Buke Lyu

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Education

M.E. in Traffic and Transportation Planning and Management — Sept 2023 – Present
Beijing Jiaotong University, Beijing, China
- Second Class scholarship, 2023-2024

B.E. in Traffic Engineering, — Sept 2018 - June 2022
Beijing Jiaotong University, Beijing, China
- Third Class scholarship, 2018-2019

Publications

[1] Z. Liu, **B. Lv**, Z. Liu, et al. "Impact of Spatio-Temporal evolution of freeway networks on Socio-Economic Dynamics: A case study from Fujian, China." ***Transportation Research Part A: Policy and Practice***, vol. 198, 2025/08/01, doi: 10.1016/j.tra.2025.104521.

[2] (Accepted) Z. Liu, **B. Lv**, X. Fu, et al. "Analysis of Spatial Characteristics and Driving Factors of Urban Public Transportation Travel Based on Point of Interest Data." ***Railway Transport and Economy***, doi: 10.16668/j.cnki.issn.1003-1421.2024.00.01

Research Experiences

On-street parking management in urban road networks — April 2025 - present

- **Aims:**
  Explore the bidirectional relationship between on-street parking space management and transportation network equilibrium in the context of urban road networks.
- **Methodology:**
  1. A Bi-level programming model was proposed to capture the interaction between on-street parking space management decision(upper-level) and the resulting user equilibrium traffic assignment(lower level).
  2. Reformulated the problem as a single-level mathematical programming with equilibrium constraints by replacing the lower level with its KKT conditions.

Vitasoy beverage production advanced planning and scheduling — June 2025 - Aug 2025

- **Aim:**
  Develop schedule plans for Vitasoy beverage production line to meet business need, maintain inventory at optimal level, minimize production line changeover costs.
- **Methodology:**
  1. Penalty method were introduced to handle soft constraints such as inventory level and material production ratio.
  2. Lexicographic method were applied to solve the multi-objective problem.
- **Contribution:**
  Designed and implemented the optimization model, including parameters configuration, model implementation and solution.

Impact of Spatio-Temporal evolution of freeway networks on Socio-Economic Dynamics: A case study from Fujian, China — Oct 2023 - May 2025

- **Aim:**
  Explore the relationship between freeway network evolution and socio-economic dynamics.
- **Methodology:**
  Multiscale geographically and temporally weighted regression (MGTWR) was employed to quantify the economic stimulatory effects of freeway network evolution.
- **Contribution:**

Implemented the MGTWR model and co-authored the manuscript.

- **Achievements:**
  A paper published on ***Transportation Research Part A: Policy and Practice***.

Employment Experience

Algorithm Engineer Intern June 2025 – Aug 2025
UHAlean Information Technology (Shanghai) Co., Ltd – Beijing

- Designed and implemented a suite of demand forecasting algorithms for Shell plc oil products. Deployed algorithms included time-series methods (ARIMA, Exponential Smoothing) and machine learning algorithms (XGBoost).
- Engineered and implemented an advanced production scheduling plan for VitaSoy beverage production, formulated and solved a multi-objective optimization problem under real-world complex constraints.

Project Assistant May 2023 – Sept 2023
Beijing Zohetec Co., Ltd – Beijing

SKILLS

Programming Languages: Python, Java, Shell
Solver: Gurobi
Data Analysis: Python(pandas, numpy), SQL, IBM SPSS
GIS: ArcGIS, QGIS
DevOps&Tools: Git, Docker, Latex, Markdown
Operating system: Linux, Windows
Language: English(**IELTS 7.5**), Mandarin Chinese(Native)

Research Interests

Transportation network modeling and optimization
Convex optimization
Multi-objective optimization
Bi-level optimization
Spatio-Temporal Traffic Analysis