Yinquan WANG

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Work experiences

Data Scientist *2024.07-now*
R&D Department *Beijing Medical Health Large Model Co., Ltd.*
Main works: Industrial Internet, Operational Optimization, Deep Learning

Assistant engineer intern *2019.03-2019.06*
Traffic Information Center *Beijing Transportation Commission*
Main works: Formulate the "Specifications for Labeling Text Information of Transportation Video Images"

Education

Ph.D in System science *Beijing Jiaotong University*
Supervisor: Jianjun WU *September 2019 – June 2024*
Topic: Optimizing the order-dispatching process in the Ride-sourcing market based on reinforcement learning

Visiting student in Transportation Planning *Hiroshima University*
Co-supervisor: Junyi ZHANG, Tao Feng *May 2022 – June 2023*
Topic: Promoting collaborative dispatching in the ride-sourcing market with a third-party integrator

Master in Transportation Planning and Management *Beijing Jiaotong University*
Supervisor: Huijun SUN *September 2018 – June 2019 (continued as Ph.D candidate)*
Topic: Mining the patterns of human mobility based on airline tickets

Bachelor in Traffic Engineering *Qingdao University of Technology*
Bachelor *September 2014 – June 2018*

Publications

Promoting collaborative dispatching in the ride-sourcing market with a third-party integrator *2024*
First author *IEEE Transactions on Intelligent Transportation Systems*
DOI: 10.1109/TITS.2023.3348764.

Reinforcement learning-based order-dispatching optimization in ride-sourcing service *2024*
First author *Computers and Industrial Engineering*
DOI: 10.1016/j.cie.2024.110221.

Reassignment Algorithm of the Ride-Sourcing Market Based on Reinforcement Learning *2023*
First author *IEEE Transactions on Intelligent Transportation Systems*
DOI: 10.1109/TITS.2023.3274636.

Order dispatching optimization in ride-sourcing market by considering cross service modes *2023*
First author *Journal of Central South University*
DOI: 10.1007/s11771-022-5193-4.

Projects

Management Optimization and Intelligent Service of Car-Sharing under Big Data Environment *2020*
Key Participant *National Natural Science Foundation of China*

- Designed and implemented optimization algorithms for car-sharing service management using predictive analytics and big data.
- ***Coordinated the development of the data analysis platform***, defined functional module requirements, and established data interface specifications.
- ***Developed the platform user interface (UI) and backend API***, integrating advanced algorithms for real-time data processing and operational optimization.

Future Urban Transportation Management *2023*
Key Participant *National Natural Science Foundation of China*

- Developed a ***simulation platform*** for urban transportation systems under emergency scenarios, incorporating ***multi-modal transport models (metro, public-transit, road network)*** and dynamic control strategies.
- Implemented advanced simulation algorithms to evaluate travel patterns and network resilience under emergency road conditions and policy interventions.

Research on Matching Algorithms in Ride-Sourcing Considering Individual Heterogeneity *2021*
Principal Investigator *Beijing Jiaotong University Fund for Students*

- Designed ***a hybrid simulation framework*** combining reinforcement learning and individual behavior modeling, enabling optimized dispatching strategies for heterogeneous user preferences.
- Formulated advanced matching algorithms for ride-sourcing services, leveraging data-driven behavioral insights to enhance operational performance.

Software Development

Sharing Mobility Analysis, Regulation, and Track (SMART) Platform *2022*
Simulation and Track Platform *Developer*

Developed a comprehensive analysis tool integrating ride-sourcing, shared car, and shared bicycle data for trajectory analysis, demand forecasting, and data visualization.

UrbanSystemEmergency *2023*
Simulation and Track Platform *Developer*

Built a simulation platform to model urban transportation networks under emergencies and road control measures, focusing on multimodal transport flow and system resilience.

RideSourcingGym *2023*
Simulation, Training, and Test Environment *Developer*

Designed a reinforcement learning-based simulation environment to train and test advanced algorithms, including dispatch optimization, repositioning strategies, and dynamic pricing mechanisms.

Technical skills

Operations Research	cplex, DOcplex, Groubi
Deep Learning	Pytorch, Gym, Stable-baselines3
Data Science	Pandas, Numpy, Scipy, Scikit-learn, Spark, Hadoop
Visualization	Matplotlib, Echarts, seaborn, leaflet, Mapboxgl, Arcgis
Software Development	Django, JavaScript, React, Django REST Framework, Axios, Antdesign

Awards

National Second Prize	the Second Digital China Innovation Competition	*2022*
National Third Prize	Mathematical Contest in Modeling for Chinese Graduate Students	*2019*
First Prize	Beijing Jiaotong University Doctoral Scholarship	*2019,2020, 2021*