEEE International Conference on Data Engineering (Published) [ICDE'21]
- [2] **DeepRoute+: Modeling Couriers' Spatial-Temporal Behaviors and Decision Preferences for Package Pick-up Route Prediction**
[Haomin Wen](#), Youfang Lin, Fan Wu, Huaiyu Wan, Shengnan Guo, Lixia Wu, Chao Song, Yinghui Xu
ACM Transactions on Intelligent Systems and Technology (Published) [TIST]
- [3] **Context-aware Distance Measures for Dynamic Networks**
Yiji Zhao, Youfang Lin, Zhihao Wu, Yang Wang and [Haomin Wen](#)
ACM Transactions on the Web (Published) [TWEB]
- [4] **Traffic Inflow and Outflow Forecasting by Modeling Intra- and Inter-Relationship between Flows**
Yiji Zhao, Youfang Lin, Yongkai Zhang, [Haomin Wen](#), Yunxiao Liu, etc.
IEEE Transactions on Intelligent Transportation Systems (Published) [TITS]
- [5] **Spatial-Temporal Position-aware Graph Convolutional Networks for Traffic Network Flows Forecasting**
Yiji Zhao, Youfang Lin, [Haomin Wen](#), etc.
IEEE Transactions on Intelligent Transportation Systems (Accepted) [TITS]
- [6] **Graph2Route: A Dynamic Spatial-Temporal Graph Neural Network for Pick-up and Delivery Route Prediction**
[Haomin Wen](#), Youfang Lin, Xiaowei Mao, Fan Wu, Yiji Zhao, Haochen Wang, Lixia Wu, Haoyuan Hu, Huaiyu Wan
KDD '22: ACM SIGKDD Conference on Knowledge Discovery and Data Mining (Accepted) [KDD'22]
- [7] **Modeling Spatial-Temporal Correlations and Uncertainty for Dynamic Wind Power Forecasting via PaddlePaddle**
Yiji Zhao, [Haomin Wen](#), Junhong Lou, Jinji Fu, Jianbin Zheng and Youfang Lin
KDD '22: ACM SIGKDD Conference on Knowledge Discovery and Data Mining, Workshop (Accepted) [KDD Workshop'22]
- [8] **GMDNet: A Graph-based Mixture Density Network for Estimating Packages' Multimodal Travel Time Distribution**
Xiaowei Mao, Huaiyu Wan, [Haomin Wen](#), Fan Wu, Jianbin Zheng, Yuting Qiang, Shengnan Guo, Lixia Wu, Haoyuan Hu, Youfang Lin
AAAI '23: Thirty-Seventh AAAI Conference on Artificial Intelligence (Accepted) [AAAI' 2023]
- [9] **Enough Waiting for the Couriers — Learning to Estimate Package Pick-up Arrival Time from Couriers' Spatial-Temporal Behaviors.**
[Haomin Wen](#), Youfang Lin, Fan Wu, Huaiyu Wan*, Zhongxiang Sun, Tianyue Cai, Hongyu Liu, Shengnan Guo, Jianbing Zheng, Chao Song, Lixia Wu.
ACM Transactions on Intelligent Systems and Technology (Published) [TIST 2023]
- [10] **Modeling Intra- and Inter-community Information for Route and Time Prediction in Last-mile Delivery.**
Yuting Qiang, [Haomin Wen](#), Lixia Wu, Xiaowei Mao, Fan Wu, Huaiyu Wan*, Haoyuan Hu.
ICDE '23: IEEE 39th International Conference on Data Engineering (Accepted) [ICDE' 2023]
- [11] **M2G4RTP: A Multi-Level and Multi-Task Graph Model for Instant-Logistics Route and Time Joint Prediction**
Tianyue Cai, Huaiyu Wan, Fan Wu, [Haomin Wen](#), Shengnan Guo*, Lixia Wu, Haoyuan Hu, Youfang Lin.
ICDE '23: IEEE 39th International Conference on Data Engineering (Accepted) [ICDE' 2023]

Competition

First Prize of ACM KDD Cup, 2022	Team Member	World Ranking: 5/2490 (regular track), 3/2490 (PaddlePaddle track)
First Prize of ACM 29th SIGSPATIAL Cup, 2021.	Team Adviser	World Ranking: 5/128
First Prize of 2nd IKCEST International Big Data Competition, 2020.	Team Member	World Ranking: 48/3023
Grand Prize of 4th “Changfeng Cup” Big Data Analysis and Mining, 2020.	Team Adviser	National Ranking: 1/662
First Prize of 1st IKCEST International Big Data Competition, 2019.	Team Member	World Ranking: 2/2312
Meritorious Winner of Mathematical Contest in Modeling, 2018.	Team Leader	World Ranking: Top 10%

Honors and Awards

First Prize Scholarship of Beijing Jiaotong University, 2021.	Top 5%
First Prize Scholarship of Beijing Jiaotong University, 2020.	Top 5%
National Scholarship, China, 2019.	Top %1

Academic & Patent Experience

Research Intern Experience

- > **AI Lab @ Alibaba Cainiao Network (June 2021 - Now):** Designed and trained a two-stage deep model to improve the accuracy of the Estimated Time of courier’s Arrival (ETA) prediction and the customer experience.
- > **AI Lab @ Alibaba Cainiao Network (June 2020 - Aug 2021):** Proposed and deployed a new deep model equipped with Transformer encoder and Pointer decoder to predict couriers’ future pick-up routes. (Achieves 73% in Hit-Rate@3)

Research Fund Experience

- > Fundamental Research Funds for Central Universities (*Successfully Application, Rank: Top 1%*).
- > CCF-Alibaba Innovative Research Funds (*Successfully Application*)

Patent Experience

- > As the second inventor of patent “A Method for Predicting Couriers’ Pickup Order Based on Deep Learning”.

Academic Activities

- > Attend the Alibaba Supply chain and operational research optimization conference (poster).
- > Attended the KDD Summer School in China & KDD2021 Pre-Conference (Jul 2021).
- > Invited to make a presentation as author in 37th IEEE International Conference on Data Engineering (Apr 2021).
- > Invited to give a talk “Intelligent Practice of Terminal Logistics Network” in [Swarma Club](#) (Jan 2021).
- > Attended the CCF Conference on Artificial Intelligence (CCFAI) (Aug 2019).

Academic Services

- > Sub-Reviewer: TITS, TIST.
- > Volunteer: WSDM’19, WWW’20, AAAI’20, KDD’20, KDD’21, TKDE, TIST, TITS.

Teaching Experience

Deep Learning, Teaching Assistant, BJTU Fall 2021

Machine Learning, Teaching Assistant, BJTU Fall 2021

Research Guidance, College Students’ Innovation Project, BJTU

- > Team Member: Zhongxiang Sun, Hongyu Liu, Chuang Zhao. Province-level (Top 20%), 2020-2021.
- > Team Member: Xinyi Zhang, Mingxuan Xia, Yuxuan Hu. Province-level (Top 20%), 2020-2021.
- > Team Member: Haochen Wang, Hao Hao, Bocheng Zhang. Province-level (Top 20%), 2020-2021.
- > Team Member: Wanen Gao, Yuxin Zheng, Zhilong Xu. National-level (Top 10%), 2021-2022.

Professional Skills

Programming | Python, C, C++, SQL, Shell

Tools&Packages | Pytorch, Linux, Latex, Git, Docker