# Haomin **Wen**

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## Research Interests

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

## Education

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| **Now**<br>**Sep 2019** | **Beijing Jiaotong University**<br>Ph.D. student in Computer Science (CS), Beijing Key Lab of Traffic Data Analysis and Mining | **Beijing, China** |
| **June 2019**<br>**Sep 2015** | **Beijing Jiaotong University**<br>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**
<u>Haomin Wen</u>, 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**
<u>Haomin Wen</u>, 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 <u>Haomin Wen</u>
*ACM Transactions on the Web (Published)*                    **[TWEB]**

**[4]** **Enough Waiting for Couriers — Learning to Estimate Package Pick-up Arrival Time from Couriers' Spatial-Temporal Behaviors**
<u>Haomin Wen</u>, Youfang Lin, Fan Wu, Huaiyu Wan, Lixia Wu, etc.
*ACM Transactions on Intelligent Systems and Technology (In Submission, Major revision)*                    **[TIST]**

**[5]** **Modeling Spatial-Temporal Constraints and Spatial-Transfer Patterns for Couriers' Package Pick-up Route Prediction**
<u>Haomin Wen</u>, Youfang Lin, Huaiyu Wan, Lixia Wu, Haoyuan Hu, etc.
*IEEE Transactions on Intelligent Transportation Systems (In Submission, Major revision)*                    **[TITS]**

**[6]** **Traffic Inflow and Outflow Forecasting by Modeling Intra- and Inter-Relationship between Flows**
Yiji Zhao, Youfang Lin, Yongkai Zhang, <u>Haomin Wen</u>, Yunxiao Liu, etc.
*IEEE Transactions on Intelligent Transportation Systems (Published)*                    **[TITS]**

**[7]** **Spatial-Temporal Position-aware Graph Convolutional Networks for Traffic Network Flows Forecasting**
Yiji Zhao, Youfang Lin, <u>Haomin Wen</u>, etc.
*IEEE Transactions on Intelligent Transportation Systems (In Submission, Major revision)*                    **[TITS]**

**[8]** **Graph2Route: A Dynamic Spatial-Temporal Graph Neural Network for Pick-up and Delivery Route Prediction**
<u>Haomin Wen</u>, 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]**

**[9]** **Modeling Intra- and Inter-community Information for Time and Route Prediction in Last-mile Parcel Delivery**
Yuting Qiang, <u>Haomin Wen</u>, Lixia Wu, Xiaowei Mao, Fan Wu, Huaiyu Wan and Haoyuan Hu
*WSDM '23: ACM International Conference on Web Search and Data Mining (In Submission)*                    **[WSDM'23]**

**[10]** **Modeling Spatial-Temporal Correlations and Uncertainty for Dynamic Wind Power Forecasting via PaddlePaddle**
Yiji Zhao, <u>Haomin Wen</u>, 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]**

## Competition

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| **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

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| **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 Experiencee**

> 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

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| **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

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| Programming | **Python, C, C++, SQL, Shell** |
| Tools&Packages | **Pytorch, Linux, Latex, Git, Docker** |